NRCA ROOFING MATERIALS REFERENCE & GUIDE

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Replace with
Volume 4 which will
be published in
February 1984

NATIONAL
ROOFING
CONTRACTORS
ASSOCIATION

8600 Bryn Mawr Avenue
Chicago Illinois 60631

Foreword

The ***NRCA ROOFING MATERIALS REFERENCE & GUIDE*** is published as a service to the roofing industry. The ***GUIDE*** is a comprehensive report containing technical data and other pertinent information on roofing and waterproofing membrane products and furnishes information on the manufacturers and suppliers of these products.

An objective of the ***GUIDE*** is to provide information on those product features which will prove helpful to the user in determining the generic type of membrane which will meet his needs and the listing of other data which will assist the user in choosing specific products. This information is of particular value to those associated with the design, specification, application and use of commercial roofing systems.

The range of information included in the ***GUIDE*** is extensive and includes facts relating to product usage, warranties, company background, etc. plus technical data relating to material properties.

The scope of materials covered by this ***GUIDE*** is presently limited to BUR multi-ply specifications (conventional multi-ply constructions and prefabricated modified bituminous multi-ply constructions) and those products generally referred to as sheet applied Single-Ply membranes.

The Volume III, October, 1983 issue of the ***GUIDE*** is a revised and expanded edition of the Volume II, June 1983 publication and supercedes this earlier issue. Volume III includes seventy two manufacturers and suppliers and presents data on products added to all generic categories.

The ***NRCA ROOFING MATERIALS REFERENCE & GUIDE*** program is a voluntary program and all manufacturers and suppliers of membrane materials may participate by submitting information on their company and on their products in accordance with the procedures developed for this purpose. For full details write: ***NATIONAL ROOFING CONTRACTORS ASSOCIATION, 8600 BRYN MAWR AVENUE, CHICAGO, IL 60631.***

The information contained in the ***GUIDE*** is a recording of data presented by manufacturers and suppliers through report forms provided by NRCA for this purpose. Only information submitted in accordance with these forms has been included in the ***GUIDE.***

NRCA has exercised due care in accurately recording the data as supplied by manufacturers and suppliers, but has not audited the test procedures used to secure the reported data and is not responsible for the accuracy or completeness of information as submitted.

The basis for "test results" appearing in the ***GUIDE*** are selected standards and criteria which are considered, for purposes of this program, to be the better ones available in the U.S. today. For multi-ply bituminous membrane products, the referenced documents fall into two categories: (1) ASTM material standards for the bituminous saturated reinforcing felts and (2) NBS BSS#55 Preliminary Performance Criteria for Bituminous Membrane Roofing—and includes performance parameters for tensile strength, thermal movement, and thermal shock.

The basis for "test results" relating to Single-Ply membrane products are Canadian General Standards Board (CGSB) standards. These standards were selected because they are the only **consensus** standards available in North America which cover a majority of Single-Ply products currently being marketed. The CGSB standards are: (1) 37-GP-52M (Prepublication Issue, October 1982) for Elastomeric membranes, (2) 37-GP-54M (January 1979) for Polyvinyl Chloride membranes and (3) 37-GP-56M (July 1980) for Modified Bituminous membranes. All CGSB standards are available from: Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Canada KIA 059

To provide a method of listing sheet applied Single-Ply products which are not described by the referenced CGSB standards, a list of 18 optional tests (extracted from CGSB standards 37-GP-52M and 37-GP-54M) are offered as a basis for listing these types of materials.

NOTE:
The listing (or non-listing) of a product (or manufacturer or supplier) in the *GUIDE* does not imply that NRCA approves the products nor recommends the use or non-use of any specific materials.

The fact that a material listed herein does or does not meet all of the values suggested by ASTM and Canadian standards or NBS BSS#55 criteria does not necessarily imply that it will or will not produce an acceptable roofing membrane.

NRCA does not develop standards but works toward and supports the improvement of existing standards and development of new standards by other consensus standards development organizations. As these new standards become available, the *NRCA ROOFING MATERIALS REFERENCE & GUIDE* will be updated to keep abreast of these state-of-the-art roofing standards activities by including the new standards and, where appropriate, replacing the old ones.

For listing purposes it is **not** mandatory that "test results" be provided for each of the test methods specified in the referenced standards and criteria, however, manufacturers and suppliers are encouraged to supply complete "test results" so that the users of the Guide may have access to this information. Succeeding issues of the ***GUIDE*** will permit the inclusion of additional test results as they are reported.

An important feature of the ***NRCA ROOFING MATERIALS REFERENCE & GUIDE*** program is comparative testing which NRCA will perform on listed materials. The testing of materials will be conducted in NRCA designated commercial laboratories and these test results will be printed in the ***GUIDE.*** The comparative data will supplement that supplied by manufacturers and suppliers and will be shown in future issues of the ***GUIDE*** in a contrasting color.

The ***GUIDE*** publication schedule thru 1984 is as follows:

Publication Month	**Closing Date**
February 1984	January 9, 1984
June 1984	May 9, 1984
October 1984	September 10, 1984

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Mail all subscriptions and inquiries to National Roofing Contractors Association, 8600 Bryn Mawr Avenue, Chicago, IL 60631.

NATIONAL ROOFING CONTRACTORS ASSOCIATION

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Table of Contents

Page

I. **Description of Built-Up-Roofing and Single-Ply sheet applied materials included in the *REFERENCE & GUIDE.*** A

II. **Definition of the TYPE, CLASS and GRADE of Single-Ply materials.** A

III. **Test Significance Statements** B

IV. **Index of Listed Roofing Membranes** C-G

V. **Page-locator for listed products:**

BUILT-UP ROOFING	Part 1 General Information	Part 2 Technical Information/ Test Results
CONVENTIONAL	**Pages 1-2**	**Pages 3-11**
1. Celotex	1	3
2. CertainTeed	1	3-4
3. Genstar	1	4
4. GAF	1	4-5
5. Koppers	1	6
6. Malarky	2	6
7. Manville	2	6-7-8
8. Mineral Fiber	2	8
9. Owens-Corning	2	8-9-10
10. Tamko	2	10-11
MODIFIED BITUMENS	**Pages 1-2**	**Pages 13-14**
1. Genstar	1	13
2. Hyload	1	13
3. Malarky	2	13-14
4. Nord Bitumi	2	14

SINGLE-PLY

MODIFIED BITUMENS	Pages 15-24	Pages 25-40
1. American Lubricants	15	25
2. American Roofing	15	25-26
3. Apache	15	26
4. Barrett	16	26
5. Bowe	16	26-27
6. CIB/Northeast Aluminum	16	28
7. Consolidated Prot. Ctgs.	16-17	28
8. Danosa Caribbean	17	28-29
9. Flex-Shield	17	29
10. Garland	18	30
11. Gedaco	18	30-31
12. Genstar	18	31
13. Guiana	19	32
14. Hey 'Di UPM	19	32
15. Hitchins	20	33
16. Hyload	20	33
17. Index SPA, Tech. Impermeabili	20	33-34
18. Kimmenade	20-21	34-35
19. J & P Petroleum	21	35
20. Malarky	21	35-36
21. Nord Bitumi	21	36
22. Owens-Corning	21-22	36
23. Royal Oil	22	36
24. Siplast	22	36-37-38
25. Southwestern Petroleum	22	38
26. Tamko	23	38
27. Teltex	23	38
28. Texas Refinery	23	38
29. Tropical	23	39
30. U.S. Intec	23	39
31. W.R. Grace	23-24	39-40
PVC	**Pages 41-44**	**Pages 45-50**
1. Alkor	41	45
2. Barra	41	45-46
3. Dynamit Nobel	41-42	46
4. General Tire	42	46
5. IPW Interplastic	42	47
6. Plymouth Rubber	42	47-48
7. PMS/Sucoflex	42	48
8. Rubber Plastics Compound	43	48
9. Sarnafil	43	48-49
10. U.S. Mineral	43-44	49-50
11. Wat-Pro	44	50

SINGLE-PLY	Part 1 General Information	Part 2 Technical Information/ Test Results
EPDM	**Pages 51-57**	**Pages 59-70**
1. American Hydrotech	51	59-60
2. Benoit	51-52	60-61
3. Carboline	52	61
4. Carlisle	52	62
5. Celotex	52-53	62
6. Dunlop Construction	53	62
7. Firestone	53	63
8. GAF	53-54	63-64
9. Gates	54	64
10. General Tire	54	64
11. Goodyear	54	64
12. Kelly	54-55	65-66
13. Kendall	55	66
14. Plymouth Rubber	55	66
15. Protective Coatings	55-56	66-67
16. Reeves	56	68
17. SYenergy	56	68
18. Wat-Pro	56	68
19. Weathergard	56-57	68-69-70
OTHER SINGLE-PLY PRE-FABRICATED SHEET APPLIED MEMBRANES	**Pages 71-74**	**Pages 75-80**
Neoprene		
1. Carlisle	71	75
2. Gates	71	75
3. Plymouth Rubber	71	76
4. Weathergard	71	76
CSPE Hypalon		
1. Burke	72	77
2. Central States	72	76
3. Dunlop	72	77
4. Kelly	72	76
PIB (Polyisobutylene)		
1. AGR	72	77
2. Carboline	72	77
3. Republic	72	78
4. Tropical	73	78
CPE (Chloronated Polyethylene)		
1. Alkor	73	78
2. Cooley	73	79
3. U.S. Mineral	73	79
Other Fabricated Sheet Applied Membranes		
1. Bond Cote	74	79
2. Duro-Last	74	79
3. Otto Fabric	74	79
4. Seal Dry	74	80
5. Seaman	74	80

Important Notes

I. **Some SI metric units** have been converted to English customary units which may be approximate conversions.

II. **Restricted Regions;** when a "Restricted Region" is indicated, refer to manufacturer's printed literature to determine geographic region boundaries.

III. **Warranty;** the manufacturer's printed literature should be referenced to determine the exact terms, limitations, conditions, exclusions and remedies offered under the material/installation warranty.

IV. **UL & FM;** UL fire resistance and FM wind resistance ratings are awarded on the basis of tests conducted on complete roofing assemblies, of which, the membrane is one component. UL Ratings and FM Approvals for specific membrane products, which have been tested in prescribed assemblies, may be determined by referencing the "UL Fire Resistance Directory" and the "FM Approval Guide."

Building codes often specify UL/FM performance ratings to which the roofing and waterproofing assembly must conform. Conformance of proposed assemblies to these specified ratings may be determined by referencing the documents referred to above.

Because of the limited space available in this publication it is impossible to list the specific roofing assembly components and attachment methods which have been utilized to secure UL or FM ratings. Therefore, all references as to whether a listed BUR specification or Single-Ply membrane has been awarded a UL or FM rating have been excluded from the *GUIDE*. This exclusion is to avoid the erroneous implication to the reader that such ratings are applicable for a material without regard to other components of the roofing assembly or the method of attachment. Refer to the "UL Fire Resistance Directory" and the "FM Approval Guide" to determine ratings which have been awarded for materials listed in this *GUIDE*.

Description of Built-Up-Roofing and Single-Ply Sheet Applied Membrane Materials

BUILT-UP BITUMINOUS MEMBRANES: a built-up bituminous membrane is the continuous semi-flexible component of a roof system whose primary function is the exclusion of water. The membrane consists of two or more alternate plies of felts, fabrics or mats which are often saturated and sometimes coated with bituminous materials, assembled in place and adhered to each other with alternate layers of bituminous products. Surfacing and parts of the substrate are not considered components of the membrane.

MODIFIED BITUMEN: are composite sheets consisting of a copolymer modified bitumen often reinforced and sometimes surfaced with various types of films, foils and mats.

MB: Modified Bitumen Composite Self-Adhering Sheet Membrane System. A cold-applied self-adhering composite sheet with modified bitumen and plastic film. The modified bitumen base layer may contain plasticizers and oils. The top surface sheet of polyethylene film serves as a protective barrier and base for the liquid protective coating. Thickness varies from 60 to 80 mils (1/16″ to 5/64″) depending on the manufacturer. The surfacing may be a special protective liquid coating, mineral granules or aggregates.

MB/R: Modified Bitumen Reinforced Composite Sheet Membrane System. A composite sheet with modified bitumen and reinforcing sheets normally located at the sheets mid-depth. The reinforcement may be plastic sheeting, polyethylene film, heavy polyester mat, glass fiber felt or fabric, or combination thereof. Surfacing may be a thin embossed metal, special protective coating, or mineral aggregate. They are generally heat-applied in the field. The modified asphalt generally contains block polymers or special plasticizers depending on manufacturer. Total membrane thickness may be as thick as 160 mils (5/32″). Application can be loose laid and ballasted or fully adhered.

THERMOPLASTIC: is a plastic like polymer consisting of any of various complex organic compounds produced by polymerization which are capable of being molded, extruded or cast into various shapes or films. Generally they are thermoplastic in nature i.e. they will soften when heated and harden when cooled. Examples are:

CPE: Chlorinated Polyethylene Roof Membrane System. Chlorinated Polyethylene consists of a cured chlorinated polyethylene polymer. These materials are available in sheet applied systems. The sheet materials generally have an inorganic fiber backing which facilitates handling and application. The thickness of the membrane is generally about 35 mils (1/32″) depending on manufacturer. Application can be fully adhered with hot asphalt or contact adhesive.

CSPE: Chlorosulfonated Polyethylene Roof Membrane System. Chlorosulfonated Polyethylene is a chlorinated polyethylene containing a small number of chlorosulphonyl groups produced by the simultaneous chlorination and sulfonation of high molecular weight, low density polyethylene. The chlorosulfonated polyethylene is available in both sheet and liquid forms. The sheet material generally has an inorganic fiber backing which facilitates handling and applications. Total membrane thickness is generally about 35 mils (1/32″) depending on the manufacturer. Application can be fully adhered with hot asphalt or contact adhesive.

ECB: Ethylene-Copolymer-Bitumen and Anthracite Microdust Roof Membrane System. ECB is a material without any plasticizers. Thickness varies from 30 to 60 mils (1/32″ to 1/16″) depending on manufacturer. Application can be loose laid with ballast, mechanically fastened or fully adhered.

PIB: Polyisobutylene Roof Membrane System. This material is a blend of polyisobutylene, EPDM and other synthetic rubbers. Thickness varies from 30 to 60 mils (1/32″ to 1/16″) depending on manufacturer. Application can be loose laid with ballast, partially adhered or mechanically fastened.

PVC: Polyvinyl Chloride Roof Membrane System. A membrane composed of single-ply sheets that are made of polyvinyl chloride (PVC). PVC is a polymer, synthesized from vinyl chloride, that is thermoplastic in nature and contains plasticizers and stabilizers. Thickness varies from 32 to 60 mils (1/32″ to 1/16″) and reinforcement may be added with the use of fabric or fibers depending on manufacturer. Application can be loose laid and ballasted, fully adhered or mechanically fastened.

ELASTOMERIC: is a rubber like synthetic polymer that will stretch when pulled and will return quickly to its original shape when released. Examples are:

EPDM: Ethylene Propylene Diene Monomer Roof Membrane System. A single-ply sheet composed of synthetic rubber. Thickness varies from 30 to 60 mils (1/32″ to 1/16″). In some cases the sheet is reinforced with fabric or fibers. EPDM sheets *cannot* be solvent or heat welded. The sheet laps are joined together by contact adhesive. Application can be loose laid and ballasted or fully adhered.

NEOPRENE: Polychloroprene Roof Membrane Systems. A membrane composed of single-ply sheets or synthetic rubber consisting of polymers or chloroprene. This particular synthetic rubber has good resistance to petroleum oils, solvents and weathering. Some formulations require a protective coating of Hypalon (chlorosulfonated polyethylene) to retard weathering. Thickness varies from 30 to 120 mils (1/32″ to 1/8″) depending on manufacturer. This system can be employed in an inverted roof assembly. Application can be loose laid and ballasted or fully adhered.

Type, Class and Grade of Single-Ply Products as Defined by CGSB Standards

MODIFIED BITUMEN (CGSB STANDARD 37-GP-56M)

Type	1.	For exposed roofing application
	1.a.	Fully adhered
	1.b.	Partially adhered
Type	2.	For covered roofing application
	2.a.	Fully adhered
	2.b.	Partially adhered
	2.c.	Loose laid
Class	A.	Granule surfaced
	B.	Metallic surfaced
	C.	Plain surfaced
Grade	1.	Standard service
	2.	Heavy duty service

POLYVINYL CHLORIDE (CGSB STANDARD 37-GP-54M)

Type	1.	Nonreinforced membrane
	2.	Reinforced membrane
Class	A.	Non-exposed membrane
	B.	Exposed membrane

ELASTOMERIC (CGSB STANDARD 37-GP-52M)

Type	1.	Nonreinforced membrane
	2.	Reinforced membrane
Class	A.	For exposed use
	B.	For non-exposed use

Test Significance Statements Relating to Test Requirements Specified in Referenced Preliminary NBS BSS #55 Criteria and Canadian CGSB Standards

Built-Up Roofing (BUR); NBS BSS#55 Preliminary Criteria	Modified Bitumens; CGSB Standard 37-GP-56M	Polyvinyl Chloride; CGSB Standard 37-GP-54M	Elastomeric; CGSB Standard 37-GP-52M	
•	•	•	•	**1. BREAKING STRENGTH, TENSILE STRENGTH, STRENGTH OF MEMBRANE** Indicates the ability of a membrane material to resist stresses induced by thermal changes, moisture content changes, substrate movements and the like. Many roofing membranes are of an anisotropic nature, hence they are tested in both machine and across-machine directions.
•				**2. THERMAL EXPANSION** A fundamental property of a material which expresses the amount of dimensional change a material will undergo when subjected to a temperature change. Generally, a membrane having the lower values are the more forgiving to thermal movements imposed in service.
•				**3. THERMAL SHOCK FACTOR** A numerical value calculated from three properties of a membrane; tensile strength, thermal expansion and load-strain modulus. It expresses the resistance of a membrane to withstand large (50-100°F) and rapid (a few hours) temperature drops to subfreezing temperatures. Generally the higher the value, the more resistant the membrane is to these large and rapid temperature changes.
	•	•		**4. THICKNESS**
•	•	•		**5. LAP JOINT STRENGTH** Indicates the ability of both factory made and field made lap joints to remain watertight. The boiling water exposure test gives some indication of the durability of the lap joint.
•	•	•		**6. ULTIMATE ELONGATION, ELONGATION AT BREAK** A measure of the ability of a membrane to stretch without rupture when it is subjected to loads imposed by building movements, moisture and thermal changes, wind vibrations and the like.
•	•	•		**7. LOW TEMPERATURE FLEXIBILITY** Indicates the ability of a membrane to resist stresses applied during application at low temperatures as well as flexural loads experienced under service conditions including wind induced vibrations.
•	•	•		**8. RESISTANCE TO ACCELERATED WEATHERING** A measure of effects of radiation, heat and moisture on the membrane. Like other accelerated aging test procedures, no numerical ratio has been established between time and performance in weather-o-meter and time and performance in service.
	•	•		**9. WATER ABSORPTION** An indication of the moisture absorption characteristics of a membrane material when exposed to areas where water collects and stands. Further, this test procedure measures the property (strength and elongation) changes which occur due to moisture content of the membrane.
•				**10. WATER RESISTANCE** The resistance of a membrane to absorb moisture where water collects and stands, an indicator of dimensional change due to the absorbed moisture.
	•			**11. LOW TEMPERATURE IMPACT** A measure of the relative resistance of membranes to withstand the impact of falling objects (icicles, tree branches, etc.) or other sudden dynamic impacts at subfreezing temperatures.
•		•		**12. DYNAMIC IMPACT** A measure of the ability of a membrane to resist the impact of falling objects without harming the water tight integrity of the membrane.
•				**13. STATIC PUNCTURING** A measure of the ability of a membrane to resist slowly applied and constant loads over some period of time.
•	•			**14. WATER VAPOR TRANSMISSION, PERMEABILITY** A measure of the ability of a membrane to transmit moisture as vapor when a vapor pressure difference exists across the membrane. In some cases a high value is desireable while in others a low value is preferred.
•				**15. GRANULE EMBEDMENT** A measure of the ability of mineral aggregate (granules) to adhere to a membrane when exposed to such abrasive conditions as walking, wind and rain erosion, and the like. Applies to granule surfaced products only.
•				**16. THERMAL STABILITY** Measure of the ability of a membrane to resist dimensional change due to thermal cycles experienced in service.
•				**17. CRACK BRIDGING CAPABILITY** A measure of the ability of a membrane to resist the stresses imposed by slowly moving joints in a substrate due to moisture and thermal changes as well as mechanical movements.
•				**18. LOAD-STRAIN PRODUCT (1bf x %) (N x %)** A mathematical attempt to indicate the contribution of the two properties working in concert to the performance of the membrane. Difficult to interpret in terms of performance in service.
	•	•		**19. RESISTANCE TO HEAT AGING** Allegedly an accelerated aging test to measure the rate of deterioration of such membrane properties as strength and elongation when exposed to ambient roof conditions.
•				**20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION** A measure of the ability of membrane materials to resist shrinkage or growth after placement on the roof when inherent stresses such as those induced during the manufacturing or application process or by imposed loads during service and relieved. Due to the anisotropic behavior of most membranes, different values are given for each direction.
•				**21. CONE PENETRATION** A measure of the ability of a membrane to resist punctures caused by ordinary roof conditions such as aggregate penetration, walking and the like.
	•			**22. DIMENSIONAL STABILITY AFTER WATER ABSORPTION** A measure of the resistance of a membrane to dimensional change such as shrinkage or growth when exposed in roof areas where water collects and stands.
	•			**23. TENSILE SET** The ability of an elastomeric (rubber like) membrane to recover its original dimensions after stretching.
	•			**24. OZONE RESISTANCE** A measure of the serviceability of a rubber like membrane when exposed to outdoor conditions especially in an urban environment.
	•			**25. TEAR RESISTANCE, TEARING STRENGTH** A measure of the resistance of a membrane under stress to the propagation of slight imperfections to proportions which may destroy the watertight integrity of the membrane.

THE CGSB STANDARDS REFERENCED IN THIS PROGRAM SPECIFY VALUES WHICH ARE APPROPRIATE FOR VARIOUS TESTS WHEN CONDUCTED IN ACCORDANCE WITH THE PRESCRIBED TEST PROCEDURES. SOME OF THESE TEST PROCEDURES REPRESENT AD HOC TEST METHODS AND SOME ARE ASTM TEST PROCEDURES. WHERE APPLICABLE, THE APPROPRIATE ASTM PROCEDURE IS NOTED WITHIN THE CGSB STANDARD.

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Index of Listed Roofing Membranes

Manufacturer or Supplier	BUILT-UP ROOFING		SINGLE-PLY							
	Conventional	**Modified Bitumens**	**Modified Bitumens**	**PVC** Polyvinyl Chloride	**EPDM** Ethylene Propylene Diene Monomer	**NEOPRENE** Polychloroprene	**CSPE HYPALON** Chlorosulfonated Polyethylene	**PIB** Polyisobutylene	**CPE** Chlorinated Polyethylene	**Other**
1. AGR Company **2702 Pearl Road** **Brunswick, OH 44212** **216/225-4524**								Alphagard		
2. Alkor Division of the Solvay American Corp. **609 Fifth Avenue** **New York, NY 10017** **212/935-5458**				Alkorplan					Alkorflex 35093 Alkorflex 35094 Alkorflex 35096	
3. American Hydrotech, Inc. **541 N. Fairbanks Court** **Chicago, IL 60601** **312/337-4998**					Hydro-Seal .045 Black Hydro-Seal .045 White Hydro-Seal .060 Black Hydro-Seal .060 White					
4. The American Lubricants Co. **1227 Deeds Avenue** **Dayton, OH 45401** **800/543-9720**			Tiffany							
5. American Roofing Corp. **P.O. Box 1516** **Des Plaines, IL 60018** **312/692-7701**			ARC Standard ARC Aluminum ARC Premium ARC Granular							
6. Apache Bldg. Products Co. **2025 E. Linden** **Linden, NJ 07036** **201/486-6723**			SAM							
7. Barra Corp. of America **190 Fairfield Avenue** **W. Caldwell, NJ 07006** **800/526-2291** **201/226-2136**				Rhenofol C-45 Rhenofol C-52 Rhenofol CV40 Rhenofol CV48						
8. The Barrett Company **901 Washington Street** **Wilmington, DE 19801** **800/647-0100**			Ram-Tough Cariphalte 200 Ram-Tough Cariphalte 306							
9. Benoit Inc. **635 North Prior** **St. Paul, MN 55104** **800/328-1436**					Benoit EPDM I White Benoit EPDM I Sunshield Benoit .045 EPDM II-Black Benoit .045 EPDM II White Benoit .060 EPDM II Black Benoit .060 EPDM II White					
10. Bond Cote Systems **3rd Street** **Pulski, VA 24301** **703/980-2262**										Nitrite Alloy Bond Grey 35
11. Bowe Co., Inc. **219 Saddle River Road** **Saddle Brook, NJ 07662** **201/845-5900**			Dibiten Poly-5 Dibiten Poly-4 Dibiten Fiber-4 Dibiten Poly-4 Granular							
12. Burke Rubber Company **2250 South 10th Street** **San Jose, CA 95112** **408/297-3500**							Burkeline M-341 Burkeline M-356			
13. Carboline Building Products **350 Hanley Industrial Ct.** **St. Louis, MO 63144** **314/644-1000**					Carboline EPDM 450 Carboline EPDM 600			PIB 1000		
14. Carlisle SynTec Systems **P.O. Box 7000** **Carlisle, PA 17013** **717/245-7000**					Sure-Seal EPDM	Sure-Seal Neoprene				
15. The Celotex Corporation **1500 N. Dale Mabry** **Tampa, FL 33607** **813/871-4811**					Celo-1 Type I Celo-1 Type II Celo-1 Type III					
16. Central States Assoc. Corp. **P.O. Box 65504** **West Des Moines, IA 50265** **515/224-4771**							Uniroof			
17. CertainTeed **Box 860** **Valley Forge, PA 19482** **215/687-5000**	•									

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Index of Listed Roofing Membranes *continued*

Manufacturer or Supplier	BUILT-UP ROOFING		SINGLE-PLY							
	Conventional	**Modified Bitumens**	**Modified Bitumens**	**PVC** Polyvinyl Chloride	**EPDM** Ethylene Propylene Diene Monomer	**NEOPRENE** Polychloroprene	**CSPE HYPALON** Chlorosulfonated Polyethylene	**PIB** Polyisobutylene	**CPE** Chlorinated Polyethylene	**Other**
18. CIB/Northeast Aluminum Corp. **5858 E. Molloy Rd.** **Syracuse, NY 13211** **315/455-7077**			Alpogum Decor Alpogum Roc							
19. Consolidated Prot. Coatings Corp. **1801 E. 9th Street** **Cleveland, OH 44114** **800/321-7886**			Conso-Gard Conso-Gard II							
20. Cooley Rfg. Systems Inc. **50 Eastern Avenue** **Pawtucket, RI 02860** **401/724-0490**									Cool Top 40	
21. Danosa Caribbean, Inc. **Box 13757** **Santurce Station** **San Juan, PR 00908** **809/785-4545**			Glasdan R-36 Esterdan R-36 Glasdan AL-80 Esterdan RM							
22. Dunlop Construction Products Inc. **2055 Flavelle Blvd.** **Mississauga, Ont.** **Canada, L5K 1Z8** **416/823-8200**					Dunseal .045 Dunseal .060		Dunsel Hypalon			
23. Durolast Roofing, Inc. **525 Morley Drive** **Saginaw, MI 48601** **1-800/248-0280** **1-517/753-2186**										Trimeric Polymer Coated Polyester Duro-last
24. Dynamit Nobel **10 Link Drive** **Rockleigh, NJ 07647** **201/767-1660**				Trocal SMA Trocal S-60 Trocal S-48						
25. Firestone Industrial Prods. **1700 Firestone Blvd.** **Noblesville, IN 46060** **800/428-4442**					Rubbergard .045 Rubbergard .060					
26. Flex-Shield Corp **636 W. Commerce** **Gilbert, AZ 85234** **602/892-9320**			F.A.R. Mark II							
27. The Garland Co., Inc. **3800 E. 91st Street** **Cleveland, OH 44105** **216/641-7500**			Stress Ply Pitch Ply							
28. Gates Engineering Co., Inc. **100 South West Street** **Wilmington, DE 19899** **302/656-9951**					Gaco System I EPDM-45 Mils Gaco System I EPDM-60 Mils	Gaco System II Neoprene-Black Gates System II Neoprene-Gray				
29. Gedaco Ltd. **Via Busse 23** **Roverchiara (VR)** **Italy 37050** **39-442-74288** **Factory Representative** **6 Atlas Court** **Huntington, NY** **516/271-2767**			Gedagom Polyester S.B. Gedagom Polyester Gedagom Velo Vetro Gedagom Velo Vetro Extra Gedagom Granipol Gedagom Granivel							
30. General Tire & Rubber Co. **Building Products Division** **P.O. Box 875** **Toledo, OH 43696-0815** **419/729-3731**				GenSeal ACR	GenFlex ACR					
31. Genstar Building Mat'ls Co. **580 Decker Drive** **Irving, TX 75062** **214/659-9800**	•	•	Flintlastic							
32. The Goodyear Tire & Rubber Company **1144 E. Market St.** **Akron, OH 44316-0001** **216/796-4421**					Versigard .045 Versigard .060					
33. Guaina Corp. of America & Polypren Roofing of Amer. **P.O. Box 405** **Paramus, NJ 07652** **201/445-8876**			Guaina Polyglass Guaina Polyglass Alum. Guaina Polyglass Polyester Guaina Polyglass Granular Guaina Polypren							

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Index of Listed Roofing Membranes *continued*

Manufacturer or Supplier	BUILT-UP ROOFING		SINGLE-PLY							
	Conventional	**Modified Bitumens**	**Modified Bitumens**	**PVC** Polyvinyl Chloride	**EPDM** Ethylene Propylene Diene Monomer	**NEOPRENE** Polychloroprene	**CSPE HYPALON** Chlorosulfonated Polyethylene	**PIB** Polyisobutylene	**CPE** Chlorinated Polyethylene	**Other**
34. GAF Corporation **140 West 51st Street** **New York, NY 10021** **212/621-5000**	•				Gafply EP Ballasted Gafply EP Fully Adhered					
35. Hey'Di U.P.M. **2801 Crusader Circle** **Va. Beach, VA 23456** **804/468-2200**			Hey'DI ECB							
36. Hitchins Amer. Inc. **P.O. Box 3449** **Longwood, FL 32750** **305/869-5110**			Nuralite							
37. Hyload, Inc. **1006 McKnight Park Drive** **Pittsburgh, PA 15237** **412/367-0633**		•	Hyload 150E							
38. Index SPA **Technologie Impermeabili** **Via G. Rossini, 22** **37060 Castel d'Azzano** **Verona, Italy** **Tel. 045/512233-r.a.** **Telex 341146 INDEX-1**			Testudo 4 Mineral Testado 4,5 Helasta/P4 Mineral Helasta P4,5 Defend 4 Mineral Defend 4,5							
39. IPW Interplastic **156 Ludlow Avenue** **Northvale, NJ 02021** **201/767-8073**				Interoof "U" Interoof "B"						
40. Kelly Energy Systems Inc. **P.O. Box 2583** **Waterbury, CT 06723** **203/575-9220**					Whaleskin/81 C-EPDM Whaleskin/81 White C-EPDM Whaleskin/81 White EPDM Whaleskin/81 EPDM Whaleskin/81 Talc Free EPDM		Great White Hypalon White Great White Hypalon Black			
41. Kendall Company Polyken Roofing Systems **One Federal Street** **Boston, MA 02101** **617/423-2000**					Polyken M-45 Polyken M-60					
42. The Kimmenade Corp. **12820 Pennridge Drive** **St. Louis, MO 63044** **314/739-4594**			Duralasta P Duralasta M							
43. Koppers **1050 Koppers Building** **Pittsburgh, PA 15219** **412/227-2000**	•									
44. Herbert Malarky Roofing Company **3131 N. Columbia Blvd.** **Portland, OR 97217** **503/283-1191**	•	•	MHP Polyester Cap MHP Glass Cap							
45. Manville Bldg. Mat'ls Corp. **P.O. Box 5108** **Ken-Caryl Ranch** **Denver, CO 80217** **303/978-2000**	•									
46. Mineral Fiber Mfg. Corp. **P.O. Box 356** **313 South Sixth Street** **Cosh Octon, OH 43812** **614/622-2645**	•									
47. Nord Bitumi U.S., Inc. **960 S. Springfield Ave.** **Springfield, NJ 07081** **201/467-8669**		•	Poly 4							
48. Otto Fabric, Inc. **P.O. Box 18361** **Wichita, KS 67218** **316/686-2010** **800/835-3347**										Otto Single-Ply STR
49. Owens-Corning Fiberglas Corp. **Fiberglas Tower** **Toledo, OH 43659** **419/248-8000**	•		Owens-Corning Derbigum HPS Owens-Corning Derbigum SP							
50. Plymouth Rubber Co., Inc. **104 Revere Street** **Canton, MA 02021** **617/828-0220**				Plyroof PVC Grey Plyroof PVC White	Plyseal EPDM	Plyshield Neoprene				

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Index of Listed Roofing Membranes *continued*

Manufacturer or Supplier	BUILT-UP ROOFING		SINGLE-PLY							
	Conventional	**Modified Bitumens**	**Modified Bitumens**	**PVC** Polyvinyl Chloride	**EPDM** Ethylene Propylene Diene Monomer	**NEOPRENE** Polychloroprene	**CSPE HYPALON** Chlorosulfonated Polyethylene	**PIB** Polyisobutylene	**CPE** Chlorinated Polyethylene	**Other**
51. J & P Petroleum Products **P.O. Box 4206** **Dallas, TX 75208** **214/291-1591**			Aquashield 2001 AD							
52. Protective Coatings, Inc. **1602 Birchwood Avenue** **Fort Wayne, IN 46803** **219/422-7503**					Superoof-Black Superoof-White Superoof-Gray Superoof-White Fire Retardent					
53. PMS/Sucoflex **21203 Hawthorne Blvd.** **#5083** **Torrance, CA 90503** **213/320-3142**				Sucoflex F-132 Sucoflex F-127						
54. Reeves Bros., Inc. **P.O. Box 1531** **Spartanburg, SC 29304** **803/576-9210**					Reevetech					
55. Republic Powdered Metals **2628 Pearl Road** **Medina, OH 44256** **216/225-3192**								Geoflex		
56. Royal Oil Company **P.O. Box 646** **Ft. Worth, TX 76101** **817/332-7001**			Royal							
57. Rubber & Plastics Compound, Inc. **3615 23rd Street** **Long Island City, NY 11106** **212/392-6780**				Nervaply Nervaply UB						
58. Sarnafil (U.S.), Inc. **Canton Commerce Building** **P.O. Box 380** **Canton, MA 02021** **617/828-5400**				Sarnafil G21-410 Sarnafil G21-442 Sarnafil S21-327						
59. Seal-Dry/USA, Inc. **Box 719** **Pontiac, MI 48056** **313/333-2590**										Seal-Dry, 30 mils Seal-Dry, 34 mils
60. Seaman Corporation **102B N. Washington Street** **Millersburg, OH 44654** **216/674-0121**										Polyester Reinforced EPA Fibertite
61. Siplast, Inc. **Hwy. 67 South** **Arkadelphia, AR 71923** **501/246-8094**			Veral (Alum. Faced) Veral (Stain/Steel Faced) Veral (Copper Faced) Parafor-50 Paradiene-30 Paradiene-20							
62. SYenergy Methods, Inc. **1367 Elmwood Avenue** **Cranston, RI 02910** **401/467-2600**					SMI Rubber Roof Black SMI Rubber Roof White					
63. SWEPCO **534 North Main Street** **Ft. Worth, TX 76101** **817/332-2336**			SWEPCO Uni + Shield							
64. Tamko **220 West 4th Street** **Joplin, MO 64801** **417/624-6644**	•	•	Awaplan							
65. Teltex, Inc. **Commerce Drive** **N. Branford, CT 06471** **800/243-6258**			Rhoflex							
66. Texas Refinery Corp. **One Refinery Place** **Ft. Worth, TX 76101** **817/332-1161**			Mightyplate							
67. Tropical Industrial Coatings, Inc. **P.O. Box 444** **Brunswick, OH 44212** **216/273-2564** **1-800/321-8353**			Tropiseal					Tropigard		
68. U.S. Intec Inc./BRAI **P.O. Box 2845** **1212 Brai Drive** **Port Arthur Drive** **Port Arthur, TX 77640** **713/724-7024**			BRAI SP4							

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Index of Listed Roofing Membranes

Manufacturer or Supplier	BUILT-UP ROOFING		SINGLE-PLY							
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69. U.S. Mineral Products Corp. **Furnace Street** **Stanhope, NJ 07874** **201/347-1200**				Flexhide 34 Flexhide 45 Flexhide LR50					Flexhide CPE	
70. W.R. Grace & Co. **62 Whittemore Avenue** **Cambridge, MA 02130** **617/876-1400**			GRM-120 GRM-230 GRM-350 GRM-500							
71. Wat-Pro, Inc. **P.O. Box 336** **Manasquan, NJ 08736** **201/528-6727**				Flagon SF Flagon C	Agaper-E					
72. Weathergard Roofing Systems, Inc. **P.O. Box 17824** **Memphis, TN 38117** **901/458-2222**					.045 Weathergard Black - Fire Retardant .055 Weathergard Black - Fire Retardant .060 Weathergard Black-Fire Retardant .045 Weathergard Black .055 Weathergard Black .060 Weathergard Black .045 Weathergard White .060 Weathergard White	.045 Weathergard Neoprene .060 Weathergard Neoprene				

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BUILT-UP ROOFING Part 1 *(See Part 2 for Technical Information)*

Celotex
1500 N. Dale Mabry
Tampa, FL 33607
813/871-4811

1. **# REGIONAL SERVICE LOCATIONS:** 6
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Ship to Distributors and Direct to Roofers
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** Refer to current Celotex Built-Up Roofing, Waterproofing & Dampproofing Systems Manual in Sweets.
7. **SALES INFORMATION CONTACT:** A.G. Spingler
8. **TECHNICAL INFORMATION CONTACT:** S.A. Funk
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Celo-Glass IV	D-2178-81A - Type IV	■ PASS □ FAIL
Vaporbar GB	NA	□ PASS □ FAIL
Celo-Glass Specification Ply	NA	□ PASS □ FAIL
Channel Vent GB	D-3672-81 Type II	■ PASS □ FAIL
Vaporbar Base Sheet	D-2626-81 Type I	■ PASS □ FAIL
Tarred Felt	D-277-81	■ PASS □ FAIL
Vented Vaporbar Base Sheet	D-2626-81 TYPE I	■ PASS □ FAIL
No. 15 Asphalt Felt	D-226-81 Type I	■ PASS □ FAIL

CertainTeed Corporation
750 East Swedesford Road
Valley Forge, PA 19482
215/687-5000

1. **# REGIONAL SERVICE LOCATIONS:** 4
2. **LICENSED APPLICATOR AGREEMENT** □ YES ■ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Ship to Distributors and Direct to Roofers
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** (1) 3CG-GSW, 4CG-GSW and 4CG-SSW; May not be applied to light-weight concrete decks. (2) All roofs must have positive drainage (roof clear in 24 hours). (3) See Commercial Roofing Systems catalog for further information.
7. **SALES INFORMATION CONTACT:** Regional Sales Office
8. **TECHNICAL INFORMATION CONTACT:** Dr. Michael J. Noone (Blue Bell, PA)
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Certaglass Ply Sheet	D-2178-81a Type IV	■ PASS □ FAIL
No. 15 Perforated Asphalt Felt	D226-81 Type I	■ PASS □ FAIL
Roofers Base Sheet	D2626-81	■ PASS □ FAIL

GAF Corporation
140 W. 51st St.
New York, NY 10020
212/621-5000

1. **# REGIONAL SERVICE LOCATIONS:** 14
2. ***LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Wholesalers
5. **PREFORMED ACCESSORIES AVAILABLE** ■ YES □ NO
6. **LIMITATIONS OR RESTRICTED USE:** Refer to GAF Gafglas catalog
7. **SALES INFORMATION CONTACT:** District Sales Office
8. **TECHNICAL INFORMATION CONTACT:** District Sales Office
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Gafglas Ply 4	D-2178 Type IV	■ PASS □ FAIL
Gafglas Ply 3	D-2178 Type III	■ PASS □ FAIL
Gafglas Mineral Surfaced Cap Sheet	D-3909	■ PASS □ FAIL
Gafglas #75 Base Sheet**	No ASTM Standard	□ PASS □ FAIL
Gafglas Base & Ply Sheet**	No ASTM Standard	□ PASS □ FAIL
Gafglas Stratavent (Vent Ply) Perforated	D-3672	■ PASS □ FAIL
Gafglas Stratavent (Vent Ply) for nailable decks	No ASTM Standard	□ PASS □ FAIL

*Qualified Applicators
**Meets Federal Specification SS-R-620B Type III

Genstar Building Materials Company
580 Decker Drive
Irving, TX 75062
214/659-9800

1. **# REGIONAL SERVICE LOCATIONS:**
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Independent or Company Owned
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** See Commercial Roofing Systems Specif. Manual
7. **SALES INFORMATION CONTACT:** Don R. Hughes & C.T. Derry
8. **TECHNICAL INFORMATION CONTACT:** Don R. Hughes & C.T. Derry
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
All Weather Flaxine Base Sheet	D2626-80	■ PASS □ FAIL
Empire Base Sheet	D3158-78	■ PASS □ FAIL
Flintglas Base Sheet	None	□ PASS □ FAIL
Flintglas Ply Sheet	D2178-81a	■ PASS □ FAIL
Flintglas Cap Sheet	D3909-81	■ PASS □ FAIL
No. 15 Saturated Felt	D226-76	■ PASS □ FAIL
No. 90 Yosemite MS Buffer Sheet	D228-69	■ PASS □ FAIL

10. **MODIFIED BITUMINOUS PREFABRICATED MEMBRANE TEST DATA:**

Trade Name	Applicable CGSB Standard	(1)
Flintlastic MS Cap Sheet	37-GP-56M	□ PASS □ FAIL

Hyload, Inc.
1006 McKnight Park Drive
Pittsburgh, PA 15237
412/367-0633

1. **# REGIONAL SERVICE LOCATIONS:** 4
2. **LICENSED APPLICATOR AGREEMENT** □ YES ■ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Various
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** None
7. **SALES INFORMATION CONTACT:** Alex W. Harkness
8. **TECHNICAL INFORMATION CONTACT:** Roger Bonafont
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)

10. **MODIFIED BITUMINOUS PREFABRICATED MEMBRANE TEST DATA:**

Trade Name	Applicable CGSB Standard	(1)
Hyload 150E	37-GP-56M	□ PASS □ FAIL

Koppers Company, Inc.
1050 Koppers Building
Pittsburgh, PA 15219
412/227-2000

1. **# REGIONAL SERVICE LOCATIONS:** 7
2. **LICENSED APPLICATOR AGREEMENT** □ YES ■ NO
3. **APPLICATOR TRAINING** ■ FIELD ■ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Direct & Distributor
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** ½" per foot as maximum allowable slope
7. **SALES INFORMATION CONTACT:** Regional Sales Office
8. **TECHNICAL INFORMATION CONTACT:** Regional Sales Office
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
No. 15 Tarred Felt	D-227	■ PASS □ FAIL

(1) Indicates PASS/FAIL status as determined by appropriate standards.

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BUILT-UP ROOFING Part 1 *(See Part 2 for Technical Information)*

Malarkey Roofing Co.
P.O. Box 17217
Portland, Oregon 97217
503/283-1191

1. **# REGIONAL SERVICE LOCATIONS:**
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Distributors
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES □ NO
6. **LIMITATIONS OR RESTRICTED USE:** Refer to Malarkey Built-Up Roofing Systems Manual
7. **SALES INFORMATION CONTACT:** Jack Clenaghen
8. **TECHNICAL INFORMATION CONTACT:** Tom Kelly
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Premium Ply	D-2178 Type IV	■ PASS □ FAIL
Premium Cap	D-3909	■ PASS □ FAIL
Hi Performance Base	None	□ PASS □ FAIL
Hi Performance Cap	None	□ PASS □ FAIL

Manville Building Materials Corp.
Ken-Caryl Ranch, P.O. Box 5108
Denver, CO 80217
303/978-2784

1. **# REGIONAL SERVICE LOCATIONS:** 8
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD ■ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:**
5. **PREFORMED ACCESSORIES AVAILABLE** ■ YES □ NO
6. **LIMITATIONS OR RESTRICTED USE:**
7. **SALES INFORMATION CONTACT:** A.D. Sowers
8. **TECHNICAL INFORMATION CONTACT:** V. Graco
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Glasply	D-2178-81a	■ PASS □ FAIL
GlasBase	None	□ PASS □ FAIL
Planet II	None	□ PASS □ FAIL
GlasKap	D3909-81	■ PASS □ FAIL
Ventsulation	D3672-81	■ PASS □ FAIL
Centurion	D250-81 Type IV	■ PASS □ FAIL

Mineral Fiber Mfg. Corp.
P.O. Box 356
Coshocton, OH 43812
614/622-2645

1. **# REGIONAL SERVICE LOCATIONS:**
2. **LICENSED APPLICATOR AGREEMENT** □ YES ■ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Manufacturers/Reps.
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES □ NO
6. **LIMITATIONS OR RESTRICTED USE:**
7. **SALES INFORMATION CONTACT:** Robert S. Simpson
8. **TECHNICAL INFORMATION CONTACT:** Tom King
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Duraply IV	D2178-81 Type IV	■ PASS □ FAIL
Durabase	None	□ PASS □ FAIL
Polyply	None	□ PASS □ FAIL

(1) Indicates PASS/FAIL status as determined by appropriate standards.

Nord Bitumi U.S., Inc.
960 S. Springfield Ave.
Springfield, N.J. 07081
201/467-8669

1. **# REGIONAL SERVICE LOCATIONS:** To be selected
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD □ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Wholesale Distribution
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** Do not apply when moisture is present on roof deck
7. **SALES INFORMATION CONTACT:** John J. Butler
8. **TECHNICAL INFORMATION CONTACT:** John J. Butler
9. **FELTS TEST DATA:**

10. **MODIFIED BITUMINOUS PREFABRICATED MEMBRANE TEST DATA:**

Trade Name	Applicable CGSB Standard	(1)
Poly 4	37-GP-56M	□ PASS □ FAIL

Owens-Corning Fiberglas
Fiberglas Tower
Toledo, OH 43659
419/248-7766

1. **# REGIONAL SERVICE LOCATIONS:** Throughout U.S.A.
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** ■ FIELD ■ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Roofing Distributors/Roofing Contractors
5. **PREFORMED ACCESSORIES AVAILABLE** ■ YES □ NO
6. **LIMITATIONS OR RESTRICTED USE:** Refer to latest edition of OCF Built-up Roofing Product & Systems Catalog
7. **SALES INFORMATION CONTACT:** Local Branch Office
8. **TECHNICAL INFORMATION CONTACT:** Local Branch Office
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Perma Ply-R	D-2178-81A - Type IV	■ PASS □ FAIL
Perma Ply No. 28	None	□ PASS □ FAIL
Perma Ply No. 28 (P)	None	□ PASS □ FAIL
Perma Cap	D3909-81	■ PASS □ FAIL
Perma Ply No. 11	D-2178-81A - Type III	■ PASS □ FAIL
Perma Plus-2 IPS	D-2178-81A - Type IV	■ PASS □ FAIL
Perma Plus-2 IPS	D-2178-81A - Type IV	■ PASS □ FAIL

Tamko Asphalt Products, Inc.
220 West 4th Street
Joplin, MO 64801
417/624-6644

1. **# REGIONAL SERVICE LOCATIONS:** 8
2. **LICENSED APPLICATOR AGREEMENT** ■ YES □ NO
3. **APPLICATOR TRAINING** □ FIELD ■ SEMINARS □ FACTORY
4. **METHOD OF DISTRIBUTION:** Distributors
5. **PREFORMED ACCESSORIES AVAILABLE** □ YES ■ NO
6. **LIMITATIONS OR RESTRICTED USE:** Yes
7. **SALES INFORMATION CONTACT:** Jerry Pearman
8. **TECHNICAL INFORMATION CONTACT:** W. Kent Blanchard
9. **FELTS TEST DATA:**

Trade Name	Applicable ASTM Standard	(1)
Tri-Six	D226-81 Type III	■ PASS □ FAIL
Type 15 Perf.	D226-81 Type I	■ PASS □ FAIL
Type 30 Perf.	D226-81 Type II	■ PASS □ FAIL
Type 43 Base	D2626-81	■ PASS □ FAIL
Tam-Glass	D2178-81a	■ PASS □ FAIL
Tam Cap	D3909-80	■ PASS □ FAIL
Vapor Chan	D3672-81 Type II	■ PASS □ FAIL
Glass-Base	None	□ PASS □ FAIL
Vent-Ply	None	□ PASS □ FAIL

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer	CELOTEX												CERTAIN-TEED		
Specification Number	80-GA-1-W	80-GA-1-C	80-GA-2-W	80-GA-2-C	140-W	140-C	340-W	340-C	83-GP-1-W	83-GP-1-C	82-SP-1-W	82-SP-1-C	4CG-GSW	3CG-GSW	4CG-SSW
1. DECK TYPE															
a. NAILABLE	●		●		●		●		●		●		●	●	●
b. INSULATED		●		●		●		●		●		●			
c. NON—NAILABLE		●		●		●		●		●		●			
2. SLOPE															
a. 0″-½″					●	●			●	●	●	●	●	●	●
b. ½″-3″	●	●					●	●					●	●	●
c. 3″-6″			●	●											●
3. PLIES															
a. TOTAL	4	3	4	4	4	4	4	4	4	3	4	3	4	3	4
b. BASE	1		1		1	1	1	1	1		1				
c. INTERPLY	3	3	3	4	3	3	3	3	3	3	3	3		3	
d. CAP															
4. FELTS															
a. FIBERGLASS	●	●	●	●					●	●	●	●	●	●	●
b. ORGANIC					●	●	●	●							
c. ASBESTOS															
d. POLYESTER															
e. OTHER															
5. INTERPLY BITUMEN															
a. ASPHALT	●	●	●	●			●	●	●	●	●	●	●	●	●
b. COAL TAR					●	●			●	●	●	●			
6. SURFACE															
a. AGGREGATE (LBS. PER SQ. FT)	400	400			400	400	400	400	400	400	400	400	3,4, 4.5*	3,4, 4.5*	
b. SMOOTH-ASPHALT			●	●											
-COAL TAR															
c. EMULSION — CUT BACK			●	●											●
d. CAP SHEET															
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)															
a. AGGREGATE	6.0	5.8			6.3	6.5	6.1	6.3	6.0	5.8	5.6	5.7	5.8	5.5	
b. SMOOTH			1.7	2.0											
c. EMULSION-CUT BACK															1.4
d. CAP SHEET															
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None	None	None	None	None	None	None	A,B	A,B	A,B
9. YR. OF FIRST COMMER'L INSTALLATION	1980	1980	1980	1980	1962	1962	1962	1962	1983	1983	1982	1982	1975	1975	1975
10. TEST RESULTS (PER BSS #55)															
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD													335	222	335
— NOT LESS THAN 200 lb./in. @ 0°F—XD													311	218	311
b. ■ THERMAL EXPAN. — NOT EXCEED 40 x 10^{-6}/°F @ 0° to -30°F—MD				CELOTEX DOES NOT ENDORSE BSS #55 AS A PERFORMANCE CRITERIA FOR BUR SYSTEMS. ALL LISTED SYSTEMS HAVE A MINIMUM TENSILE STRENGTH AT 0°F OF MORE THAN 200 LBS/IN.								25	22	25
— NOT EXCEED 40 x 10^{-6}/°F @ 0° to -30°F—XD													25	24	25
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD													640	705	640
— NOT LESS THAN 100°F—XD													500	615	500
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)													2	1,2	1,2
12. WARRANTY *(See "Important Notes")*															
a. DURATION (YEARS)	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5
b. RENEWABLE AFTER INSPECTION													●	●	●
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)	●	●	●	●	●	●	●	●	●	●	●	●			
MATERIAL ONLY															
WORKMANSHIP AND MATERIAL													●	●	●
d. MONETARY LIMITATION															
NONE															
ORIGINAL COST OF INSTALLATION															
$ PER SQUARE	30	30	30	30	30	30	30	30	30	30	30	30	●	●	●
e. EXCLUSION FROM COVERAGE															
DAMAGE TO OTHER COMPONENTS													●	●	●
CONSEQUENTIAL DAMAGES													●	●	●
13. UL FIRE RESISTANCE *(See "Important Notes")*															
14. FM WIND RESISTANCE *(See "Important Notes")*															

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

CERTAINTEED CORPORATION											GENSTAR BUILDING MATERIALS CO.												GAF *continued→*			
RB-315 GSW	4CG-GSI	3CG-GSI	4CG-SSI	3CG-GSI	415-GSI	4CG-GSC	3CG-GSC	4CG-SSC	3CG-SSC	415-GSC	AAA1-1	AAA2-1	AAA3-1	AAA4-1	AAA5-1	AAAA6-1	A-1-M-1	A-2-M-1	A-3-M-1	A-4-M-1	MC-3R-1	MW-3R-1	105 G	105 S	104 G	104 S-B
●												●		●		●		●		●		●				
	●	●	●	●	●						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
						●	●	●	●	●	●		●		●		●		●		●		●	●	●	●
●	●	●	●	●	●	●	●	●	●	●													●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●	●	●	●
			●	●				●	●								●	●	●	●	●	●		●		●
4	4	3	4	3	4	4	3	4	3	4	3	3	3	3	4	4	4	4	4	4	3	3	4	4	4	4
1											3	3	3	3	1	1	1	1	1	1	1	1			1	1
3	4	3	4	3	4	4	3	4	3	4					3	3	2	2	2	2	2	2	4	4	3	3
																	1	1	1	1						
	●	●	●	●		●	●	●	●				●	●			●	●	●	●	●	●	●	●	●	●
●					●					●	●	●			●	●	●	●			●	●				
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3,4, 4.5*	3,4, 4.5*	3,4, 4.5*			3,4, 4.5*	3,4, 4.5*	3,4, 4.5*			3,4, 4.5*	4	4	4	4	4	4							4,3*		4,3*	
				●					●															●		●
			●	●				●	●												●	●		●		●
																	●	●	●	●						
6.3	6.1	5.7			6.2	6.1	5.7			6.2	6	6	6	6	6	6							6		6	
				1.2					1.2															2		2
			1.6	1.2				1.6	1.2												2	2		2		2
																	2	2	2	2						
	A,B	A,B	A,B	A,B		A,B	A,B	A,B	A,B		None	None	None	None	None	None	None	None	None	None	1	1	None	None	None	None
1920	1975	1975	1975	1976	1920	1975	1975	1975	1976	1920													1974	1974	1974	1974
498	335	222	335	222	425	335	222	335	222	425																
290	311	218	311	218	313	311	218	311	218	313																
5	25	22	25	22	23	25	22	25	22	23																
21	25	24	25	24	26	25	24	25	24	26																
3520	640	705	640	705	700	640	705	640	705	700																
990	500	615	500	615	790	500	615	500	615	790																
2	2	2	2	2	2	2	2	2	2	2																
	5	5	5	5		5	5	5	5		20	20	20	20	20	20	20	20	20	20	20	20	10	10	5	
	●	●	●	●		●	●	●	●																5	
																							●	●		
	●	●	●	●		●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●			●	
	●	●	●	●		●	●	●	●		20	20	20	20	20	20	20	20	20	20	20	20	10	20	25	
	●	●	●	●		●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	●	●	●	●		●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

"Genstar is currently 'in test' under BSS #55 and other criteria"

*Slag = 3 lbs./sq. ft.; Gravel = 4 lbs./sq. ft.

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer	GAF														
Specification Number	103 G	103 G-B	103 S	103 S-B	103 M	103 M-B	102 M	106 G	104 GN	104 SN	103 GN	103 SN	103 MN	101 MN	106 GN
1. DECK TYPE															
a. NAILABLE										●	●	●	●	●	●
b. INSULATED	●	●	●	●	●	●	●	●							
c. NON—NAILABLE	●	●	●	●	●	●	●	●							
2. SLOPE															
a. 0″-½″	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. ½″-3″	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
c. 3″-6″			●	●	●	●	●			●		●	●	●	
3. PLIES															
a. TOTAL	3	3	3	3	4	4	3	3	4	4	3	3	4	3	3
b. BASE		1		1		1			1	1	1	1	1	1	1
c. INTERPLY	3	2	3	2	3	2	2	3	3	3	2	2	2	1	2
d. CAP					1	1	1						1	1	
4. FELTS															
a. FIBERGLASS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
b. ORGANIC															
c. ASBESTOS															
d. POLYESTER															
e. OTHER															
5. INTERPLY BITUMEN															
a. ASPHALT	●	●	●	●	●	●	●		●	●	●	●	●	●	
b. COAL TAR								●							●
6. SURFACE															
a. AGGREGATE (LBS. PER SQ. FT)	4,3*	4,3*						4,3*	4,3*		4,3*				4,3*
b. SMOOTH-ASPHALT			●	●						●		●			
-COAL TAR															
c. EMULSION — CUT BACK			●	●						●		●			
d. CAP SHEET					●	●	●						●	●	
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)															
a. AGGREGATE	6	6						6	6		6				6
b. SMOOTH			2	2						2		2			
c. EMULSION-CUT BACK			2	2						2		2			
d. CAP SHEET					3	3	2						3	2	
8. RESTRICTED REGIONS *(See "Important Notes")*	None	N	N	N	N	N	N & S	None	None	None	None	N	N	N & S	None
9. YR. OF FIRST COMMER'L INSTALLATION	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974
10. TEST RESULTS (PER BSS #55)															
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD															
— NOT LESS THAN 200 lb./in. @ 0°F—XD															
b. ■ THERMAL EXPAN. — NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—MD					*GAF: "Not an accepted industry standard."*										
— NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—XD															
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD															
— NOT LESS THAN 100°F—XD															
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)															
12. WARRANTY *(See "Important Notes")*															
a. DURATION (YEARS)															
b. RENEWABLE AFTER INSPECTION															
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)					*All three types of warranty are available for all specifications.*										
MATERIAL ONLY															
WORKMANSHIP AND MATERIAL															
d. MONETARY LIMITATION															
NONE															
ORIGINAL COST OF INSTALLATION															
$ PER SQUARE															
e. EXCLUSION FROM COVERAGE															
DAMAGE TO OTHER COMPONENTS															
CONSEQUENTIAL DAMAGES															
13. UL FIRE RESISTANCE *(See "Important Notes")*															
14. FM WIND RESISTANCE *(See "Important Notes")*															

*Slag = 3 lbs./sq. ft.; Gravel = 4 lbs./sq. ft.; Crushed Stone = 4.5 lbs./sq. ft.

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

KOPPERS				MALARKY ROOFING COMPANY													MANVILLE *continued →*								
220	210			IG4	NG4	IG3	NG3	UG4	IM4	NM4	IM3	NM3	UM4	IS4	NS4	NS3	US4	GF-4GIS	GF-4GNS	GF-3GIS	GF-3GNS	GF-4GIG	GF-3GIG	GF-4GNG	GF-3GNG	GF-4GLG
	•				•		•			•		•			•	•			•		•			•	•	•
•				•		•		•	•		•		•	•			•	•		•		•	•			
•				•		•			•		•			•				•		•		•	•			
•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
									•	•	•	•	•	•	•	•	•	•	•	•	•					
4	4			4	4	3	3	4	4	4	3	3	4	4	4	3	4	4	4	3	3	4	3	4	3	4
	1				1		1	1		1		1	1		1	1	1				1			1	1	1
4	3			4	3	3	2	3	3	2	2	1	2	4	3	2	3	4	4	3	2	4	3	3	2	3
									1	1	1	1	1													
				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•																									
				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•																									
4	4			4	4	4	4	4														4	4	4	4	4
														•	•	•	•	•	•	•	•					
														•	•	•	•	•	•	•	•					
									•	•	•	•	•													
6	6			6	6	5.5	5.5	6														5	4.5	4.6	4.5	4.6
														1.7	1.6	1.3	1.6	1.6	1.3	1.1	1					
														1.7	1.6	1.3	1.6	1.6	1.3	1.1	1					
									2.1	2.2	1.8	1.9	2													
None	None			None	None	2,3	2,3	None	None	None	3	3	None	None	None	2,3	None				2 & 3				2 & 3	
1928	1928			1981	1981	1981	1981	1983	1981	1981	1981	1981	1983	1982	1982	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983
468																										
265																										
19.3																										
29.5																										
360																										
120																										
				10	10	5	5	10	10	10	5	5	10	10	10	5	10	10	10	10	10	10	10	10	10	5
				•		•	•				•	•		•		•	•									
•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
				•										•												
					50	35	35	50	50	50	35	35	50		50	35	50	75	60	50	50	75	50	60	50	35
				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•
				•	•	•	•	•	•	•	•	•	•	•	•	•	•									

This data was derived from an NBS test of a 4 ply coal tar BUR system and presented in their report Preliminary Performance Criteria for Bituminous Membrane Roofing BSS #55.

These roofing systems, when applied in strict accordance with Koppers specifications and subject to their evaluation can be guaranteed for periods up to 20 yrs — see "IMPORTANT NOTES" in this Guide.

"Manville does not endorse BSS #55 as a proven performance criteria for Built-Up Roofing Systems. Manville Research Engineers are currently working to establish a performance criteria for Built-Up Roofing which can realistically be used to predict actual performance expectations."

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer	MANVILLE														
Specification Number	GF-3GLG	GF-4GIC	GF-4GNC	GF-3GIC	GF-3GNC	3GNC	4GIS	4GNS	3GIS	3GNS	4GIG	3GIG	4GNG	3GNG	4GLG
1. DECK TYPE															
a. NAILABLE	●		●		●	●		●		●			●	●	●
b. INSULATED		●		●			●		●		●	●			
c. NON—NAILABLE		●		●											
2. SLOPE															
a. 0"-½"	●	●	●	●	●		●	●	●	●	●	●	●	●	●
b. ½"-3"	●	●	●	●	●		●	●	●	●	●	●	●	●	●
c. 3"-6"		●	●	●	●		●	●	●	●					
3. PLIES															
a. TOTAL	3	4	4	3	3	3	4	4	3	3	4	3	4	3	4
b. BASE	1		1			1		1		1			1	1	1
c. INTERPLY	2	3	2	2	2	1	4	3	3	2	4	3	3	2	3
d. CAP		1	1	1	1	1									
4. FELTS															
a. FIBERGLASS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. ORGANIC															
c. ASBESTOS															
d. POLYESTER															
e. OTHER															
5. INTERPLY BITUMEN															
a. ASPHALT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. COAL TAR															
6. SURFACE															
a. AGGREGATE (LBS. PER SQ. FT)	4										4	4	4	4	4
b. SMOOTH-ASPHALT							●	●	●	●					
-COAL TAR															
c. EMULSION — CUT BACK															
d. CAP SHEET		●	●	●	●	●									
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)															
a. AGGREGATE	4.5										6	5.5	5.5	5	6
b. SMOOTH							1.7	1.0	1.4	1.2					
c. EMULSION-CUT BACK							1.7	1.0	1.4	1.2					
d. CAP SHEET		2	2	1.8	1.7	1.7									
8. RESTRICTED REGIONS *(See "Important Notes")*	2 & 3			3	3	3				2, 3				2, 3	2, 3
9. YR. OF FIRST COMMER'L INSTALLATION	1983	1983	1983	1983	1983	1980	1976	1978	1980	1980	1978	1978	1978	1980	1980
10. TEST RESULTS (PER BSS #55)															
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD							404	357	310	288	404	310	357	288	
— NOT LESS THAN 200 lb./in. @ 0°F—XD							351	343	331	247	351	331	343	247	
b. ■ THERMAL EXPAN. — NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—MD			*"Manville does not endorse BSS #55 as a proven performance criteria for Built-Up Roofing Systems. Manville Research Engineers are currently working to establish a performance criteria for Built-Up Roofing which can realistically be used to predict actual performance expectations."*												
— NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—XD															
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD															
— NOT LESS THAN 100°F—XD															
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)															
12. WARRANTY *(See "Important Notes")*															
a. DURATION (YEARS)	5	10	10	10	10	10	20	20	10	10	20	10	20	10	10
b. RENEWABLE AFTER INSPECTION						●	●		●	●	●	●		●	
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)															
MATERIAL ONLY															
WORKMANSHIP AND MATERIAL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
d. MONETARY LIMITATION															
NONE							●	●	●		●	●	●		
ORIGINAL COST OF INSTALLATION															
$ PER SQUARE	35	75	60	50	50	75				75				75	75
e. EXCLUSION FROM COVERAGE															
DAMAGE TO OTHER COMPONENTS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CONSEQUENTIAL DAMAGES															
13. UL FIRE RESISTANCE *(See "Important Notes")*															
14. FM WIND RESISTANCE *(See "Important Notes")*															

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

continued→

MANVILLE				MINERAL FIBER MFG. CO.								OWENS-CORNING FIBERGLAS													
3GLG	4GIC	4GNC	3GIC	43-GAW	43-GSW	43-GAC	43-GSC	52-PAW	52-PSW	52-PSC	52-PAC	23-TG	23-TC	33-TS	33-FG	33-FC	43-FS	33-IS	43-NG	22-IS	22-IG	22-IC	3P-IG	4P-IG	3P-XG	33-IG
•		•		•	•			•	•											•	•	•				
	•		•			•	•			•	•	•	•	•	•	•	•	•					•	•		•
						•	•			•	•														•	
•												•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•
		•			•		•						•	•		•	•	•		•		•				
3	4	4	3	4	4	3	4	3	3	2	2	2	3	3	3	4	4	3	4	2	2	3	3	4	3	3
1		1		1	1			1	1						1	1	1		1	1	1	1			1	
2	3	2	2	3	3	3	4	2	2	2	2	2	2	3	2	2	3	3	3	1	1	1	3	4	2	3
	1	1	1										1													
•	•	•	•	•	•	•	•					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
								•	•	•	•															
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•
																							•	•	•	
4				4		4		4			4	4			4				4		4		4	4	4	4
					•		•							•			•	•		•						
					•		•		•	•				•			•	•		•						
	•	•	•										•			•						•				
5.5	2.2	2.1		6	2	6	2	5	2	2	6	5.5			5.5				6		5.5		6	6.5	6	5.5
														1.5			1.5	1.5		1.2						
														1.5			1.5	1.5		1.2						
			1.9										2			2						2				
2, 3			3									1	1	1												
1980	1978	1978	1978	1976	1976	1976	1976	1982	1982	1982	1982	1965	1965	1965	1965	1965	1965	1965	1965	1982	1982	1962	1973	1973	1973	1965
												166	166	226	226	226	264	238	283	233	233	233	216	316	216	238
												198	198	224	224	224	356	321	320	232	232	232	263	442	263	321
												23.3	23.3	17.4	17.4	17.4	19.9	19.7	19.1	24.8	24.8	24.8	17.4	20.4	17.4	19.7
												24.0	24.0	13.6	13.6	13.6	17.5	12.9	25.2	13.1	13.1	13.1	13.2	14.4	13.2	12.9
												663	663	663	928	928	685	661	670	753	753	753	754	652	754	661
												645	645	645	1332	1332	1038	1294	616	1704	1704	1704	959	705	959	1294
5	20	20	5									10	10	10	10	10	10	10	10	10	10	10	10	20	10	10
•			•																							
•	•	•	•									•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•										•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
35			35																							
•	•	•	•									•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
												•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer — **OWENS-CORNING FIBERGLAS**

Specification Number	43-IG	33-IC	43-IC	43-IS	33-XG	33-XC	43-XS	33-NG	33-NC	43-NS	30-IG	30-IC	40-IS	20-TG	20-TC
1. DECK TYPE															
a. NAILABLE								●	●	●					
b. INSULATED	●	●	●	●							●	●	●	●	●
c. NON—NAILABLE					●	●	●								
2. SLOPE															
a. 0″-½″	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. ½″-3″	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
c. 3″-6″		●	●	●		●	●		●	●		●	●		●
3. PLIES															
a. TOTAL	4	4	5	4	3	4	4	3	4	4	3	4	4	2	3
b. BASE															
c. INTERPLY	4	3	4	4	3	3	4	3	3	4	3	3	4	2	2
d. CAP		1	1			1			1			1			1
4. FELTS															
a. FIBERGLASS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. ORGANIC															
c. ASBESTOS															
d. POLYESTER															
e. OTHER															
5. INTERPLY BITUMEN															
a. ASPHALT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. COAL TAR															
6. SURFACE															
a. AGGREGATE (LBS. PER SQ. FT)	4				4			4			4			4	
b. SMOOTH-ASPHALT				●			●			●			●		
-COAL TAR															
c. EMULSION — CUT BACK				●			●			●			●		
d. CAP SHEET		●	●			●			●			●			●
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)															
a. AGGREGATE	6				5.5			5.5			5.5			5.5	
b. SMOOTH				1.5			1.5			1			1.5		
c. EMULSION-CUT BACK				1.5			1.5			1			1.5		
d. CAP SHEET		2	2.4			2			2			2			2
8. RESTRICTED REGIONS *(See "Important Notes")*											1,2	1,2	1,2	1,2	1,2
9. YR. OF FIRST COMMER'L INSTALLATION	1965	1965	1965	1965	1965	1965	1965	1965	1965	1965	1959	1959	1959	1959	1959
10. TEST RESULTS (PER BSS #55)															
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD	337	238	337	337	238	238	337	238	238	337					
— NOT LESS THAN 200 lb./in. @ 0°F—XD	431	321	431	431	321	321	431	321	321	431					
b. ■ THERMAL EXPAN. — NOT EXCEED 40×10^{-6}/°F @ 0° to −30°F—MD	19.0	19.7	19.0	19.0	19.7	19.7	19.0	19.7	19.7	19.0					
— NOT EXCEED 40×10^{-6}/°F @ 0° to −30°F—XD	15.2	12.9	15.2	15.2	12.9	12.9	15.2	12.9	12.9	15.2					
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD	725	661	725	725	661	661	725	661	661	725					
— NOT LESS THAN 100°F—XD	1174	1294	1174	1174	1294	1294	1174	1294	1294	1174					
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)															
12. WARRANTY *(See "Important Notes")*															
a. DURATION (YEARS)	20	10	20	20	10	10	10	10	10	10	20	20	20	20	20
b. RENEWABLE AFTER INSPECTION															
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)															
MATERIAL ONLY											●	●	●	●	●
WORKMANSHIP AND MATERIAL	●	●	●	●	●	●	●	●	●	●					
d. MONETARY LIMITATION															
NONE	●	●	●	●	●	●	●	●	●	●					
ORIGINAL COST OF INSTALLATION															
$ PER SQUARE											20	20	20	20	20
e. EXCLUSION FROM COVERAGE															
DAMAGE TO OTHER COMPONENTS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CONSEQUENTIAL DAMAGES	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13. UL FIRE RESISTANCE *(See "Important Notes")*															
14. FM WIND RESISTANCE *(See "Important Notes")*															

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

OWENS-CORNING FIBERGLAS											
30-TS	30-XG	30-XC	40-XS	30-NG	30-NC	40-NS	30-IS	30-FG	30-FC	40-FS	40-NG
				•	•	•					•
•							•	•	•	•	
	•	•	•								
•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•
•		•	•		•	•	•		•	•	
3	3	4	4	3	4	4	3	3	4	4	4
				1	1	1		1	1	1	1
3	3	3	4	2	2	3	3	2	2	3	3
		1			1				1		
•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•
	4			4				4			4
•			•			•	•			•	
•			•			•	•			•	
		•			•				•		
	5.5			5.5				5.5			6
1.5			1.5			1	1			1.5	
1.5			1.5			1	1			1.5	
		2			2				2		
1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
1959	1959	1959	1959	1959	1959	1959	1959	1959	1959	1959	1959
20	20	20	20	20	20	20	20	20	20	20	20
•	•	•	•	•	•	•	•	•	•	•	•
20	20	20	20	20	20	20	20	20	20	20	20
•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•

TAMKO *continued →*													
301	401	403	412	501	502	503	504	505	506	512	513	514	515	516
			•							•	•	•	•	•
•	•	•		•	•	•	•	•	•					
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•		•			•		•	•	•	
3	4	4	4	3	4	4	3	4	4	4	3	4	4	4
	1		1						1	1	1	1	1	1
3	3	4	3	3	3	4	3	4	3	2	2	3	3	3
					1					1				
				•	•	•	•	•	•	•	•	•	•	•
•	•	•	•											
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4	4	4	4	4		4			4		4	4	4	
							•	•						•
							•	•						•
					•					•				
6	6.5	6	6	6		6			6		6	6	7	
							1.5	2						1.5
							1.5	2						1.5
					2					2				
							2				2			
5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10	5&10
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	

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CONVENTIONAL BUILT-UP-ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer	TAMKO	
Specification Number	521	522
1. DECK TYPE		
a. NAILABLE		
b. INSULATED		
c. NON—NAILABLE	●	●
2. SLOPE		
a. 0″-½″	●	●
b. ½″-3″	●	
c. 3″-6″		
3. PLIES		
a. TOTAL	3	4
b. BASE		
c. INTERPLY	3	3
d. CAP		1
4. FELTS		
a. FIBERGLASS	●	●
b. ORGANIC		
c. ASBESTOS		
d. POLYESTER		
e. OTHER		
5. INTERPLY BITUMEN		
a. ASPHALT	●	●
b. COAL TAR		
6. SURFACE		
a. AGGREGATE (LBS. PER SQ. FT)	4	
b. SMOOTH-ASPHALT		
-COAL TAR		
c. EMULSION — CUT BACK		
d. CAP SHEET		●
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)		
a. AGGREGATE	6	
b. SMOOTH		
c. EMULSION-CUT BACK		
d. CAP SHEET		2
8. RESTRICTED REGIONS *(See "Important Notes")*		
9. YR. OF FIRST COMMER'L INSTALLATION		
10. TEST RESULTS (PER BSS #55)		
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD		
— NOT LESS THAN 200 lb./in. @ 0°F—XD		
b. ■ THERMAL EXPAN. — NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—MD		
— NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—XD		
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD		
— NOT LESS THAN 100°F—XD		
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)		
12. WARRANTY *(See "Important Notes")*		
a. DURATION (YEARS)	5&10	5&10
b. RENEWABLE AFTER INSPECTION	●	●
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)		
MATERIAL ONLY		
WORKMANSHIP AND MATERIAL	●	●
d. MONETARY LIMITATION		
NONE		
ORIGINAL COST OF INSTALLATION		
$ PER SQUARE	●	●
e. EXCLUSION FROM COVERAGE		
DAMAGE TO OTHER COMPONENTS	●	●
CONSEQUENTIAL DAMAGES		
13. UL FIRE RESISTANCE *(See "Important Notes")*		
14. FM WIND RESISTANCE *(See "Important Notes")*		

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MODIFIED BITUMEN BUILT-UP ROOFING Part 2 *(See Part 1 for General Information)*

Manufacturer	GENSTAR			HYLOAD								MALARKY		
Specification Number	AM 12 M-1 RS	AM 12 M-1 RG	AM 12 M-1 RI	No 1	No 1A	No 3	No 3A	No 5	No 6	No 6A	No 8	No 8A	HP-IG3/ HG-IG3	HP-NG3/ HG-NG3	HG-IM3
1. DECK TYPE															
a. NAILABLE	●					●	●				●	●		●	
b. INSULATED			●	●			●	●	●			●	●		●
c. NON—NAILABLE		●		●	●			●	●	●			●		●
2. SLOPE															
a. 0″-½″				●	●	●	●	●	●	●	●	●	●	●	●
b. ½″-3″	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
c. 3″-6″	●	●	●	●	●	●	●	●	●	●	●	●			
3. PLIES															
a. TOTAL	2	3	2	2	2	2	2	2	2	2	2	2	3	3	3
b. BASE	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
c. INTERPLY													1	1	1
d. CAP	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4. FELTS															
a. FIBERGLASS	1	1	1	●	●	●	●	●	●	●	●	●	●	●	●
b. ORGANIC		1													
c. ASBESTOS															
d. POLYESTER	1	1	1										●	●	●
e. OTHER	III & IV	III & IV	III & IV												
5. INTERPLY BITUMEN															
a. ASPHALT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
b. COAL TAR															
6. SURFACE															
a. AGGREGATE (LBS. PER SQ. FT)				4	4	4	4	4					5	5	
b. SMOOTH-ASPHALT															
-COAL TAR															
c. EMULSION — CUT BACK															
d. CAP SHEET	●	●	●						●	●	●	●			●
7. APPROX. APPLIED WT. PER SQ. FT. (INCL. PLIES)															
a. AGGREGATE				5.0	5.0	5.0	5.0	5.0					7.1	6.9	
b. SMOOTH															
c. EMULSION-CUT BACK															
d. CAP SHEET	142	259	177						1.0	1.0	1.0	1.0			2
8. RESTRICTED REGIONS *(See "Important Notes")*													None	None	None
9. YR. OF FIRST COMMER'L INSTALLATION	1972	1972	1972	1969	1969	1969	1969	1976	1975	1975	1975	1975	1982	1982	1982
10. TEST RESULTS (PER BSS #55)															
a. ■ TENSILE STRENGTH — NOT LESS THAN 200 lb./in. @ 0°F—MD	220	220	220												
— NOT LESS THAN 200 lb./in. @ 0°F—XD	200	200	200												
b. ■ THERMAL EXPAN. — NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—MD	32	32	32												
— NOT EXCEED 40 x 10^{-6}/°F @ 0° to −30°F—XD	17	17	17												
c. ■ THERMAL SHOCK — NOT LESS THAN 100°F—MD	1474	1474	1474												
— NOT LESS THAN 100°F—XD	722	722	722												
11. LIMITATIONS OR RESTRICTED USE (SEE PART 1)															
12. WARRANTY *(See "Important Notes")*															
a. DURATION (YEARS)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
b. RENEWABLE AFTER INSPECTION													●	●	●
c. SCOPE OF COVERAGE (REPAIR OF LEAKS)															
MATERIAL ONLY															
WORKMANSHIP AND MATERIAL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
d. MONETARY LIMITATION															
NONE				●	●	●	●	●	●	●	●	●	●	●	●
ORIGINAL COST OF INSTALLATION															
$ PER SQUARE	100	100	100												
e. EXCLUSION FROM COVERAGE															
DAMAGE TO OTHER COMPONENTS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CONSEQUENTIAL DAMAGES	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13. UL FIRE RESISTANCE *(See "Important Notes")*															
14. FM WIND RESISTANCE *(See "Important Notes")*															

HYLOAD 150 E is tested to British Standards 2782 and 3177, Canadian Standards 37-GP-56M, American Standards D 412, D 624 and D 746. BSS = 55 is not applicable.

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MODIFIED BITUMEN BUILT-UP ROOFING Part 2 *(See Part 1 for General Information)*

ROOFING CO.					NORD BITUMI U.S. INC.					
HG-NM3	HP-IM2	HP-NM2	HP-IS2	HP-NS2	101a	202a	303a	505a	606a	707a
•		•		•	•					
	•		•							
	•		•							
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
					•	•	•	•	•	•
3	2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1		
1										
1	1	1	1	1	1	1	1	1	2	2
•	•	•	•	•						
•	•	•	•	•						
•	•	•	•	•						
•	•	•	•	•						
					8.8	8.8	8.8	8.8	8.8	8.8
1.7	1.8	1.6	2	1.8						
None	None	None	None	None						
1982	1982	1982	1983	1983						
10	5	5	5	5	5	5	5	5	5	5
•	•	•	•	•	+5	+5	+5	+5	+5	+5
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•						
					•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME►	TIFFANY	ARC STANDARD	ARC ALUMINUM	ARC PREMIUM	ARC GRANULAR	SAM
1. PRODUCT DESCRIPTION						
a) Thickness (mils)	150	160	160	160	175	75
b) Top surface	Modified Bitumen	Plain	Aluminum	Plain	Mineral	Polypropylene
c) Reinforcement	Polyester non-woven fabric	Fiberglass	Fiberglass	Polyester	Polyester	Polypropylene
d) Reinforcement						
e) Color	Black	Black	Aluminum	Black	Optional	Grey-Black
f) Installed wt. (lbs. per sq. ft. w/o ballast)	.82.	.88	.88	.88	.96	.40
2. COATING REQUIRED	Alum.	None	None	None	None	Yes
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Torch	Torch	Torch	Torch	Torch	Self-Adhering
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)						●
b) Partially adhered-method	●					
c) Fully adhered-method	●	Torch	Torch	Torch	Torch	Self-Adhering
d) Protected Membrane Roofing Assembly		●		●		
6. MINIMUM SLOPE	Dead Level	Dead Level	Positive Drain	Dead Level	Positive Drain	Dead Level
7. USE OVER						
a) Perlite	●	●*	●*	●*	●*	
b) Urethane	●	●*	●*	●*	●*	●
c) Wood fibre		●*	●*	●*	●*	
d) Fibre glass	●	●*	●*	●*	●*	●
e) Expanded polystyrene		●*	●*	●*	●*	
f) Felt faced composites	●	●*	●*	●*	●*	●
g) Other		*Overlayment Required	*Overlayment Required	*Overlayment Required	*Overlayment Required	Concrete, Wd, BUR Rubber, Other M/B
8. RESTRICTED REGIONS *(See "Important Notes")*						None
9. WORKABLE TEMP RANGE	15°F-115°F	15°F-115°F	15°F-115°F	15°F-115°F	15°F-115°F	40°F-120°F
10. FLASHING MATERIAL	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l
11. FLASHING METHOD	Torch	Torch	Torch	Torch	Torch	Self-Adhering
12. PRE-FORMED ACCESS AVAILABLE	No	No	No	No	No	None
13. COUNTRY OF ORIGIN	Italy	Italy	Italy	Italy	Italy	
14. COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1967	1968	1968	1968	1968	
b) U.S.A. (Year, City-first installed)	1978-Detroit	1981-Chicago	1981-Chicago	1981-Chicago	1981-Chicago	1979-Greenville
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	None					
b) U.S.A.	21,000	2,000	5,000	35,000	1,000	4,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	6 Uncoated 12 Alum. Coated	10	10	10	10	5
b) Renewable after inspection	+6 yrs. (Alum. Coat)					5 + 5
c) Scope of coverage (repair of leaks)						
c.1 Material only	●	●	●	●	●	
c.2 Workmanship & material		●	●	●	●	●
d) Monetary limitation						
d.1 None						●
d.2 Original cost of installation		●	●	●	●	
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE						
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Sales Force	Distributors				Direct/Some Distrs.
22. # REGIONAL SERVICE LOCATIONS	Throughout USA	9				50
23. LICENSED APPLICATOR AGREEMENT	No	Yes				Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field, Seminars	Field, Seminars				Field, Seminars
25. SALES INFORMATION; CONTACT	Tom Girard	Bud Jansen				Geoff Mercier
26. TECHNICAL INFORMATION; CONTACT	Tom Girard	Bud Jansen				Bob Davis
COMPANY►	THE AMERICAN LUBRICANTS COMPANY	AMERICAN ROOFING CORPORATION				APACHE

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

RAM-TOUGH CARIPHALTE 200	RAM-TOUGH CARIPHALTE 306	DIBITEN POLY-5	DIBITEN POLY-4	DIBITEN FIBER-4	DIBITEN POLY-4 GRANULAR	ALPAGUM DECOR	ALPAGUM ROC	CONSO-GARD
118	157	175	157	157	172	155	155	118
Sand	Ceramic Granule	Smooth	Smooth	Smooth	Granular	Slate Spangles	Film	Plain
Polyester non-woven	Fiberglass	Polyester	Polyester	Fiberglass	Polyester	Polyester	Polyester	Polyester
						Fiberglass	Fiberglass	
Black	Any	Black	Black	Black	White-Grey	Grey & Optional	Black/Grey	Black
.50	.90	1.10	.88	.88	1.05	.84	.72	.60
	None	None	None	None	None	None	None	Yes
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Hot Asphalt	Hot Asphalt	Torched	Torched	Torched	Torched	Torch	Torch	Torch
							●	10 lb.
		●	●	●	●			●
Hot Asphalt	Hot Asphalt					●		●
Hot Asphalt	Hot Asphalt						●	●
To Drain	To Drain					1/8"/ft	Dead Level	Dead Level
●	●	●	●	●	●	●	●	●
Consult Barrett	Consult Barrett	●	●	●	●			●
●	●	●	●	●	●			Base Sht. Required
●	●	●	●	●	●	●	●	●
		●	●	●	●			
●	●	●	●	●	●			●
Isocyanurate, foamed glass, insulating concretes	Isocyanurate, foamed glass, insulating concretes	Wood, metal concrete, protection board	Wood, metal concrete, protection board	Wood, metal concrete, protection board	Wood, metal concrete, protection board	Concrete, wood	Concrete, wood	Wood, metal concrete
None	None	None	None	Southern states	None	None	None	None
40°F-120°F	40°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F	15°F-120°F	15°F-120°F	40°F-115°F
Same Material	Same Material	Same Mat'l	Same Material	Same Material	Same Material	Alpagorge	Alpagorge	Same Mat'l
Hot Asphalt	Hot Asphalt	Torched	Torched	Torched	Torched	Torch	Torch	Torch
Not Required	Not Required	None	None	None	None	Unnecessary	Unnecessary	No
France	France	Italy	Italy	Italy	Italy	France	France	USA
Canada	Canada	Italy	Italy	Italy	Italy	France	France	USA
1968	1968	1969	1969	1969	1978	1978	1978	
1978	1978	1978-New Jersey	1978-New Jersey	1978-New Jersey	1978-New Jersey			1980-Cleveland
5,000,000	5,000,000	410,000	4,100,000	365,000	295,000	200,000	200,000	
10,000	10,000	75,000	235,000	110,000	15,000			500,000
10	10	12	10	7	10	10	10	10
						No	No	
						●	●	●
●	●	●	●	●	●			
						●	●	
●	●	●	●	●	●			
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
		See Specifications	See Specifications	See Specifications	See Specifications	Contact CIB	Contact CIB	
Distributors/Direct	Distributors					Distributors		Direct
10	5							
Yes	No					Yes		No
Factory & Field Seminars	Field, Seminars					Yes		Yes
Tim Barrett	Charles Whitley					Stan Scott		F. Malloy
Ray McNulty	Elmer Favaro					Joe Gualdieri		G. Kurtzhals
THE BARRETT COMPANY	BOWE COMPANY, INC. (DIBITEN)					CIB/NORTHEAST ALUMINUM CORP.		CONSOLIDATED PROTECTIVE COATINGS CORPORATION

continued →

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME►	CONSO-GARD II	GLASDAN R-36	ESTERDAN R-36	GLASDAN AL-80	ESTERDAN RM	F.A.R. MARK II
1. PRODUCT DESCRIPTION						
a) Thickness (mils)	157	140	140	140	140	75
b) Top surface	Plain	Bitumen	Bitumen	Aluminum	Mineral Granules	Polypropylene
c) Reinforcement	Polyester	Glass Fiber	Polyester	Glass Fiber	Polyester	Polypropylene
d) Reinforcement						
e) Color	Black	Black	Black	Aluminum	White & Other Mineral Colors	Black
f) Installed wt. (lbs. per sq. ft. w/o ballast)	.90	.77	.77	.77	.77	.40
2. COATING REQUIRED	Yes	Fibrated Emulsion, Second Membrane or Ballast	Fibrated Emulsion, Second Membrane or Ballast	None	None	Coating or Gravel
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Torch	Torch or Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Self Adhering
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	10 lb.					
b) Partially adhered-method	●					
c) Fully adhered-method	●	Torch or Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Self Adhering
d) Protected Membrane Roofing Assembly	●					
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	
b) Urethane	●	●	●	●	●	●
c) Wood fibre	Base Sht. Required	●	●	●	●	
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene		●	●	●	●	
f) Felt faced composites	●	●	●	●	●	●
g) Other	Wood, metal concrete					BUR, Concrete, Wood, EPDM
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	40°F-115°F	14°F-120°F	14°F-120°F	14°F-120°F	14°F-120°F	40°F-120°F
10. FLASHING MATERIAL	Same Mat'l	Glasdan AL-80 or Esterdan RM	Glasdan AL-80 or Esterdan RM	Same Mat'l or Esterdan RM	Same Mat'l or Glasdan AL-80	Same Mat'l
11. FLASHING METHOD	Torch	Torch and Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Torch or Hot Asphalt	Self Adhering
12. PRE-FORMED ACCESS AVAILABLE	No	No	No	No	No	Not Required
13. COUNTRY OF ORIGIN	USA	Puerto Rico USA	Puerto Rico USA	Puerto Rico USA	Puerto Rico USA	USA
14. COUNTRY OF MANUFACTURE	USA	Puerto Rico USA	Puerto Rico USA	Puerto Rico USA	Puerto Rico USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)						
b) U.S.A. (Year, City-first installed)	1980-Cleveland	1979-San Juan, P.R.	1979-San Juan, P.R.	1979-San Juan, P.R.	1979-San Juan, P.R.	1979-Greenville
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign						
b) U.S.A.	200,000	5,000	5,000	4,000	4,000	6,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	5 & 10	5 & 10	5 & 10	5 & 10	5
b) Renewable after inspection		●	●	●	●	5+5
c) Scope of coverage (repair of leaks)						
c.1 Material only	●					
c.2 Workmanship & material		●	●	●	●	●
d) Monetary limitation						
d.1 None						
d.2 Original cost of installation		●	●	●	●	●
d.3 $ per square		●	●	●	●	
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE		See Specifications	See Specifications	See Specifications	See Specifications	
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Direct	Distributors				Direct
22. # REGIONAL SERVICE LOCATIONS		2				
23. LICENSED APPLICATOR AGREEMENT	No	Yes				Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Yes	Seminars — on job training				Field, Seminars
25. SALES INFORMATION; CONTACT	F. Malloy	Manuel del Rio				Charles Carroll
26. TECHNICAL INFORMATION; CONTACT	G. Kurtzhals	Rogelio Mur				Charles Carroll
COMPANY►	CONSOLIDATED PROTECTIVE COATINGS CORPORATION	DANOSA CARIBBEAN, INC.				FLEX-SHIELD CORP.

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

STRESSPLY	PITCHPLY	GEDAGOM POLYESTER S.B.	GEDAGOM POLYESTER	GEDAGOM VELO/VETRO	GEDAGOM VELO/VETRO EXTRA	GEDAGOM GRANIPOL	GEDAGOM GRANIVEL	FLINTLASTIC
80	60	160	160	160	160	160	160	104
		Modified Bitumen	Modified Bitumen	Modified Bitumen	Modified Bitumen	Slate Chip	Slate Chip	Granules
2 plies woven glass	Unreinforced	Polyester non-woven fabric	Polyester	Fiberglass	Special Fiberglass	Polyester non-woven fabric	Special Fiberglass	PVA & Glass Mat.
Black	Black	Black	Black	Black	Black	Grey-Green	Grey-Green	Grey-Green
1.65 lbs.*	1.50 lbs.*	.88	.88	.88	.88	.88	.88	.148 lbs. Min.- 2 Ply Sys.
Gravel or Alum.	Gravel	None	None	None	None	None	None	
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Bitumen/Adhesive	Bitumen/Adhesive	Torch	Torch	Torch	Torch	Torch	Torch	Hot Mop
●	●	Torch	Torch	Torch	Torch	Torch	Torch	Hot Mop
●	●							
Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	
●	●	●	●	●	●	●	●	●*
●	●	●	●	●	●	●	●	●*
●	●	●	●	●	●	●	●	●*
●	●	●	●	●	●	●	●	●*
		●	●	●	●	●	●	
●	●	●	●	●	●	●	●	●*
								Isocyanurate*, Cellular Glass,* *Always use with a coated base sheet in a 2-ply construction
		None	None	None	None	None	None	
35°F-120°F	35°F-120°F	0°F-120°F	0°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F
Same Mat'l	Same Mat'l	Same Material	Same Material	Same Material	Same Material	Same Material	Same Material	Same Material
Bitumen/Adhesive	Bitumen/Adhesive	Torch	Torch	Torch	Torch	Torch	Torch	Hot Adhesive
No	Yes	No	No	No	No	No	No	
USA	England	Italy	Italy	Italy	Italy	Italy	Italy	Holland
USA	USA	Italy	Italy	Italy	Italy	Italy	Italy	Holland
	1965	1970	1970	1970	1970	1970	1970	1972
1978-Cleveland	1976-Cleveland	1981-New Jersey	None	None	None	None	None	1980-Jersey City
	5,000,000+	4,687,500	>2,000,000	>1,000,000	>1,500,000	>500,000	>300,000	>100,000
75,000	80,000+	4,000	None	None	None	None	None	<20,000
10	10	10	10	10	10	10	10	10
●	●	●	●	●	●	●	●	●
None	●	●	●	●	●	●	●	
								100
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●

Company Sales Force	Distributors	Distributors
58	Pending	3
Yes		Yes
Field, Seminars	Field Seminar (Pending)	Field,Seminars
Richard DeBacco	Henry Russo	C.T. Derry
Joseph Fogel	Henry Russo	D.R. Hughes
THE GARLAND COMPANY, INC.	GEDACO, LTD. (ITALY)	GENSTAR BUILDING MATERIALS COMPANY

*includes gravel

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME►	GUAINA POLYGLASS	GUAINA POLYGLASS ALUMINUM	GUAINA POLYGLASS POLYESTER	GUAINA POLYGLASS GRANULAR	GUAINA POLYPREN	HEY 'DI ECB
1. PRODUCT DESCRIPTION						
a) Thickness (mils)	158	160	160	170	83	83
b) Top surface	Plain	Aluminum	Plain	Mineral	Plain	
c) Reinforcement	Fiberglass	Fiberglass	Polyester	Polyester	Non-woven Fiber	Non-woven Fiberglass
d) Reinforcement						
e) Color	Black	Aluminum	Black	Red,White,Grey,Slate,Brown	Black	Black
f) Installed wt. (lbs. per sq. ft. w/o ballast)	.88	.88	.88	.95	.50	.50
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Torch	Torch	Torch	Torch	Hot Air	Hot Air Welding
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)					10 lbs	10 lbs
b) Partially adhered-method					Hot Asphalt	Hot Asphalt
c) Fully adhered-method	Torch	Torch	Torch	Torch	Hot Asphalt	Hot Asphalt
d) Protected Membrane Roofing Assembly						
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	●
g) Other	Any skinned insulation, wood, metal, concrete, protection board	Any skinned insulation, wood, metal, concrete, protection board	Any skinned insulation, wood, metal, concrete, protection board	Any skinned insulation, wood, metal, concrete, protection board	Any skinned insulation, wood, metal, concrete, protection board	
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	●
9. WORKABLE TEMP RANGE	10°F-120°F	10°F-120°F	10°F-120°F	10°F-120°F	−30°F-150°F	−30°F-150°F
10. FLASHING MATERIAL	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	ECB Cold Adhesive
11. FLASHING METHOD	Torch	Torch	Torch	Torch	Torch	Hot Asphalt
12. PRE-FORMED ACCESS AVAILABLE	No	No	No	No	Yes	Yes
13. COUNTRY OF ORIGIN	Italy	Italy	Italy	Italy	Italy	W. Germany
14. COUNTRY OF MANUFACTURE	Italy	Italy	Italy	Italy	Italy	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1960	1960	1960	1960	1960	1964
b) U.S.A. (Year, City-first installed)	1978-New Jersey	1978-New Jersey	1978-New Jersey	1978-New Jersey	1978-New Jersey	1982-St. Louis
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	>1,000,000	>1,000,000	>1,000,000	>1,000,000	>1,000,000	Approx. 10,000,000
b) U.S.A.	50,000	50,000	75,000	50,000	50,000	2,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	10	10	10	10
b) Renewable after inspection						
c) Scope of coverage (repair of leaks)						
c.1 Material only						
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None	●	●	●	●	●	●
d.2 Original cost of installation						
d.3 $ per square						●
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	
18. LIMITATIONS OR RESTRICTED USE						See Literature
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distributors					Distributors
22. # REGIONAL SERVICE LOCATIONS	23					12
23. LICENSED APPLICATOR AGREEMENT	No					Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field, Seminars					Field, Seminars, Factory
25. SALES INFORMATION; CONTACT	B. Mitzman					Harold M. Muench
26. TECHNICAL INFORMATION; CONTACT	B. Mitzman					Harold M. Muench
COMPANY►	GUAINA CORPORATION OF AMERICA & POLYPREN ROOFING OF AMERICA					HEY 'DI UPM CORPORATION

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

NURALITE	HYLOAD 150E	TESTUDO 4	MINERAL TESTUDO 4,5	HELASTA/P 4	MINERAL HELASTA P 4,5	DEFEND 4	MINERAL DEFEND 4,5	DURALASTA P
100	60	160	172	160	175	160	172	160
Asphalt	Black	Smooth	Granular	Smooth	Granular	Smooth	Granular	Optional
Asbestos	Dispersed Fiber	Spunbond Polyester	IDEM	IDEM	IDEM	Fiberglass	Fiberglass	Polyester
Black *Turns Grey w/Aging	Black	Black	Various	Black	Various	Black	Various	Black
.50	.40	.88	.99	.88	.99	.88	.99	1.0
None	None	Optional Alum. paint	None	Optional Alum. paint	None	Optional Alum. paint	None	Surfacing
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Torch	Hot Asphalt	Torch	Torch	Torch	Torch	Torch	Torch	Torch/Hot Asphalt
		10		10				
Spot Adhered		Torch	Torch	Torch	Torch	Torch	Torch	Torch/Hot Asphalt
	Hot Asphalt	Torch	Torch	Torch	Torch	Torch	Torch	Torch/Hot Asphalt
								Torch/Hot Asphalt
	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
	●	●	●	●	●	●	●	●*
●*	●	●	●	●	●	●	●	●*
	●	●	●	●	●	●	●	●*
	●	●	●	●	●	●	●	●*
●*		●	●	●	●	●	●	●*
	●	●	●	●	●	●	●	●*
Concrete, insulating concrete *Rigid skinned insulation	Glass fiber base sheet	Felt base sheet when required	Felt base sheet when required	Felt base sheet when required	Felt base sheet when required	Felt base sheet when required	Felt base sheet when required	*Ctd glass fib. base sht. attached to insul. or existing rfg. membrane
None	None	None	None	None	None	None	None	None
No Restrictions	40°F-110°F	40°F-120°F	40°F-120°F	40°F-120°F	40°F-120°F	40°F-120°F	40°F-120°F	30°F-120°F
Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	ECB	Same Mat'l
Adhesive	Hot Asphalt/Mastic	Torch	Torch	Torch	Torch	Torch	Torch	Torch/Hot Asphalt
No	No	None	None	None	None	None	None	No
England	England	Italy	Italy	Italy	Italy	Italy	Italy	Netherlands
England	USA	Italy	Italy	Italy	Italy	Italy	Italy	Germany
1947	1965	1978	1978	1978	1978	1978	1978	1978
1978-Orlando	1976-Cleveland	1980,New York	1980,New York			1980,New York		1982,St. Louis
	>5,000,000	1,200,000	800,000	200,000	100,000	2,000,000	1,000,000	45,000
	100,000	30,000	1,000			15,000	600	2,500
10-Labor 20-Material	10	10	10	10	10	10	10	10
		●	●	●	●	●	●	●
●	●							●
●	●							●
		●	●	●	●	●	●	
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Hitchins Amer.	Distributors	Distributors						Distrs./Contrs.
4	4	3						5
Yes	No	No						Yes
Seminars & Field Training	Field	Field, Seminars						Field
Bob Ferrell	Alex W. Harkness							Hugo Landheer
Matt Shane	Roger Bonafont							Hugo Landheer
HITCHINS AMERICA INC.	HYLOAD, INC.	INDEX SPA, TECHNOLOGIE IMPERMEABILI AMERICAN WEATHERPROOFING, HAWAIIAN GARDEN, CA TECHNICOTE CORPORATION, MEMPHIS, TN RAPID SYSTEMS, CUMMING, GA						THE KIMMENADE CORPORATION

continued→

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME►	DURALASTA M	AQUASHIELD 2001 AD	MHP POLYESTER CAP	MHP GLASS CAP	POLY 4	OWENS-CORNING DERBIGUM HPS
1. PRODUCT DESCRIPTION						
a) Thickness (mils)	160	60±5	100	100	160	160
b) Top surface	Slate Chip	Polyethylene	Granule	Granule	Modified Bitumen	Modified Bitumen
c) Reinforcement	Polyester	Polyester	Polyester	Fiberglass	Polyester	Polyester
d) Reinforcement		Polyester				Glasfiber Mat/Web
e) Color	Green/Blue	Grey/Black	White	White	Black	Black
f) Installed wt. (lbs. per sq. ft. w/o ballast)	1.0	.80	1.0	.80	0.88	1.0
2. COATING REQUIRED	None	Yes	None	None	Aluminum (As recommended)	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Torch/Hot Asphalt	Self-Adhered	Hot Asphalt	Hot Asphalt	Torch	Torch
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast lbs. per sq. ft.)						
b) Partially adhered-method	Torch/Hot Asphalt				Torch	
c) Fully adhered-method	Torch/Hot Asphalt	Primer	Hot Asphalt	Hot Asphalt	Torch	Torch
d) Protected Membrane Roofing Assembly	Torch/Hot Asphalt				Torch	
6. MINIMUM SLOPE	Dead Level	Dead Level	¼''	¼''	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●*	●	●	●	●	●*
b) Urethane	●*				●	●*
c) Wood fibre	●*	●	●	●	●	●*
d) Fibre glass	●*	●	●	●	●	●
e) Expanded polystyrene	●*				●	●*
f) Felt faced composites	●*		●	●	●	●*
g) Other	*Ctd. glass fib. base sht. attached to insul. or existing rfg. membrane	Concrete, Steel				*Overlayment Required
8. RESTRICTED REGIONS *(See "Important Notes")*	None		None	None		1,2,3
9. WORKABLE TEMP RANGE	30°F-120°F	40°F Min.	20°F-100°F	40°F-100°F	0°F-110°F	25°F-140°F
10. FLASHING MATERIAL	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l
11. FLASHING METHOD	Torch/Hot Asphalt	Primer	Hot Asphalt	Hot Asphalt	Torch	Torch
12. PRE-FORMED ACCESS AVAILABLE	No	Yes	Unnecessary	Unnecessary	No	No
13. COUNTRY OF ORIGIN	Netherlands	USA	W. Germany		Italy	Italy
14. COUNTRY OF MANUFACTURE	Germany	USA	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1978				1967	
b) U.S.A. (Year, City-first installed)	1982,St. Louis		1982-Spokane	1982-Spokane	1976-Detroit	1981-Kansas City
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	45,000				15,000,000	
b) U.S.A.	6,000				100,000	400,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	5 or 10	5 or 10	5 10	10
b) Renewable after inspection			Yes	Yes	+5	
c) Scope of coverage (repair of leaks)						
c.1 Material only	●	●			●	
c.2 Workmanship & material	●		●	●	●	●
d) Monetary limitation						
d.1 None	●		●	●		●
d.2 Original cost of installation		●				
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	● ●	●
e.2 Consequential damages	●	●	●	●	● ●	●
18. LIMITATIONS OR RESTRICTED USE						
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distrs./Contrs.	Direct	Distributors		Distributors	Distr./Direct
22. # REGIONAL SERVICE LOCATIONS	5				4	Throughout USA
23. LICENSED APPLICATOR AGREEMENT	Yes	Yes	●		Yes	Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field	Field, Factory, Seminars	Field & Factory		Field, Seminars	Field, Seminars
25. SALES INFORMATION; CONTACT	Hugo Landheer	R. Wood	Jack Clenaghen		John Butler	Local Branch Office
26. TECHNICAL INFORMATION; CONTACT	Hugo Landheer	R.Wood	Tom Kelly		John Butler	Local Branch Office
COMPANY►	THE KIMMENADE CORPORATION	J & P PETROLEUM PRODUCTS	HERBERT MALARKY ROOFING CO.		NORD BITUMI U.S., INC.	OWENS-CORNING FIBERGLAS CORPORATION

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

OWENS-CORNING DERBIGUM SP	ROYAL	VERAL (ALUMINUM FACED)	VERAL (STAIN/STEEL)	VERAL (COPPER)	PARAFOR-50	PARADIENE-30	PARADIENE-20	SWEPCO UNI+ SHIELD
160	150	130	130	130	150	95	90	150
Modified Bitumen	Modified Bitumen	Aluminum	Stain/Steel	Copper	Mineral	Mineral	Plain	Modified Asphalt
Polyester	Polyester Non-Woven Fabric	Glass Scrim	Glass Scrim	Glass Scrim	Polyester	Glass Mat	Glass Mat	Polyester
Glasfiber Mat		N/A	N/A	N/A	N/A	N/A	N/A	
Black	Black	Aluminum	Stain/Steel	Copper	Various	Various	Black	Black
1.0	.82	.86	.86	.86	1.47	.77	.48	.88
None	Aluminum	None	None	None	None	None	Paradiene 30	
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Torch	Torch	Hot/Torch	Hot/Torch	Hot/Torch	Hot/Torch		Hot Asphalt	
	●						Hot Asphalt	●
Torch	●	Hot/Torch	Hot/Torch	Hot/Torch	Hot/Torch	Hot Asphalt	Hot Asphalt	●
						Hot Asphalt	Hot Asphalt	
Dead Level	Dead Level	½ Inch	½ Inch	½ Inch	½ Inch	Dead Level	Dead Level	¼"
●*	●	●	●	●	●		●	●
●*								●
●*		●	●	●	●		●	●
●	●	●	●	●	●		●	●
●*								
●*	●							●
*Overlayment Required		Cellular Glass Always use with fiberglass basesheet as a system	Cellular Glass Always use with fiberglass basesheet as a system	Cellular Glass Always use with fiberglass basesheet as a system	Cellular Glass	Always use with Paradiene 20 as a System	Cellular Glass Always use with Paradiene 30 as a System	●
2,3								
25°F-140°F	15°F-115°F							5°F-125°F
Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same/Veral	Veral	Veral	Same Mat'l
Torch	Torch	Torch	Torch	Torch	Torch	Torch	Torch	Torch
No	No	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Italy	Italy	France	France	France	France	France	France	
USA	USA	France	France	France	France	USA	USA	USA
	1967					1968	1968	1963
1978-Valley Forge, PA	1978-Detroit					1979-Jacksonville	1979-Jacksonville	1981-Fort Worth
15,000,000	None							
100,000	19,000							Hundreds of Thousands
10	6	10	10	10	10	10	10	12
	+6 Yrs. (Alum. Coat)	No	No	No	No	No	No	Yes
	●							●
●		●	●	●	●	●	●	●
●		●	●	●	●	●	●	Yes
								●
								●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
		Contact Siplast	Contact Siplast	Contact Siplast	Contact Siplast	Contact Siplast	Contact Siplast	Contact SWEPCO
Distr./Direct	Sales Force	Direct						Direct
Throughout USA	Throughout USA	5						Every State
Yes	No	Yes						
Field, Seminars	Field, Seminars	Field, Seminars						Factory & Field Seminars
Local Branch Office	Pat Pate	J. Mollenhoff						J. Ashworth
Local Branch Office	Royal Oil Company	G. Baumgardner						Riad Nimri
OWENS-CORNING FIBERGLAS CORPORATION	ROYAL OIL COMPANY	SIPLAST, INC.						SOUTHWESTERN PETROLEUM CORPORATION

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME►	AWAPLAN	RHOFLEX	MIGHTYPLATE	TROPISEAL	BRAI SP4	GRM-120
1. PRODUCT DESCRIPTION						
a) Thickness (mils)	160	160	150	157	150	50
b) Top surface	Granule	Can Be Coated	Modified Bitumen	Modified Bitumen	Modified Bitumen	Polyethylene
c) Reinforcement	Polyester	Polyester	Polyester Non-Woven Fabric	Non-Woven Polyester	Polyester	Alum. Foil
d) Reinforcement						
e) Color	White/Black	Black	Black	Grey/Black	Black	Gray/Black
f) Installed wt. (lbs. per sq. ft. w/o ballast)	1.05	.88	.88	.88	.88	.34
2. COATING REQUIRED	Emulsion for UL Approval	None	Aluminum	Recommended But Not Required	Aluminum	White
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Hot Asphalt/Torch	Torch	Torch	Torch	Torch	Self-adhesive
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)				10		
b) Partially adhered-method			●	Torch		Nailed Laps
c) Fully adhered-method	Hot Asphalt or Torch	Torch	●	Torch	Torch	Self-adhesive
d) Protected Membrane Roofing Assembly		DOW IRMA				
6. MINIMUM SLOPE	¼" per ft.	Dead Level	Dead Level	Dead Level	Dead Level	To Drain
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	Consult Tamko	●	●	●	●	
c) Wood fibre	●	●		●*	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	Consult Tamko	●		●*	●	●
f) Felt faced composites	●	●	●	●	●	
g) Other		●		*Base Sheet Over Non-prefaced Insulation		Isocyanurate, Foamed Glass
8. RESTRICTED REGIONS *(See "Important Notes")*	None	Alaska		None	None	None
9. WORKABLE TEMP RANGE	Consult Tamko	0°F-130°F	0°F-120°F	0°F-125°F	0°F-120°F	40°F-120°F
10. FLASHING MATERIAL	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l	Same Mat'l
11. FLASHING METHOD	Hot Asphalt/Torch	Torch	Torch	Torch	Torch	Self-adhesive
12. PRE-FORMED ACCESS AVAILABLE	Unnecessary	No	No	No	No	No
13. COUNTRY OF ORIGIN	W. Germany	Italy	Italy	Italy	Italy	USA
14. COUNTRY OF MANUFACTURE	USA	USA & Italy	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1970	1970	1961	1965	1961	
b) U.S.A. (Year, City-first installed)	1978-Grand Rapids	1977-Westchester	1981-Fort Worth	1979-Michigan	1978-Detroit	1979-Phoenix
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	Not Available	Millions	1,000		10,000,000	
b) U.S.A.	Not Reported	Hundreds of Thousands	Thousands		117,500	>250,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	5 or 10	10 + 5	12	5 or 10	12	10
b) Renewable after inspection	After 5 Yrs.	●	No	No	No	
c) Scope of coverage (repair of leaks)						
c.1 Material only			●			
c.2 Workmanship & material	●	●		●	●	●
d) Monetary limitation						
d.1 None		●		●	●	●
d.2 Original cost of installation						
d.3 $ per square	100					
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages		●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE			Contact TRC			
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distributors	Distributors	Sales Force	Sales Force/Distrs.	Distributors	Direct Sale
22. # REGIONAL SERVICE LOCATIONS	8	22	Throughout USA & Canada	2	12	5
23. LICENSED APPLICATOR AGREEMENT	●	Yes	Yes	Yes	Yes	Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Seminars	Field, Seminars	Field, Seminars Factory	Field, Seminars	Seminars, Factory	Field, Regional Seminars
25. SALES INFORMATION; CONTACT	J. Pearman	Gardner Rowbotham	Leroy Groce	Tropical	Bailey King	Regional Office
26. TECHNICAL INFORMATION; CONTACT	Kent Blanchard	Mat Bockh	Mark Buse	Tropical	Craig Noble	Regional Office
COMPANY►	TAMKO ASPHALT PRODUCTS, INC.	TELTEX, INC.	TEXAS REFINERY CORPORATION	TROPICAL INDUSTRIAL COATINGS, INC.	U.S. INTEC, INC.	W. R. GRACE & CO.

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MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

GRM-230	GRM-350	GRM-500						
50	50	40						
Polyethylene	Polyethylene	Polyvinyl Fluoride						
		Polyethylene						
		Alum. Foil						
Gray/Black	Grey/Black	White						
.34	.34	.30						
Gravel	Insul. Board	None						
●	●	●						
●	●	●						
Self-adhesive	Self-adhesive	Self-adhesive						
Nailed Laps		Nailed Laps						
Self-adhesive	Self-adhesive	Self-adhesive						
	Self-adhesive							
To Drain	To Drain	To Drain						
●		●						
●		●						
●		●						
●		●						
Isocyanurate, Foamed Glass	Concrete, Gypsum, Plywood	Isocyanurate Foamed Glass						
None	None	None						
40°F-120°F	40°-120°F	40°-120°F						
Same Mat'l	GRM-120 or GRM-500	Same Mat'l						
Self-adhesive	Self-adhesive	Self-adhesive						
No	No	No						
USA	USA	USA						
USA	USA	USA						
	1971-Toronto							
1975-Toledo	1972-Boston	1980-Glenview						
>250,000	<250,000	<250,000						
10	10	10						
●	●	●						
●	●	●						
●	●	●						
●	●	●						
	Only in PRMA Systems							
Direct Sale								
5								
Yes								
Field, Regional Seminars								
Regional Office								
Regional Office								
W. R. GRACE & CO.								

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	TIFFANY			ARC STANDARD			ARC ALUMINUM		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	1a,2a	C	2	1a,2a	C	1	1a,2a	B	1
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD 111 lbf XD 480 lbf			MD 106 lbf XD 71 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 208 lbf XD 180.4 lbf			MD 111 lbf XD 480 lbf			MD 106 lbf XD 71 lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD NA % XD NA %			MD 38 % XD 44 %			MD 40 % XD 38 %		
GRADE 2-Min. 8.0%	MD 72.38 % XD 64.76 %			MD 38 % XD 44 %			MD 40 % XD 38 %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400	NA			NA			NA		
GRADE 1-If breaking strength is met; 2940	NA			18,770			18,840		
GRADE 2-Min. 14700	66,968			18,770			18,840		
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	0.0 g.			<1.0 g.			<1.0 g.		
Dimensional change shall not exceed ± 1.0%	MD 1.0 % XD 1.0 %			MD <1.0 % XD <1.0 %			MD <1.0 % XD <1.0 %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)				Pass			Pass		
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)	Pass			Pass			Pass		
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	0.06 g.			0.132 g.			0.132 g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	NA mm.			NA mm.			mm.		
8. DYNAMIC IMPACT (PUNCTURING) Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)	NA			Pass			Pass		
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)	Pass			Pass			NA		
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD 168 lbf XD 442 lbf			MD 84 lbf XD 76 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 166.32 lbf XD lbf			MD 168 lbf XD 442 lbf			MD 84 lbf XD 76 lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD 144 lbf XD 392 lbf			MD 99 lbf XD 73 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 176.8 lbf XD lbf			MD 144 lbf XD 392 lbf			MD 99 lbf XD 73 lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD NA lbf XD NA lbf			MD 145 lbf XD 402 lbf			MD 95 lbf XD 63 lbf		
GRADE 2-Min 176 lbf (785N)	MD 175.48 lbf XD lbf			MD 145 lbf XD 402 lbf			MD 95 lbf XD 63 lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			NA g.			NA g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)	Pass								
Retain 90% of breaking strength, Test 1	MD 92 % XD 92 %			MD % XD %			MD % XD %		
Retain 90% of elongation at break, Test 2	MD 91 % XD 92 %			MD % XD %			MD % XD %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)	Pass								
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**THE AMERICAN LUBRICANTS CO.**			**AMERICAN ROOFING CORP.**					
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

ARC PREMIUM			ARC GRANULAR			SAM			RAM-TOUGH CARIPHALTE 200			RAM-TOUGH CARIPHALTE 306			DIBITEN POLY-5		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
1a,2a	C	1 & 2	1a,2a	A	1 & 2										1a,2a	C	2
MD 164 lbf XD 134 lbf			MD 158 lbf XD 124 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 164 lbf XD 134 lbf			MD 158 lbf XD 124 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD 58 % XD 81 %			MD 89 % XD 106 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %		
MD 58 % XD 81 %			MD 89 % XD 106 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 50 % XD 50 %		
NA			NA												NA		
42,300			62,600												NA		
42,300			62,600														
<1.0 g.			<1.0 g.			____ g.			____ g.			____ g.			0.0 g.		
MD <1.0 % XD <1.0 %			MD <1.0 % XD <1.0 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 0.8 % XD 0.8 %		
Pass			Pass														
Pass			Pass												Pass		
0.132 g.			0.132 g.			____ g.			____ g.			____ g.			0.062 g.		
NA mm.			NA mm.			____ mm.			____ mm.			____ mm.			NA mm.		
Pass			Pass												NA		
Pass			Pass												Pass		
Pass			Pass												Pass		
MD 128 lbf XD 104 lbf			MD 168 lbf XD 130 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 128 lbf XD 104 lbf			MD 168 lbf XD 130 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 178.5 lbf XD ____ lbf		
Pass			Pass												Pass		
MD 155 lbf XD 137 lbf			MD 140 lbf XD 123 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 155 lbf XD 137 lbf			MD 140 lbf XD 123 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 185.6 lbf XD ____ lbf		
Pass			Pass												Pass		
MD 155 lbf XD 129 lbf			MD 164 lbf XD 127 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 155 lbf XD 129 lbf			MD 164 lbf XD 127 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 188.4 lbf XD ____ lbf		
Pass			Pass												Pass		
NA g.			.01g/cm² g.			____ g.			____ g.			____ g.			NA g.		
															Pass		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 190.1 % XD 166.0 %		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 65.9 % XD 59.35 %		
															Pass		
AMERICAN ROOFING CORP.			APACHE			THE BARRETT COMPANY									BOWE COMPANY, INC. (DIBITEN)		

continued →

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	DIBITEN POLY-4			DIBITEN FIBER-4			DIBITEN POLY-4 GRANULAR		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	1a,2a	C	2	1a,2a	C	1	1a	A	2
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf		
GRADE 2-Min. 176 lbf (785N)	MD 208 lbf XD 180.4 lbf			MD NA lbf XD NA lbf			MD 208 lbf XD 180.4 lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD NA % XD NA %			MD 10 % XD 10 %			MD NA % XD NA %		
GRADE 2-Min. 8.0%	MD 48 % XD 48 %			MD NA % XD NA %			MD 48 % XD 48 %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400	NA						NA		
GRADE 1-If breaking strength is met; 2940	NA						NA		
GRADE 2-Min. 14700				NA					
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	0.0 g.			0.0 g.			0.0 g.		
Dimensional change shall not exceed ± 1.0%	MD 1.0 % XD 1.0 %			MD ___ % XD ___ %			MD 1.0 % XD 1.0 %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)	Pass			Pass			NA		
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	0.062 g.			0.062 g.			0.062 g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	NA mm.			NA mm.			NA mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)	NA			NA			NA		
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)	Pass			Pass			Pass		
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf		
GRADE 2-Min. 176 lbf (785N)	MD 171.8 lbf XD ___ lbf			MD 171.8 lbf XD ___ lbf			MD 171.8 lbf XD ___ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf		
GRADE 2-Min. 176 lbf (785N)	MD 177.3 lbf XD ___ lbf			MD 177.3 lbf XD ___ lbf			MD 177.3 lbf XD ___ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf		
GRADE 2-Min 176 lbf (785N)	MD 174.9 lbf XD ___ lbf			MD 174.9 lbf XD ___ lbf			MD 174.9 lbf XD ___ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			NA g.			0.1 g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)	Pass			Pass			Pass		
Retain 90% of breaking strength, Test 1	MD 190.1 % XD 166.0 %			MD 190.1 % XD 166.0 %			MD 190.1 % XD 166.0 %		
Retain 90% of elongation at break, Test 2	MD 65.9 % XD 59.4 %			MD 65.9 % XD 65.9 %			MD 65.9 % XD 59.4 %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)	Pass			Pass			Pass		
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction NOTE: Blank lines = applicable data not reported by manufacturer.	**BOWE COMPANY, INC. (DIBITEN)**								

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

ALPAGUM DECOR			ALPAGUM ROC			CONSO-GARD			CONSO-GARD II			GLASDAN R36			ESTERDAN R-36		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
1a	A	2	2a,2c	C	2	1a,1b,2a,2b,2c	C	1	1a,1b,2a,2b,2c	C	2	2a	C	1	2a	C	2
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 67.2 lbf XD 44.8 lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 191 lbf XD 178 lbf			MD 191 lbf XD 178 lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
MD NA % XD NA %			MD NA % XD NA %			MD 35 % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %			MD NA % XD NA %		
MD 50 % XD 55 %			MD 50 % XD 55 %			MD NA % XD NA %			MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %		
NA			NA						NA						NA		
NA			NA						NA						NA		
42,500			42,500			NA						NA					
0.1 g.			0.1 g.			nil g.			____ g.			____ g.			____ g.		
MD 0.0 % XD 0.0 %			MD 0.0 % XD 0.0 %			MD nil % XD nil %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
Pass			NA			Pass						NA			NA		
NA			Pass						Pass			Pass			Pass		
____ g.			____ g.			____ g.			____ g.			0.024 g.			0.065 g.		
NA mm.			NA mm.			____ mm.			____ mm.			NA mm.			NA mm.		
NA			NA			Pass			NA						NA		
Pass			Pass			NA			Pass			Pass			Pass		
Pass			NA			Pass			Pass			NA			NA		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD 191 lbf XD 178 lbf			MD 191 lbf XD 178 lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
Pass			Pass									Pass			Pass		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
												Pass			Pass		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
												Pass			Pass		
Pass ____ g.			NA ____ g.			NA ____ g.			NA ____ g.			NA ____ g.			NA ____ g.		
			NA									Pass			Pass		
MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %			MD NA % XD NA %		
MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %			MD NA % XD NA %		
Pass			NA														
NA			Pass									NA			NA		
CIB/NORTHEAST ALUMINUM CORP.						CONS. PROT. COATINGS CORP.						DANOSA CARIBBEAN, INC.					

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	GLASDAN AL-80			ESTERDAN RM			F.A.R. MARK II		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	1a	B	1	1a	A	2			
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %		
GRADE 2-Min. 8.0%	MD NA % XD NA %			MD ____ % XD ____ %			MD ____ % XD ____ %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400				NA					
GRADE 1-If breaking strength is met; 2940				NA					
GRADE 2-Min. 14700	NA								
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	____ g.			____ g.			____ g.		
Dimensional change shall not exceed ± 1.0%	MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)	Pass								
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)	NA			Pass					
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	0.024 g.			0.065 g.			____ g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	NA mm.			NA mm.			____ mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)				NA					
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)	Pass			Pass					
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)				NA					
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass					
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass					
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min 176 lbf (785N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass					
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			____ g.			____ g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)	Pass			Pass					
Retain 90% of breaking strength, Test 1	MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
Retain 90% of elongation at break, Test 2	MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)	NA			NA					
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**DANOSA CARIBBEAN, INC.**						**FLEX-SHIELD CORP.**		
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

STRESSPLY			PITCHPLY			GEDAGOM POLYESTER S.B.			GEDAGOM POLYESTER			GEDAGOM VELO VETRO			GEDAGOM VELO VETRO EXTRA		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	C	1 & 2		C	1 & 2											C	
MD 318 lbf XD 324 lbf			MD 247 lbf XD 157 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD 318 lbf XD 324 lbf			MD 247 lbf XD 157 lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD *340 % XD *240 %			MD 100 % XD 120 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
MD *340 % XD *240 %			MD 100 % XD 120 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
NA			NA														
14,170			132,000														
14,170																	
____ g.			0.051 g.			____ g.			____ g.			____ g.			____ g.		
MD ____ % XD ____ %			MD −0.5 % XD 0.0 %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
____ g.			0.5 g.			____ g.			____ g.			____ g.			____ g.		
NA mm.			NA mm.			____ mm.			____ mm.			____ mm.			____ mm.		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
NA ____ g.			NA ____ g.			____ g.			____ g.			____ g.			____ g.		
Pass			Pass														
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
THE GARLAND CO., INC.						**GEDACO, LTD. (ITALY)**											

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	GEDAGOM GRANIPOL			GEDAGOM GRANIVEL			FLINTLASTIC		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
							1a	A	1
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 177 lbf XD 150 lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD ____ % XD ____ %			MD ____ % XD ____ %			MD 4.35 % XD 4.0 %		
GRADE 2-Min. 8.0%	MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400							NA		
GRADE 1-If breaking strength is met; 2940							3,466		
GRADE 2-Min. 14700							NA		
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	____ g.			____ g.			0.5 g.		
Dimensional change shall not exceed ± 1.0%	MD ____ % XD ____ %			MD ____ % XD ____ %			MD 0.0 % XD 0.0 %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)							Pass		
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)							Pass		
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	____ g.			____ g.			0.51 g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	____ mm.			____ mm.			NA mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)							Pass		
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)							NA		
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)							Pass		
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 140 lbf XD 100 lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)							Pass		
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 130 lbf XD 90 lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)							Pass		
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD 130 lbf XD 90 lbf		
GRADE 2-Min 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)							Pass		
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	____ g.			____ g.			0.1 g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)							Pass		
Retain 90% of breaking strength, Test 1	MD ____ % XD ____ %			MD ____ % XD ____ %			MD 96 % XD 95 %		
Retain 90% of elongation at break, Test 2	MD ____ % XD ____ %			MD ____ % XD ____ %			MD 94 % XD 92 %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)							Pass		
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)							NA		
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**GEDACO, LTD. (ITALY)**						**GENSTAR**		
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

GUAINA POLYGLAS			GUAINA POLYGLAS ALUM.			GUAINA POLYGLASS POLYESTER			GUAINA POLYGLASS GRANULAR			GUAINA POLYPREN			HEY'DI ECB		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
1a,2a	C	1 & 2	1a,2a	B	1	1a,2a	C	1	1a,2a	A	1 & 2						
MD 162 lbf XD 132 lbf			MD 105 lbf XD 70 lbf			MD 110 lbf XD 478 lbf			MD 156 lbf XD 122 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 162 lbf XD 132 lbf			MD 105 lbf XD 70 lbf			MD 110 lbf XD 478 lbf			MD 156 lbf XD 122 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 56 % XD 80 %			MD 39 % XD 37 %			MD 36 % XD 43 %			MD 87 % XD 104 %			MD ___ % XD ___ %			MD ___ % XD ___ %		
MD 56 % XD 80 %			MD 39 % XD 37 %			MD 36 % XD 43 %			MD 87 % XD 104 %			MD ___ % XD ___ %			MD ___ % XD ___ %		
NA			NA			NA			NA								
42,200			18,840			18,765			62,500								
42,200			18,840			18,765			62,500								
<1.0 g.			<1.0 g.			<1.0 g.			<1.0 g.			___ g.			___ g.		
MD <1.0 % XD <1.0 %			MD <1.0 % XD <1.0 %			MD <1.0 % XD <1.0 %			MD <1.0 % XD <1.0 %			MD ___ % XD ___ %			MD ___ % XD ___ %		
Pass			Pass			Pass			Pass								
Pass			Pass			Pass			Pass								
0.132 g.			0.132 g.			0.132 g.			0.132 g.			___ g.			___ g.		
NA mm.			___ mm.			NA mm.			NA mm.			___ mm.			___ mm.		
Pass			Pass			Pass			Pass								
Pass			NA			Pass			Pass								
Pass			Pass			Pass			Pass								
MD 126 lbf XD 102 lbf			MD 82 lbf XD 74 lbf			MD 166 lbf XD 440 lbf			MD 166 lbf XD 128 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 126 lbf XD 102 lbf			MD 82 lbf XD 74 lbf			MD 166 lbf XD 440 lbf			MD 166 lbf XD 128 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
Pass			Pass			Pass			Pass								
MD 153 lbf XD 135 lbf			MD 97 lbf XD 73 lbf			MD 142 lbf XD 390 lbf			MD 138 lbf XD 121 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 153 lbf XD 135 lbf			MD 97 lbf XD 73 lbf			MD 142 lbf XD 390 lbf			MD 138 lbf XD 121 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
Pass			Pass			Pass			Pass								
MD 153 lbf XD 127 lbf			MD 93 lbf XD 61 lbf			MD 143 lbf XD 400 lbf			MD 162 lbf XD 125 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 153 lbf XD 127 lbf			MD 93 lbf XD 61 lbf			MD 143 lbf XD 400 lbf			MD 162 lbf XD 125 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
Pass			Pass			Pass			Pass								
NA g.			NA g.			NA g.			.01g/cm² g.			___ g.			___ g.		
MD ___ % XD ___ %			MD 17 % XD 17 %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
MD ___ % XD ___ %			MD 17 % XD 17 %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
GUAINA															HEY 'DI UPM CORP.		

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	NURALITE			HYLOAD 150E			TESTUDO 4		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
				2a	A	1 & 2			
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD 250 lbf XD 160 lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD 250 lbf XD 160 lbf			MD ____ lbf XD ____ lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD ____ % XD ____ %			MD 150 % XD 150 %			MD ____ % XD ____ %		
GRADE 2-Min. 8.0%	MD ____ % XD ____ %			MD 150 % XD 150 %			MD ____ % XD ____ %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400									
GRADE 1-If breaking strength is met; 2940				166,000					
GRADE 2-Min. 14700				166,000					
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	____ g.			0.051 g.			____ g.		
Dimensional change shall not exceed ± 1.0%	MD ____ % XD ____ %			MD 0.5 % XD ____ %			MD ____ % XD ____ %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)				NA					
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)				Pass					
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	____ g.			0.5 g.			____ g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	____ mm.			NA mm.			____ mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)				Pass					
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)									
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)				Pass					
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 176 lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 176 lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 158 lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 158 lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 157 lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD 157 lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	____ g.			____ g.			____ g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)				Pass					
Retain 90% of breaking strength, Test 1	MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %		
Retain 90% of elongation at break, Test 2	MD ____ % XD ____ %			MD NA % XD NA %			MD ____ % XD ____ %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)				NA					
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)									
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**HITCHINS AMER. INC.**			**HYLOAD INC.**			**INDEX SPA TECHNOLOGIE IMPERMEABILI**		
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

MINERAL TESTUDO 4,5			HELASTA/P 4			MINERAL HELASTA P 4,5			DEFEND 4			MINERAL DEFEND 4,5			DURALASTA P		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
															2a,2b	A	2
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 475 % XD 362 %		
															NA		
															NA		
____ g.			____ g.			____ g.			____ g.			____ g.			____ g.		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
															NA		
____ g.			____ g.			____ g.			____ g.			____ g.			____ g.		
____ mm.			____ mm.			____ mm.			____ mm.			____ mm.			NA mm.		
															NA		
															NA		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
____ g.			____ g.			____ g.			____ g.			____ g.			____ g.		
															NA		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD NA % XD NA %		
															NA		
INDEX SPA, TECHNOLOGIE IMPERMEABILI															**THE KIMMENADE CORP.**		

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	DURALASTA M			AQUASHIELD 2001 AD			MHP POLYESTER CAP		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	2a,2b	C	2	2a	C	1 & 2			
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD 318 lbf XD 324 lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD 318 lbf XD 324 lbf			MD ____ lbf XD ____ lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD NA % XD NA %			MD 300 % XD ____ %			MD ____ % XD ____ %		
GRADE 2-Min. 8.0%	MD 475 % XD 362 %			MD 300 % XD ____ %			MD ____ % XD ____ %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400	NA								
GRADE 1-If breaking strength is met; 2940	NA								
GRADE 2-Min. 14700									
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	____ g.			____ g.			____ g.		
Dimensional change shall not exceed ± 1.0%	MD ____ % XD ____ %			MD ____ % XD ____ %			MD ____ % XD ____ %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)	NA			Pass					
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)				Pass					
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	____ g.			.1 max g.			____ g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	NA mm.			NA mm.			____ mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)	NA								
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)									
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)	NA			Pass					
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min. 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 2-Min 176 lbf (785N)	MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			NA g.			____ g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)	NA			NA					
Retain 90% of breaking strength, Test 1	MD NA % XD NA %			MD NA % XD NA %			MD ____ % XD ____ %		
Retain 90% of elongation at break, Test 2	MD NA % XD NA %			MD NA % XD NA %			MD ____ % XD ____ %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)	NA			Pass					
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)				Pass					
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**THE KIMMENADE CORP**			**J & P PETROLEUM PRODUCTS**			**HERBERT MALARKY ROOFING CORP.**		
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

MHP GLASS CAP			POLY-4			OWENS-CORNING DERBIGUM HPS			OWENS-CORNING DERBIGUM 5P			ROYAL SINGLE-PLY			VERAL (ALUMINUM FACED)		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
			1a,1b,2a,2b,2c	C	1 & 2							1a,2a	C	2	1a	B	1
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf			MD 139 lbf XD 137 lbf		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD 208 lbf XD 180.4 lbf			MD NA lbf XD NA lbf		
MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD NA % XD NA %			MD 4.0 % XD 5.0 %		
MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD 72.38 % XD 64.76 %			MD NA % XD NA %		
												NA			NA		
												NA			3,613		
												66,968			NA		
___ g.			___ g.			___ g.			___ g.			0.0 g.			0.10 g.		
MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD 1.0 % XD 1.0 %			MD ___ % XD ___ %		
												Pass			NA		
___ g.			___ g.			___ g.			___ g.			0.06 g.			___ g.		
___ mm.			___ mm.			___ mm.			___ mm.			NA mm.			___ mm.		
												NA					
												Pass			NA		
												Pass			Pass		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf			MD 169 lbf XD 173 lbf		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD 166.32 lbf XD ___ lbf			MD NA lbf XD NA lbf		
												Pass			Pass		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf.			MD ___ lbf XD ___ lbf			MD 176.8 lbf XD ___ lbf			MD NA lbf XD NA lbf		
												Pass					
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf		
MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD 175.48 lbf XD ___ lbf			MD NA lbf XD NA lbf		
												Pass					
___ g.			___ g.			___ g.			___ g.			NA g.			NA g.		
												Pass					
MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD 92 % XD 92 %			MD ___ % XD ___ %		
MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD 91 % XD 92 %			MD ___ % XD ___ %		
												Pass			NA		
HERBERT MALARKY ROOFING CO.			NORD BITUMI U.S. INC.			OWENS-CORNING						ROYAL OIL COMPANY			SIPLAST, INC.		

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	VERAL (STAIN/STEEL)			VERAL (COPPER FACED)			PARAFOR-50		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	1a	B	1	1a	B	1	1a	A	1
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD 677 lbf XD 676 lbf			MD 139 lbf XD 137 lbf			MD 164 lbf XD 122 lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD 3.0 % XD 3.0 %			MD 4.0 % XD 5.0 %			MD 90 % XD 90 %		
GRADE 2-Min. 8.0%	MD NA % XD NA %			MD NA % XD NA %			MD NA % XD NA %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400	NA			NA			NA		
GRADE 1-If breaking strength is met; 2940	9,039			3,557			65,392		
GRADE 2-Min. 14700	NA			NA			NA		
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	0.10 g.			0.10 g.			0.25 g.		
Dimensional change shall not exceed ± 1.0%	MD % XD %			MD % XD %			MD % XD %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)	NA			NA			NA		
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	g.			g.			g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	mm.			mm.			NA mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)									
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)	NA			NA			NA		
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD 169 lbf XD 173 lbf			MD 169 lbf XD 173 lbf			MD 161 lbf XD 116 lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD lbf XD lbf			MD lbf XD lbf			MD lbf XD lbf		
GRADE 2-Min. 176 lbf (785N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD lbf XD lbf			MD lbf XD lbf			MD lbf XD lbf		
GRADE 2-Min 176 lbf (785N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)									
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			NA g.			<1.0 g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)									
Retain 90% of breaking strength, Test 1	MD % XD %			MD % XD %			MD % XD %		
Retain 90% of elongation at break, Test 2	MD % XD %			MD % XD %			MD % XD %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)									
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)	NA			NA			NA		

LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction

NOTE: Blank lines = applicable data not reported by manufacturer.

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

PARADIENE-30			PARADIENE-20			SWEPCO UNI + SHIELD			AWAPLAN			RHOFLEX			MIGHTYPLATE		
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
1a	A	1	2a,2b	C	1	2a,2b	C	2	1a	A	1	1a,2a,2b,2c	C	1	1a,2a	C	2
MD 91 lbf XD 71 lbf			MD 72 lbf XD 67 lbf			MD NA lbf XD NA lbf			MD 130 lbf XD 129 lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 210 lbf XD 176 lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 208 lbf XD 180.4 lbf		
MD 24 % XD 24 %			MD 29 % XD 27 %			MD NA % XD NA %			MD 69 % XD 65 %			MD 57 % XD 57 %			MD NA % XD NA %		
MD NA % XD NA %			MD NA % XD NA %			MD 70 % XD 65 %			MD NA % XD NA %			MD NA % XD NA %			MD 72.38 % XD 64.76 %		
NA			NA			NA			NA						NA		
9,801			9393			NA			40,000						NA		
NA			NA						NA			NA			66,968		
0.23 g.			0.30 g.			0.0 g.			____ g.			____ g.			0.0 g.		
MD ____ % XD ____ %			MD ____ % XD ____ %			MD Pass % XD Pass %			MD ____ % XD ____ %			MD ____ % XD ____ %			MD 1.0 % XD 1.0 %		
Pass			NA			NA			Pass								
NA			Pass			Pass			NA						Pass		
____ g.			____ g.			0.1 g.			.08 g.			0.78 g.			0.06 g.		
NA mm.			NA mm.			NA mm.			NA mm.			NA mm.			NA mm.		
						NA									NA		
NA			NA			Pass			NA			NA			Pass		
Pass			Pass			Pass									Pass		
MD 70 lbf XD 69 lbf			MD 74 lbf XD 72 lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 166 lbf XD ____ lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 166.32 lbf XD ____ lbf		
Pass			Pass			Pass									Pass		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 177 lbf XD ____ lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 176.8 lbf XD ____ lbf		
						Pass									Pass		
MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf			MD ____ lbf XD ____ lbf			MD ____ lbf XD ____ lbf			MD NA lbf XD NA lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 176 lbf XD ____ lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 175.48 lbf XD ____ lbf		
						Pass									Pass		
<1.0 g.			NA g.			NA g.			<1.0 g.			NA g.			NA g.		
			NA			Pass			Pass						Pass		
MD ____ % XD ____ %			MD NA % XD NA %			MD 90.1 % XD 92.0 %			MD 92 % XD 92 %			MD ____ % XD ____ %			MD 92 % XD 92 %		
MD ____ % XD ____ %			MD NA % XD NA %			MD 92.0 % XD 92.0 %			MD 100 % XD 100 %			MD ____ % XD ____ %			MD 91 % XD 92 %		
			NA			NA											
NA						Pass			NA						Pass		
SIPLAST, INC.						SWEPCO			TAMKO			TELTEX, INC.			TEXAS REFINERY CORP.		

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M	TROPISEAL			BRAI SP4			GRM 120		
	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
	2a	C	2	2a	C	2	1a,1b	C	1
1. BREAKING STRENGTH									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 102 lbf XD 122 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 200+ lbf XD 180+ lbf			MD 208 lbf XD 180.4 lbf			MD NA lbf XD NA lbf		
2. ULTIMATE ELONGATION (ELONGATION AT BREAK)									
GRADE 1-Min. 4.0%	MD NA % XD NA %			MD NA % XD NA %			MD 210 % XD 151 %		
GRADE 2-Min. 8.0%	MD 72.4 % XD 64.8 %			MD 72.38 % XD 64.76 %			MD NA % XD NA %		
3. LOAD STRAIN PRODUCT [BREAK STRENGTH (N) x ULTIMATE ELONGATION (%)]									
GRADE 1-If breaking strength is not met; 19400	NA			NA			NA		
GRADE 1-If breaking strength is met; 2940	NA			NA			95,550		
GRADE 2-Min. 14700							NA		
4. WATER RESISTANCE									
Shall not absorb more than 1.0g. of water	0.0 g.			0.0 g.			0.04 g.		
Dimensional change shall not exceed ± 1.0%	MD <1.0 % XD <1.0 %			MD 1.0 % XD 1.0 %			MD 0.0 % XD 0.0 %		
5. LOW TEMP FLEXIBILITY — 4 out of 5 samples will pass water tightness test									
TYPE 1-After testing at – 22 °F (– 30 °C) (Pass/Fail)	NA			NA			Pass		
TYPE 2-After testing at – 14 °F (– 10 °C) (Pass/Fail)	Pass			Pass			NA		
6. WATER VAPOR TRANSMISSION									
Max. 1.0g./m² x 24h.	0.06 g.			0.06 g.			g.		
7. THERMAL STABILITY									
TYPE 1, CLASS B ONLY-Expansion or contraction less than 1 mm/m between 10 and 30 cycles	NA mm.			NA mm.			NA mm.		
8. DYNAMIC IMPACT (PUNCTURING)									
Pass water tightness test after energy impact of:									
GRADE 1 - 1.8 ft. lbf (2.45J) (Pass/Fail)	NA			NA			Pass		
GRADE 2 - 3.6 ft. lbf (4.9J) (Pass/Fail)	Pass			Pass			NA		
9. STATIC PUNCTURING									
TYPE 1-After 1 hr. at 55 lbf (245N) shall pass water tightness test (Pass/Fail)				Pass					
10. LAP JOINT STRENGTH									
5 Day Conditioning									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 93 lbf XD 93 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 166 lbf XD lbf			MD 166.32 lbf XD lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days									
GRADE 1-Min. 66 lbf (294N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 105 lbf XD 105 lbf		
GRADE 2-Min. 176 lbf (785N)	MD 176 lbf XD lbf			MD 176.8 lbf XD lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass			Pass		
Immersion at 50°C for 5 Days Plus Freeze Thaw Cycles									
GRADE 1-Min 66 lbf (294N)	MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD 111 lbf XD 111 lbf		
GRADE 2-Min 176 lbf (785N)	MD 175 lbf XD lbf			MD 175.48 lbf XD lbf			MD NA lbf XD NA lbf		
GRADE 1 & 2-Pass water tightness test (Pass/Fail)	Pass			Pass					
11. GRANULE EMBEDMENT									
CLASS A ONLY-Max. 0.5 g. loss	NA g.			NA g.			NA g.		
12. ACCELERATED WEATHERING									
TYPE 1 ONLY-after prescribed no. of cycles (approx. 90 days)									
Shall not show cracking or blistering (Pass/Fail)	Pass			Pass					
Retain 90% of breaking strength, Test 1	MD 91.2 % XD 92.1 %			MD 92 % XD 92 %			MD % XD %		
Retain 90% of elongation at break, Test 2	MD 91.4 % XD 92.1 %			MD 66.15 % XD 59.58 %			MD % XD %		
13. CRACK BRIDGING CAPABILITY									
Shall show no cracking, splitting or loss of adhesion									
TYPE 1.a. and 1.b.-at – 22 °F (– 30 °C) (Pass/Fail)	NA			NA			Pass		
TYPE 2.a. and 2.b.-at – 14 ° (– 10 °C) (Pass/Fail)	Pass			Pass			NA		
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**TROPICAL**			**U.S. INTEC INC.**			**W.R. GRACE & CO.**		
NOTE: Blank lines = applicable data not reported by manufacturer.									

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MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

GRM 230			GRM 350			GRM 500											
Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade	Type	Class	Grade
2a,2b	C	1	2a	C	1	1a,1b	C	1									
MD 102 lbf XD 105 lbf			MD 51 lbf XD 75 lbf			MD 150 lbf XD 168 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD 169 % XD 139 %			MD 215 % XD 138 %			MD 164 % XD 109 %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
MD NA % XD NA %			MD NA % XD NA %			MD NA % XD NA %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
NA			49,000			NA											
76,900			NA			109,700											
NA			NA			NA											
0.04 g.			0.08 g.			0.07 g.			___ g.			___ g.			___ g.		
MD 0.0 % XD 0.3 %			MD 0.0 % XD 0.3 %			MD 0.0 % XD 0.0 %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
NA			NA			Pass											
Pass			Pass			NA											
___ g.			___ g.			___ g.			___ g.			___ g.			___ g.		
NA mm.			NA mm.			NA mm.			___ mm.			___ mm.			___ mm.		
Pass			Pass			Pass											
NA			NA			NA											
NA			Pass			Pass											
MD 93 lbf XD 93 lbf			MD 81 lbf XD 81 lbf			MD 104 lbf XD 104 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
Pass			Pass			Pass											
MD 105 lbf XD 105 lbf			MD 90 lbf XD 90 lbf			MD 121 lbf XD 121 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
Pass			Pass			Pass											
MD 111 lbf XD 111 lbf			MD 93 lbf XD 93 lbf			MD 122 lbf XD 122 lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD NA lbf XD NA lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf			MD ___ lbf XD ___ lbf		
NA ___ g.			NA ___ g.			NA ___ g.			___ g.			___ g.			___ g.		
NA			NA														
MD NA % XD NA %			MD NA % XD NA %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
MD NA % XD NA %			MD NA % XD NA %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %			MD ___ % XD ___ %		
NA			NA			Pass											
Pass			Pass			NA											
W.R. GRACE & CO.																	

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PVC POLYVINYL CHLORIDE Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	ALKORPLAN	RHENOFOL C-45	RHENOFOL C-52	RHENOFOL CV40	RHENOFOL CV48	TROCAL SMA
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	Polyester	Polyester	None
b) Color	Grey	Pale Grey	White	Pale Grey	Pale Grey/White	Beige
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.33	.30	.336	.266	.327	.30
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	10	10		10		10 lbs. Min.
b) Partially adhered-method			Mech. Fastened		Mech. Fastened	
c) Fully adhered-method						
d) Protected Membrane Roofing Assembly		●	●	●	●	●
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	With Slipsheet
g) Other						See Specifications
8. RESTRICTED REGIONS *(See "Important Notes")*	Tropical Climate	See Literature	See Literature	See Literature	See Literature	See Literature
9. WORKABLE TEMP RANGE	0°F-115°F	0°F-120°F	0°F-120°F	0°F-120°F	0°F-120°F	0°F-120°F
10. FLASHING MATERIAL	PVC Coated Metal	PVC Coated Metal	PVC Coated Metal, White	PVC Coated Metal	PVC Coated Metal, Grey or White	PVC Coated Metal or Reinforced Membrane
11. FLASHING METHOD	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat
12. PRE-FORMED ACCESS AVAILABLE	Yes	Yes	Yes	Yes	Yes	Yes
13. COUNTRY OF ORIGIN	Belgium	W. Germany	W. Germany	W. Germany	W. Germany	W. Germany
14. COUNTRY OF MANUFACTURE	Belgium	W. Germany/USA	W. Germany/USA	W. Germany/USA	W. Germany/USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1970	1966	1980	1966	1966	1971
b) U.S.A. (Year, City-first installed)	1980-Lincoln, NE	1976-Indianapolis	1982	1976	1976	1977-New York
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	Not Available	1,500,000 All Types	1,500,000 All Types	1,500,000 All Types	1,500,000 All Types	>20,000,000
b) U.S.A.	50,000	100,000	1,000	27,000	108,000	>10,000,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	5/10	5/10	5/10	5/10	10
b) Renewable after inspection						●
c) Scope of coverage (repair of leaks)						
c.1 Material only						●
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None	●	●	●	●	●	●
d.2 Original cost of installation						●
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Coal Tar	Coal Tar, Oils, Animal Fats (applicable with proper procedures)	Coal Tar, Oils, Animal Fats (applicable with proper procedures)	Coal Tar, Oils, Animal Fats (applicable with proper procedures)	Coal Tar, Oils, Animal Fats (applicable with proper procedures)	Coal Tar See Chemical Resistance List
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Mfgr/Reps.	Direct to Contr.				Manufacturer/Reps.
22. # REGIONAL SERVICE LOCATIONS		9				4
23. LICENSED APPLICATOR AGREEMENT	Yes	Yes				Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	On Job Training	Factory, Field				Field, Seminars
25. SALES INFORMATION; CONTACT	Office	Customer Service				Sales Aid Group
26. TECHNICAL INFORMATION; CONTACT	Office	Technical Service				Technical Service
COMPANY►	ALKOR-DIVISION OF THE SOLVAY AMERICAN CORP.	BARRA CORPORATION OF AMERICA, INC.				DYNAMIT NOBEL

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PVC POLYVINYL CHLORIDE Part 1 *(See Part 2 for Test Results)*

TROCAL S-60	TROCAL S-48*	GENSEAL ACR	INTEROOF "U"	INTEROOF "B"	PLYROOF PVC GREY	PLYROOF PVC WHITE	SUCOFLEX F132	SUCOFLEX F127
None	None	None	None	None	None	None	Fiberglass	Polyester
Egg Shell	Egg Shell	Grey/Black	Grey	Grey	Grey	White	Light Grey	Light Grey
.30	.30	.30	.40	.30	.32	.32	.33	.37
None	None		None	None	None	None	None	None
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Solvent/Heat	Solvent/Heat	Solvent	Solvent/Thermal	Solvent/Thermal	Solvent/Heat	Solvent/Heat	Hot Air Weld	Hot Air Weld
		●		12	10-13	10-13	10-12	
●	●	●	●		Batten	Batten	●	Mech. Fastened
		●					●	
					●	●	●	
Dead Level	Dead Level		Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●		●	●	●	●	●
●	●	●*	●	●	●	●	●	●
●	●	●	●	●	●	●		
See Specifications	See Specifications	Cyanurates *Slipsheet			Approval of Plyroof Tech. Dept.	Approval of Plyroof Tech. Dept.	Concrete, Plywood, Consult Mfgr.	Concrete, Plywood, Consult Mfgr.
See Literature	See Literature	See Manufacturer	None	None	None	None	None	None
0°F-120°F	0°F-120°F	See Manufacturer	0°F-110°F	0°F-100°F	5°F-120°F	5°F-120°F	0°F-120°F	0°F-120°F
PVC Coated Metal or Reinforced Membrane	PVC Coated Metal or Reinforced Membrane	Membrane	PVC Coated Metal	PVC Coated Metal	PVC Coated Metal	PVC Coated Metal	PVC Clad Metal and F132 Membrane	PVC Clad Metal and F132 Membrane
Solvent/Heat	Solvent/Heat	See Manufacturer	Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat	Hot Air Weld	Hot Air Weld
Yes	Yes		Yes	Yes	No	No	Yes	Yes
W. Germany	W. Germany	USA	Austria	Austria	USA	USA	Switzerland	Switzerland
USA/W. Germany	USA/W. Germany	USA	Austria	Austria	USA	USA	Switzerland	Switzerland
1966			1970	1968			1966	1969
1971-New York	1982-USA	1980	1982-Los Angeles	1982-Detroit	1975-Pueblo	1981-Franklin	1980-Hawthorne	1980-El Segundo
>15,000,000							Consult Mfgr.	Consult Mfgr.
>5,000,000		21,000			453,000	11,800	400,000	Consult Mfgr.
10	10	10	10	10	10	10	10	10
●	●	No			No	No		
●	●	●						
●	●	●	●	●	●	●	●	●
●	●	●	●	●			●	●
●	●	●			●	●		
●	●				●	●		
●	●			●	●	●		
Coal Tar - See Chemical Resistance List	Coal Tar - See Chemical Resistance List	Coal Tar	Coal Tar	Coal Tar	Coal Tar	Coal Tar	Bitumen, Oils, Animal Fats (applicable w/ proper procedures*)	Bitumen, Oils, Animal Fats (applicable w/ proper procedures*)
Manufacturer/Reps		Distributors	Direct		Direct		Direct	
4		8			4		6	
Yes		Yes	Yes		Yes		Yes	
Field, Seminars		Field, Seminars	Field		Field		Factory, Field	
Sales Aid Group		T. Clapperton	Michael Haas		Charles Taft		Glenn Taylor, Dir. Mktg.	
Technical Service		K. Russell	R. Coursey		Steve Condren		Brad Ellis, Tech. Dir.	
DYNAMIT NOBEL		GENERAL TIRE & RUBBER CO. BLDG. PRODUCTS DIVISION	IPW INTERPLASTIC		PLYMOUTH RUBBER COMPANY, INC.		PMS/SUCOFLEX	
*48 mil Version of Trocal/S-60							*Consult Mfgr.	

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PVC POLYVINYL CHLORIDE Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	NERVAPLY	NERVAPLY UB	SARNAFIL G21-410	SARNAFIL S21-327	SARNAFIL G21-442	FLEXHIDE 34
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	Fiberglass	Polyester	Fiberglass	None
b) Color	Slate	Bone	Grey & Asst'd	Grey	Grey	Light Grey
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.36	.49	.33	.33	.33	.23
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Solvent/Heat	Solvent/Heat	Hot Air Weld	Hot Air Weld	Hot Air Weld	Solvent/Heat
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	10				10	10
b) Partially adhered-method	Loose Laid	Bar/Strip/Washer		Mech. Fastened		
c) Fully adhered-method		No	●			
d) Protected Membrane Roofing Assembly	No	No			●	●
6. MINIMUM SLOPE	1:12	6:12+	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●			●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●		●	●	●
e) Expanded polystyrene	●	●		With Slipsheet	With Slipsheet	●
f) Felt faced composites	●	●				●
g) Other						Isocyanurate, Extruded Polystyrene
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	5°F-140°F	5°F-140°F	0°F-120°F	0°F-120°F	0°F-120°F	
10. FLASHING MATERIAL	Self or PVC Metal	Self or PVC Metal	G21-410	G21-410	G21-442	Coated Metal
11. FLASHING METHOD	Solvent/Heat	Solvent/Heat	Adhesive & Heat Weld	Adhesive & Heat Weld	Adhesive & Heat Weld	Solvent/Heat
12. PRE-FORMED ACCESS AVAILABLE	No	No	Yes	Yes	Yes	Yes
13. COUNTRY OF ORIGIN	USA	USA	Switzerland	Switzerland	Switzerland	USA
14. COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)			1964	1964	1964	
b) U.S.A. (Year, City-first installed)	1980-NY City	1980-Flint, MI	1975-New Hampshire	1978-Illinois	1977-Massachusetts	1978-Stanhope
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	None	None	NA	NA	NA	
b) U.S.A.	80,000	70,000	120,000	20,000	80,000	<100,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	10	10	10	5 or 10
b) Renewable after inspection	●	●	No	No	No	
c) Scope of coverage (repair of leaks)			●	●	●	
c.1 Material only						
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None	●	●				
d.2 Original cost of installation						●
d.3 $ per square	$3.00	$3.00	Replacement Value	Replacement Value	Replacement Value	
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Coal Tar	Needs Separate Sheet	Bitumen, Oils Animal Fats	Bitumen, Oils Animal Fats	Bitumen, Oils, Animal Fats	Petroleum, Coal Tar Products See Specifications
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Direct & Distributor		Direct			Licensed Contractors Only
22. # REGIONAL SERVICE LOCATIONS	2		6			1
23. LICENSED APPLICATOR AGREEMENT	Yes		Yes			Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field		Factory, Field			Field, Seminars, Factory
25. SALES INFORMATION; CONTACT	J. Klaus		Ruth Warshaw			S. Steck
26. TECHNICAL INFORMATION; CONTACT	J. Lynch		Ed Stewart			F. Neuwirth
COMPANY►	RUBBER PLASTICS COMPOUND COMPANY, INC.		SARNAFIL (U.S.) INC.			U.S. MINERAL PRODUCTS CO.

continued →

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PVC POLYVINYL CHLORIDE Part 1 *(See Part 2 for Test Results)*

FLEXHIDE 45	FLEXHIDE LR 50	FLAGON SF	FLAGON C					
None	Polyester	None	None					
Light Grey	Light Grey or White	Grey	Grey					
.30	.32	.35						
None	None	None	None					
●	●	●	●					
●	●	●	●					
Solvent/Heat	Solvent/Heat	Solvent	Solvent/Heat					
10			10					
	Mech. Fastened							
		●						
●								
Dead Level	Dead Level	Dead Level	Dead Level					
●	●	●	●					
●	●	●	●					
●	●	●	●					
●	●	●	●					
●	●	●	●					
●	●	●	●					
Isocyanurate, Extruded Polystyrene	Isocyanurate, Extruded Polystyrene							
None	None	None	None					
		0°F-120°F	0°F-120°F					
Coated Metal	Coated Metal	PVC/PVC Ctd. Metal	PVC/PVC Ctd. Metal					
Solvent/Heat	Solvent/Heat	Solvent/Heat	Solvent/Heat					
Yes	Yes	Yes	Yes					
USA	USA	Italy	Italy					
USA	USA	Italy	USA					
		1963	1963					
1980-Stanhope	1978-Stanhope	1978	1978					
		80,000	800,000					
<50,000	<30,000	40,000	400,000					
5 or 10	5 or 10	10	10					
		●	●					
●	●	●	●					
		●	●					
●	●							
●	●							
●	●	●	●					
Petroleum, Coal Tar Products See Specifications	Petroleum, Coal Tar Products See Specifications	Coal Tar	Coal Tar					

Licensed Contractors Only	Direct, Distributors	
1	7	
Yes	Yes	
Field, Seminars, Factory	Field, Seminars	
S. Steck	201/528-6727	
F. Neuwirth	201/528-6727	
U.S. MINERAL PRODUCTS COMPANY	WAT PRO, INC.	

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PVC Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-54M	ALKORPLAN		RHENOFOL C-45		RHENOFOL C-52	
	Type	Class	Type	Class	Type	Class
	1	A	1	A	1	A,B
1. THICKNESS						
TYPE 1-Min. 39 mils (1.0 mm)	48 mils		45 mils		52 mils	
TYPE 2-Min. 47 mils (1.2 mm)	NA mils		NA mils		NA mils	
TYPE 1 & 2-No measured thickness lower than 3 mils (.08 mm) below nominal thickness (Pass/Fail)	Pass					
2. TENSILE STRENGTH						
TYPE 1-Shall not be less than 1700 psi (11.7 MPa)	MD 2800 psi XD 2800 psi		MD psi XD psi		MD psi XD psi	
TYPE 2-Shall not be less than 1500 psi (10.3 MPa)	MD NA psi XD NA psi		MD NA psi XD NA psi		MD NA psi XD NA psi	
3. LAP JOINT STRENGTH						
Before boiling condition:						
Shall not be less than 75% of the breaking strength of the material (Test 2)	MD % XD %		MD % XD %		MD % XD %	
No shearing of lap joint shall occur (Pass/Fail)	Pass					
After one week in boiling water:						
Shall show no delamination (Pass/Fail)	Pass					
Shall not be less than 70% of the breaking strength of the material (Test 2)	MD % XD %		MD % XD %		MD % XD %	
4. ELONGATION AT BREAK						
Shall not be less than 250%	MD <350 % XD <350 %		MD % XD %		MD % XD %	
5. LOW TEMPERATURE IMPACT						
Shall not have more than 2 specimens out of 10 fail (Pass/Fail)	Pass					
6. RESISTANCE TO HEAT AGING						
No decrease in tensile strength as received (Test 2)	MD psi XD psi		MD psi XD psi		MD psi XD psi	
Elongation at break shall not change by more than 30% of value as received (Test 4)	MD <30 % XD <30 %		MD % XD %		MD % XD %	
Shall show no delamination (Pass/Fail)	Pass					
7. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking at −22 °F (−30 °C) (Pass/Fail)	Pass		Pass		Pass	
8. RESISTANCE TO ACCELERATED WEATHERING						
CLASS B ONLY — after exposure to accelerated weathering:						
Shall not show cracking, blistering or color change (Pass/Fail)			NA			
Elongation at break shall not be reduced by more than 5.0% as received	MD <5 % XD <5 %		MD NA % XD NA %		MD % XD %	
Shall pass low temperature impact test (Pass/Fail)	Pass		NA			
Shall pass low temperature flexibility test (Pass/Fail)	Pass		NA			
9. PERMEABILITY (WATER VAPOR TRANSMISSION)						
Max. 4.0 g./m² in 24h.	2.35 g		2.7 g		g	
10. WATER ABSORPTION						
Shall not absorb a mass of water greater than 2.0%	1.0 %		%		%	
Elongation at break shall not be less than 90% of elongation at break as measured in test 4	MD % XD %		MD % XD %		MD % XD %	
The tensile strength will not be less than that of the tensile strength as measured in test 2	MD psi XD psi		MD psi XD psi		MD psi XD psi	
11. DIMENSIONAL CHANGE						
Without loading: **TYPE 1**-Shall not change more than 2.0%	MD <1.5 % XD <1.5 %		MD % XD %		MD % XD %	
TYPE 2-Shall not change more than 0.5%	MD NA % XD NA %		MD NA % XD NA %		MD NA % XD NA %	
With loading: Shall not change more than 0.5%	%		%		%	
Shall not change more than 0.2%	%		%		%	
12. CONE PENETRATION						
Shall not penetrate thru at less than 7 psi (30N) force	psi		psi		psi	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**ALKOR-DIVISION OF THE SOLVAY AMERICAN CORP.**		**BARRA CORPORATION OF AMERICA, INC.**			
NOTE: Blank lines = applicable data not reported by manufacturer.						

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PVC Part 2: Test Results *(See Part 1 for General Information)*

RHENOFOL CV40		RHENOFOL CV48		TROCAL SMA		TROCAL S-60		TROCAL S-48		GEN SEAL ACR	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
2	A,B	2	A,B	1	A	1	B	1	B	1	B
NA mils		NA mils		48 mils		60 mils		48 mils		45 mils	
40 mils		48 mils		NA mils		NA mils		NA mils		NA mils	
				Pass		Pass		Pass		Pass	
MD NA psi XD NA psi		MD NA psi XD NA psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD 1800 psi XD 1900 psi	
MD psi XD psi		MD psi XD psi		MD psi XD psi		MD psi XD psi		MD psi XD psi		MD NA psi XD NA psi	
MD % XD %		MD % XD %		MD >75 % XD %		MD >75 % XD %		MD >75 % XD %		MD >75 % XD >75 %	
				Pass		Pass		Pass		Pass	
				Pass		Pass		Pass		Pass	
MD % XD %		MD % XD %		MD >70 % XD %		MD >70 % XD %		MD >70 % XD %		MD >70 % XD >70 %	
MD % XD %		MD % XD %		MD >300 % XD %		MD >300 % XD %		MD >300 % XD %		MD 300 % XD 300 %	
				Pass		Pass		Pass			
MD psi XD psi		MD psi XD psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD 1890 psi XD 1995 psi	
MD % XD %		MD % XD %		MD 300 % XD %		MD >300 % XD %		MD >300 % XD %		MD −6 % XD −6 %	
				Pass		Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
				Pass		Pass		Pass		Pass	
MD % XD %		MD % XD %		MD <5 % XD %		MD <5 % XD %		MD <5 % XD %		MD % XD %	
				Pass		Pass		Pass			
				Pass		Pass		Pass		Pass	
g.		g.		>4.0 g.		>4.0 g.		>4.0 g.		<1.0 g.	
%		%		<0.2 %		<0.2 %		<0.2 %		<1.0 %	
MD % XD %		MD % XD %		MD >90 % XD %		MD >90 % XD %		MD >90 % XD %		MD 90 % XD 90 %	
MD psi XD psi		MD psi XD psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD >2130 psi XD psi		MD psi XD psi	
MD NA % XD NA %		MD NA % XD NA %		MD <0.5 % XD %		MD <0.5 % XD %		MD <0.5 % XD %		MD <1.0 % XD <1.0 %	
MD % XD %		MD % XD %		MD NA % XD NA %		MD NA % XD NA %		MD NA % XD %		MD NA % XD NA %	
%		%		%		%		%		%	
%		%		%		%		%		%	
psi		psi		>7 psi		>7 psi		>7 psi		>7 psi	
BARRA CORPORATION OF AMERICA, INC.				DYNAMIT NOBEL						GENERAL TIRE & RUBBER	

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PVC Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-54M	INTEROOF "U" Type 1	INTEROOF "U" Class B	INTEROOF "B" Type 1	INTEROOF "B" Class B	PLYROOF PVC GREY Type 1	PLYROOF PVC GREY Class B
1. THICKNESS						
TYPE 1-Min. 39 mils (1.0 mm)		mils		mils	45	mils
TYPE 2-Min. 47 mils (1.2 mm)	NA	mils	NA	mils	NA	mils
TYPE 1 & 2-No measured thickness lower than 3 mils (.08 mm) below nominal thickness (Pass/Fail)					Pass	
2. TENSILE STRENGTH						
TYPE 1-Shall not be less than 1700 psi (11.7 MPa)	MD	psi XD psi	MD	psi XD psi	MD 2147 psi	XD 1873 psi
TYPE 2-Shall not be less than 1500 psi (10.3 MPa)	MD NA psi	XD NA psi	MD NA psi	XD NA psi	MD NA psi	XD NA psi
3. LAP JOINT STRENGTH						
Before boiling condition:						
Shall not be less than 75% of the breaking strength of the material (Test 2)	MD	% XD %	MD	% XD %	MD 76.0 %	XD 83.5 %
No shearing of lap joint shall occur (Pass/Fail)						
After one week in boiling water:						
Shall show no delamination (Pass/Fail)						
Shall not be less than 70% of the breaking strength of the material (Test 2)	MD	% XD %	MD	% XD %	MD 74 %	XD 75 %
4. ELONGATION AT BREAK						
Shall not be less than 250%	MD	% XD %	MD	% XD %	MD 260 %	XD 255 %
5. LOW TEMPERATURE IMPACT						
Shall not have more than 2 specimens out of 10 fail (Pass/Fail)	Pass		Pass		Pass	
6. RESISTANCE TO HEAT AGING						
No decrease in tensile strength as received (Test 2)	MD	psi XD psi	MD	psi XD psi	MD 1976 psi	XD 1779 psi
Elongation at break shall not change by more than 30% of value as received (Test 4)	MD	% XD %	MD	% XD %	MD 9 %	XD 20 %
Shall show no delamination (Pass/Fail)					Pass	
7. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking at −22°F (−30°C) (Pass/Fail)	Pass		Pass		Pass	
8. RESISTANCE TO ACCELERATED WEATHERING						
CLASS B ONLY — after exposure to accelerated weathering:						
Shall not show cracking, blistering or color change (Pass/Fail)	Pass		Pass		Pass	
Elongation at break shall not be reduced by more than 5.0% as received	MD	% XD %	MD	% XD %	MD 3.5 %	XD 4.0 %
Shall pass low temperature impact test (Pass/Fail)					Pass	
Shall pass low temperature flexibility test (Pass/Fail)					Pass	
9. PERMEABILITY (WATER VAPOR TRANSMISSION)						
Max. 4.0 g./m² in 24h.	1.03	g.	1.03	g.	2.24	g.
10. WATER ABSORPTION						
Shall not absorb a mass of water greater than 2.0%		%		%	0.93	%
Elongation at break shall not be less than 90% of elongation at break as measured in test 4	MD	% XD %	MD	% XD %	MD 91 %	XD 90 %
The tensile strength will not be less than that of the tensile strength as measured in test 2	MD	psi XD psi	MD	psi XD psi	MD 1867 psi	XD 1773 psi
11. DIMENSIONAL CHANGE						
Without loading: **TYPE 1**-Shall not change more than 2.0%	MD	% XD %	MD	% XD %	MD 2.5 %	XD 1.0 %
TYPE 2-Shall not change more than 0.5%	MD NA %	XD NA %	MD NA %	XD NA %	MD NA %	XD NA %
With loading: Shall not change more than 0.5%	%		%		%	
Shall not change more than 0.2%		%		%		%
12. CONE PENETRATION						
Shall not penetrate thru at less than 7 psi (30N) force		psi		psi	9	psi
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	IPW INTERPLASTIC				PLYMOUTH RUBBER COMPANY INC.	
NOTE: Blank lines = applicable data not reported by manufacturer.						

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PVC Part 2: Test Results *(See Part 1 for General Information)*

PLYROOF PVC WHITE		SUCOFLEX F132		SUCOFLEX F127		NERVAPLY		NERVAPLY UB		SARNAFIL G21-410	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	B	2	B	2	B	2	A & B	2	A & B	2	B
45 mils		NA mils		NA mils		NA mils		NA mils		NA mils	
NA mils		48, 60, 90 mils		48 mils		48 mils		48 mils		1.2 mils	
Pass		Pass		Pass		Pass		Pass		Pass	
MD 2147 psi XD 1873 psi		MD NA psi XD NA psi		MD NA psi XD NA psi		MD NA psi XD NA psi		MD NA psi XD NA psi		MD NA psi XD NA psi	
MD NA psi XD NA psi		MD 1557 psi XD 1528 psi		MD 3070 psi XD 3085 psi		MD 2390 psi XD — psi		MD 2640 psi XD — psi		MD 1566 psi XD 1523 psi	
MD 76.0 % XD 83.5 %		MD 8.4 % XD — %		MD — % XD — %		MD — % XD — %		MD — % XD — %		MD 103 % XD — %	
		Pass		Pass						Pass	
		Pass		Pass						Pass	
MD 74 % XD 75 %		MD 8.4 % XD — %		MD — % XD — %		MD — % XD — %		MD — % XD — %		MD 105 % XD — %	
MD 260 % XD 255 %		MD 263 % XD 253 %		MD — % XD — %		MD 325 % XD — %		MD 325 % XD — %		MD 292 % XD 264 %	
Pass		Pass		Pass		Pass		Pass		Pass	
MD 1976 psi XD 1779 psi		MD 1556 psi XD 1556 psi		MD 3069 psi XD 3084 psi		MD 2490 psi XD — psi		MD 2772 psi XD — psi		MD 1625 psi XD — psi	
MD 9 % XD 20 %		MD 236 % XD 252 %		MD — % XD — %		MD 7 % XD — %		MD 7 % XD — %		MD 295.8 % XD — %	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
MD 3.5 % XD 4.0 %		MD — % XD — %		MD — % XD — %		MD 7.6 % XD 0.4 %		MD 7.6 % XD — %		MD — % XD 4.7 %	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
2.24 g.		1.8 g.		1.8 g.		0.3 g.		0.3 g.		1.21 g.	
0.93 %		— %		— %		— %		— %		1.29 %	
MD 91 % XD 90 %		MD 251 % XD 241 %		MD — % XD — %		MD — % XD — %		MD — % XD — %		MD 267.9 % XD — %	
MD 1867 psi XD 1773 psi		MD 1556 psi XD 1484 psi		MD — psi XD — psi		MD — psi XD — psi		MD — psi XD — psi		MD 1610 psi XD — psi	
MD 2.5 % XD 1.0 %		MD NA % XD NA %		MD NA % XD NA %		MD NA % XD NA %		MD NA % XD NA %		MD NA % XD NA %	
MD NA % XD NA %		MD .04 % XD .02 %		MD .04 % XD .02 %		MD 0.4 % XD 0.3 %		MD 0.4 % XD 0.3 %		MD 0.039 % XD 0.0196 %	
— %		.05 %		.03 %		0.4 %		0.4 %		0.032 %	
— %		.02 %		.05 %		0.18 %		0.18 %		0.061 %	
9 psi		— psi		— psi		— psi		— psi		10.6 psi	
PLYMOUTH RUBBER CO. INC.		PMS/SUCOFLEX				RUBBER PLASTICS COMPOUND CO., INC.				SARNAFIL (U.S.) INC.	

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PVC Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-54M	SARNAFIL S21-327 Type 2	SARNAFIL S21-327 Class B	SARNAFIL G21-442 Type 2	SARNAFIL G21-442 Class A	FLEXHIDE 34 Type 1	FLEXHIDE 34 Class A
1. THICKNESS						
TYPE 1-Min. 39 mils (1.0 mm)	NA mils		NA mils		mils	
TYPE 2-Min. 47 mils (1.2 mm)	1.2 mils		mils		NA mils	
TYPE 1 & 2-No measured thickness lower than 3 mils (.08 mm) below nominal thickness (Pass/Fail)	Pass					
2. TENSILE STRENGTH						
TYPE 1-Shall not be less than 1700 psi (11.7 MPa)	MD NA psi XD NA psi		MD NA psi XD NA psi		MD psi XD psi	
TYPE 2-Shall not be less than 1500 psi (10.3 MPa)	MD 2770 psi XD 3090 psi		MD psi XD psi		MD NA psi XD NA psi	
3. LAP JOINT STRENGTH						
Before boiling condition:						
Shall not be less than 75% of the breaking strength of the material (Test 2)	MD 107 % XD %		MD % XD %		MD % XD %	
No shearing of lap joint shall occur (Pass/Fail)	Pass					
After one week in boiling water:						
Shall show no delamination (Pass/Fail)	Pass					
Shall not be less than 70% of the breaking strength of the material (Test 2)	MD 94.2 % XD %		MD % XD %		MD % XD %	
4. ELONGATION AT BREAK						
Shall not be less than 250%	MD % XD %		MD % XD %		MD % XD %	
5. LOW TEMPERATURE IMPACT						
Shall not have more than 2 specimens out of 10 fail (Pass/Fail)	Pass					
6. RESISTANCE TO HEAT AGING						
No decrease in tensile strength as received (Test 2)	MD 2800 psi XD psi		MD psi XD psi		MD psi XD psi	
Elongation at break shall not change by more than 30% of value as received (Test 4)	MD % XD %		MD % XD %		MD % XD %	
Shall show no delamination (Pass/Fail)	Pass					
7. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking at −22 °F (−30 °C) (Pass/Fail)	Pass					
8. RESISTANCE TO ACCELERATED WEATHERING						
CLASS B ONLY — after exposure to accelerated weathering:						
Shall not show cracking, blistering or color change (Pass/Fail)	Pass		NA		NA	
Elongation at break shall not be reduced by more than 5.0% as received	MD % XD %		MD NA % XD NA %		MD NA % XD NA %	
Shall pass low temperature impact test (Pass/Fail)	Pass		NA		NA	
Shall pass low temperature flexibility test (Pass/Fail)	Pass		NA		NA	
9. PERMEABILITY (WATER VAPOR TRANSMISSION)						
Max. 4.0 g./m² in 24h.	1.44 g.		g		g	
10. WATER ABSORPTION						
Shall not absorb a mass of water greater than 2.0%	1.5 %		%		%	
Elongation at break shall not be less than 90% of elongation at break as measured in test 4	MD % XD %		MD % XD %		MD % XD %	
The tensile strength will not be less than that of the tensile strength as measured in test 2	MD 2915 psi XD psi		MD psi XD psi		MD psi XD psi	
11. DIMENSIONAL CHANGE						
Without loading: **TYPE 1**-Shall not change more than 2.0%	MD NA % XD NA %		MD NA % XD NA %		MD % XD %	
TYPE 2-Shall not change more than 0.5%	MD 0.004 % XD 0.064 %		MD % XD %		MD NA % XD NA %	
With loading: Shall not change more than 0.5%	0.031 %		%		%	
Shall not change more than 0.2%	0.052 %		%		%	
12. CONE PENETRATION						
Shall not penetrate thru at less than 7 psi (30N) force	12.17 psi		psi		psi	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction NOTE: Blank lines = applicable data not reported by manufacturer.	**SARNAFIL (U.S.) INC.**				**U.S. MINERAL PRODUCTS CO.**	

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PVC Part 2: Test Results *(See Part 1 for General Information)*

FLEXHIDE 45		FLEXHIDE LR50		FLAGON SF		FLAGON C					
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A	2	B	1	A & B	1,2	A & B				
mils		NA mils		48 mils		40 mils		mils		mils	
NA mils		mils		48 mils		48 mils		mils		mils	
				Pass		Pass					
MD psi XD psi		MD NA psi XD NA psi		MD 1250 psi XD 1280 psi		MD 2600 psi XD 2600 psi		MD psi XD psi		MD psi XD psi	
MD NA psi XD NA psi		MD psi XD psi		MD 1280 psi XD 1280 psi		MD psi XD psi		MD psi XD psi		MD psi XD psi	
MD % XD %		MD % XD %		MD 95 % XD 95 %		MD 80 % XD 80 %		MD % XD %		MD % XD %	
				Pass		Pass					
MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
MD % XD %		MD % XD %		MD 240 % XD 240 %		MD 350 % XD 350 %		MD % XD %		MD % XD %	
				Pass		Pass					
MD psi XD psi		MD psi XD psi		MD psi XD psi		MD −3 psi XD −3 psi		MD psi XD psi		MD psi XD psi	
MD % XD %		MD % XD %		MD % XD %		MD −3,0 % XD −3,0 %		MD % XD %		MD % XD %	
				Pass		Pass					
				Pass		Pass					
NA				Pass		Pass					
MD NA % XD NA %		MD % XD %		MD 3.0 % XD 3.0 %		MD 3.0 % XD 3.0 %		MD % XD %		MD % XD %	
NA				Pass		Pass					
NA				Pass		Pass					
g.		g.		2.8 g.		2.8 g.		g.		g.	
%		%		2.6 %		1.8 %		%		%	
MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
MD psi XD psi		MD psi XD psi		MD psi XD psi		MD psi XD psi		MD psi XD psi		MD psi XD psi	
MD % XD %		MD NA % XD NA %		MD 0.0 % XD 0.0 %		MD 0.5 % XD 0.5 %		MD % XD %		MD % XD %	
MD NA % XD NA %		MD % XD %		MD 0.0 % XD 0.0 %		MD % XD %		MD % XD %		MD % XD %	
%		%		0.4 %		%		%		%	
%		%		%		%		%		%	
psi		psi		psi		psi		psi		psi	
U.S. MINERAL PRODUCTS CO.				WAT PRO, INC.							

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	HYDRO-SEAL .045 BLACK	HYDRO-SEAL .045 WHITE	HYDRO-SEAL .060 BLACK	HYDRO-SEAL .060 WHITE	BENOIT EPDM I	BENOIT EPDM I SUNSHIELD
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	None	None	None
b) Color	Black	White	Black	White	Black	Beige
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.26	.30	.35	.40		
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Adhesive/Sealant	Adhesive/Sealant	Adhesive/Sealant	Adhesive/Sealant	Tape	Tape
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	10 min.				10	
b) Partially adhered-method	Mech. Fastened	Mech. Fastened	Mech. Fastened	Mech. Fastened	●	●
c) Fully adhered-method	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	●	●
d) Protected Membrane Roofing Assembly	IRMA		IRMA		●	
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	●
g) Other	Contact AHI for specifics	Contact AHI for specifics	Contact AHI for specifics	Contact AHI for specifics		
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	20°F-110°F	20°F-110°F	20°F-110°F	20°F-110°F	0°F-160°F	0°F-160°F
10. FLASHING MATERIAL	Uncured Neo	Uncured EPDM	Uncured Neo	Uncured EPDM	Cured EPDM Uncured Neo	Cured EPDM Uncured Neo
11. FLASHING METHOD	Adhesive/Sealant	Adhesive/Sealant	Adhesive/Sealant	Adhesive/Sealant	Tape	Tape
12. PRE-FORMED ACCESS AVAILABLE	Yes	Yes	Yes	Yes	Yes	Yes
13. COUNTRY OF ORIGIN	USA	USA	USA	USA	Japan	Japan
14. COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA/Japan	USA/Japan
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)					1964	1978
b) U.S.A. (Year, City-first installed)	1981	1981	1981	1981	1980-St. Paul	1983-San Antonio
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign					3,500,000	
b) U.S.A.	Thousands	Thousands	Thousands	Thousands	250,000	10,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	10	10	5,10,15	5,10,15
b) Renewable after inspection	No	No	No	No		
c) Scope of coverage (repair of leaks)						
c.1 Material only						
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None						
d.2 Original cost of installation					●	●
d.3 $ per square	●	●	●	●		
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Contact AHI for specifics	Contact AHI for specifics	Contact AHI for specifics	Contact AHI for specifics	Petroleum	Petroleum
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Reps./Direct				Varied	
22. # REGIONAL SERVICE LOCATIONS	20				4	
23. LICENSED APPLICATOR AGREEMENT	Yes				No	
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field Training				Field, Seminars	
25. SALES INFORMATION; CONTACT	Bill LeCuyer				Pat Downey	
26. TECHNICAL INFORMATION; CONTACT	Ed Jarger				Marc Caputo	
COMPANY►	AMERICAN HYDROTECH, INC.				BENOIT, INC.	

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

BENOIT-045 EPDM II-BLACK	BENOIT-045 EPDM II-WHITE	BENOIT-060 EPDM II-BLACK	BENOIT-060 EPDM II-WHITE	CARBOLINE EPDM 450	CARBOLINE EPDM 600	SURE-SEAL EPDM	CELO-1 TYPE I	CELO-1 TYPE II
None	None	None	None	No	No	None	None	None
Black	White	Black	White	Black	Black	Grey/Black	Black	Black
				.27	.34	.30-.40	.27	.36
None	None	None	None	None	None	None	None	None
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Splicing Tape	Splicing Tape	Adhesive/Sealant	Adhesive	Adhesive
10				10	10	●	10	
●	●	●	●	Fastened	Fastened			
●	●	●	●		●	●		Contact Adhesive
●		●			●	●		
Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	None	Dead Level	Dead Level
●	●	●	●	●		●	●	
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●		
●	●	●	●	●		●		
●	●	●	●	●	●	●	●	●
				See Specifications	See Specifications	See Specifications	Plywood Wood Plank Smooth BUR	Plywood Wood Plank Smooth BUR
None	None	None	None	None	None	None	None	None
0°F-160°F	0°F-160°F	0°F-160°F	0°F-160°F	25°F-180°F	25°F-180°F	−25°F-180°F	−40°F-180°F	−40°F-180°F
Cured EPDM Uncured Neo	Cured EPDM Uncured Neo	Cured EPDM Uncured Neo	Cured EPDM Uncured Neo	Uncured Neo	Uncured Neo	Elastoform	Uncured Neo	Uncured Neo
Cement & Solvent	Cement & Solvent	Cement & Solvent	Cement & Solvent	Cement & Solvent	Cement & Solvent	Adhesive	Contact Adhesive	Contact Adhesive
Yes	Yes	Yes	Yes	No	No	No	●	●
USA	USA	USA	USA	USA	USA	USA	USA	USA
USA	USA	USA	USA	USA	USA	USA	USA	USA
						1963		
1982-Omaha	1983-Charlotte	1982-Wash. D.C.	1983-Charlotte	1979-Chicago	1980	1963-Harrisburg	1980-Lexington	1965-Mishwzka
				Not Available	Not Available			
20,000	>1,000	8,000	>1,000	Not Available	Not Available	Thousands	200,000	160,000
5,10,15	5,10,15	5,10,15	5,10,15	10	10	15	5,10	5,10
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	See Specifications	See Specifications	See Specifications
●	●	●	●	●	●	●		
Petroleum	Petroleum	Petroleum	Petroleum	Contact Supplier	Contact Supplier	Petroleum See Specifications	Petroleum Oils	Petroleum Oils
							●	●
							●	●
Varied				Sales Reps.		Distrs./Reps.	Distributors/Approved Contractors	
4				24		39		
No				Yes		Yes	Yes	
Field, Seminars				Field, Seminars		Seminars, Field, Factory	Seminars	
Pat Downey						Don Kyle	Regional Office	
Marc Caputo				R. Bradley		Ed Kane	C.J. Klasen	
BENOIT, INC				CARBOLINE COMPANY		CARLISLE SYNTEC SYSTEMS	CELOTEX	

continued →

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	CELO-I TYPE III	DUNSEAL .045	DUNSEAL .060	RUBBERGARD .045	RUBBERGARD .060	GAFPLY EP BALLASTED
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	None	None	None
b) Color	Black	Black	Black	Black	Black	Black
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.27-.26	.28	.38	.28	.38	.28
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Adhesive	Tape/Adhesive	Tape/Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)		10	10	10	10	10
b) Partially adhered-method	Mechanical	Mech. Fastened	Mech. Fastened	Battens	Battens	
c) Fully adhered-method		Contact Adhesive	Contact Adhesive		●	
d) Protected Membrane Roofing Assembly		●	●	●	●	
6. MINIMUM SLOPE	Dead Level	None	None	Dead Level	Dead Level	No Ponding
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass		●	●	●	●	●
e) Expanded polystyrene		●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	●
g) Other	Plywood Wood Plank Smooth BUR	See Specifications	See Specifications			
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	−40°F-180°F	0°F-160°F	0°F-160°F	0°F-100°F	0°F-100°F	
10. FLASHING MATERIAL	Uncured Neo	Uncured EPDM or Neoprene	Uncured EPDM or Neoprene	Uncured Neo	Uncured Neo	Uncured Neo
11. FLASHING METHOD	Contact Adhesive	Tape and/or Adhesive	Tape and/or Adhesive	Contact Adhesive	Contact Adhesive	Solvent Clean/ Contact Adhesive
12. PRE-FORMED ACCESS AVAILABLE	●	Yes	Yes	Yes	Yes	No
13. COUNTRY OF ORIGIN	USA	Canada	Canada	USA	USA	USA
14. COUNTRY OF MANUFACTURE	USA	Canada	Canada	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)		1964	1964			1964
b) U.S.A. (Year, City-first installed)	1982-Newark	1981-Buffalo	1982-Cleveland	1980-Indianapolis	1980-Indianapolis	1964
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign		Thousands	Thousands			
b) U.S.A.	100,000	Thousands	Thousands	500,000	500,000	
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	5,10	15	15	10/15	10/15	5 and 10
b) Renewable after inspection						
c) Scope of coverage (repair of leaks)						
c.1 Material only				●	●	15
c.2 Workmanship & material	●	5/10	5/10	●	●	5/10
d) Monetary limitation						
d.1 None						
d.2 Original cost of installation	●	●	●	●	●	●
d.3 $ per square						$3.00
e) Exclusion from coverage						
e.1 Damage to other roofing components	See Specifications	●	●	●	●	●
e.2 Consequential damages		●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Petroleum Oils	Hydrocarbons	Hydrocarbons	Hydrocarbon Solvents See Specifications	Hydrocarbon Solvents See Specifications	See Specifications
19. UL *(See "Important Notes")*	●					
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distrs./Approved Contrs.	Agent/Direct		Direct/Reps.		Distributors
22. # REGIONAL SERVICE LOCATIONS				30		2
23. LICENSED APPLICATOR AGREEMENT	Yes	Yes		Yes		Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Seminars	Field, Seminars		Field		On Job Training Seminars
25. SALES INFORMATION; CONTACT	Regional Office	P. Hyrsko		1-800-428-4442		William J. Woodring
26. TECHNICAL INFORMATION; CONTACT	C. J. Klasen	D. Brazier		1-800-428-4511		B. Randall Ziegler
COMPANY►	CELOTEX	DUNLOP CONSTRUCTION PRODUCTS INC.		FIRESTONE INDUSTRIAL PRODUCTS		GAF CORPORATION

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EPDM ETHYLENE PROPYLENE DIENE MONOMER **Part 1** *(See Part 2 for Test Results)*

GAFPLY EP FULLY ADHERED	GACO SYSTEM I EPDM-45 MILS	GACO SYSTEM I EPDM-60 MILS	GENFLEX ACR	VERSIGARD .045	VERSIGARD .060	WHALESKIN/81 C-EPDM	WHALESKIN/81 WHITE EPDM	WHALESKIN/81 WHITE C-EPDM
None	None	None	None	None	None	None	None	None
Black	Black	Black	Black	Black	Black/White	Black	White	White
.38	.26	.39	.26	.28	.38/.45	.31-45 mil/.34-60 mil	.31-45 mil/.34-60 mil	.31-45 mil/.34-60 mil
None	Optional	Optional		None	None	None	None	None
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesvive
	10	10	10.5	●	●	●	●	●
	Mech. Fastened	Mech. Fastened			●	●	●	●
●	Contact Adhesive	Contact Adhesive	●		●	●	●	●
	IRMA	IRMA	●	●	●	●	●	●
No Ponding	Dead Level	Dead Level	Level	None	None	Dead Level	Dead Level	Dead Level
	●	●	●	●	●	●*	●*	●*
●	●	●	●	●	●	●*	●*	●*
●*	●	●	●	●	●	●*	●*	●*
●*	●	●	●	●	●	●*	●*	●*
	●	●	●	●	●	●*	●*	●*
●	●	●	●	●	●	●*	●*	●*
*and others on a job-by-job basis	See Specifications	See Specifications		See Specifications	See Specifications	*Contact KES for application methods over each type or see specs	*Contact KES for application methods over each type or see specs	*Contact KES for application methods over each type or see specs
None	None	None		None	None	None	None	None
	50°F-90°F	50°F-90°F		0°F-150°F	0°F-150°F	−25°F-180°F	−25°F-180°F	−25°F-180°F
Uncured Neo	EPDM	EPDM	Uncured	Wingprene	Wingprene	Uncured EPDM Uncured Neoprene	Uncured EPDM Uncured Neoprene	Uncured EPDM Uncured Neoprene
Solvent Clean/ Contact Adhesive	Contact Adhesive	Contact Adhesive	Cement	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
USA	USA	USA	USA	USA	USA	USA	USA	USA
USA	USA	USA	USA	USA	USA	USA	USA	USA
1964				1982	1982			
1964	1979-Sioux City	1979-Sioux City	1981-Adrian, MI	1965-New Bedford	1965-New Bedford	1979-Thomaston	1965-Mishawaka	1982-Orlando
				Not Available	Not Available			
	62,300	30,000		Not Available	Not Available	Thousands	Thousands	Thousands
5 and 10	10	10	15	10	10	21	31 yrs (81 mil) 21 yrs (other)	21
			No	●	●	●	●	●
15			●			Also Available	Also Available	Also Available
5/10	●	●	●	●	●	●	●	●
						●	●	●
●			●	●	●			
$3.00	●	●						
●	●	●		●	●	●	●	●
●	●	●		●	●	●	●	●
See Specifications	See Specifications	See Specifications	See Manufacturer	Contact Goodyear	Contact Goodyear			
Distributors	Distr/Reps.		Distributors	Distributors		Distributors		
2	31		8	55		62		
Yes	Yes		Yes	Yes		No		
On Job Training, Seminars	Field, Seminars		Seminars	Field, Seminars		In Field Training, Seminars		
William J. Woodring	1-800-441-7464		T. Clapperton	Bill Vobbe		T. Arras, A. Poremba		
B. Randall Ziegler	1-800-441-7464		K. Russell	Paul Oliveira		T. Arras, A. Poremba		
GAF CORPORATION	GATES ENGINEERING COMPANY, INC.		GENERAL TIRE & RUBBER CO. BLDG. PRODUCTS	GOODYEAR		KELLY ENERGY SYSTEMS, INC.		

continued →

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	WHALESKIN/81 EPDM	WHALESKIN/81 TALC FREE EPDM	POLYKEN M-45	POLYKEN M-60	PLYSEAL EPDM	SUPEROOF-BLACK
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	None	Yes	None
b) Color	Black	Black	Black	Black	Black	Black
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.31-45 mil/.34-60 mil/.56-81 mil	.31-45 mil/.34-60 mil	.28	.35	.31	.30
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Contact Adhesive	Tape or Adhesive	Seam Tape	Seam Tape	Contact Adhesive	Splicing Cement
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	10 Min.	10 Min.	10	10	10-13	10
b) Partially adhered-method	●	●	Mech. Fastened	Mech. Fastened	Batten	Plate Bound
c) Fully adhered-method	●	●	Contact Cement	Contact Cement	●	Contact Cement
d) Protected Membrane Roofing Assembly	●	●			●	●
6. MINIMUM SLOPE	Dead Level	Dead Level			Dead Level	Dead Level
7. USE OVER						
a) Perlite	●*	●*	●	●	●	●
b) Urethane	●*	●*	●	●	●	●
c) Wood fibre	●*	●*	●	●	●	●
d) Fibre glass	●*	●*	●	●	●	●
e) Expanded polystyrene	●*	●*	●	●	●	●
f) Felt faced composites	●*	●*	●	●	●	●
g) Other	*Contact KES for application methods over each type See Specs	*Contact KES for application methods over each type See Specs	See Specifications	See Specifications	Approval of Plyroof Tech. Dept.	Some May Require Barrier Sheet
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	−25°F-180°F	−50°F-220°F	0°F-100°F	0°F-100°F	15°F-120°F	0°F-160°F
10. FLASHING MATERIAL	Uncured EPDM Uncured Neoprene	Uncured EPDM Uncured Neoprene	Uncured Neo Self Adhering	Uncured Neo Self Adhering	Uncured Neo	Uncured EPDM
11. FLASHING METHOD	Contact Adhesive	Contact Adhesive	Self Adhering Tape	Self Adhering Tape	Contact Adhesive	Splicing Adhesive
12. PRE-FORMED ACCESS AVAILABLE	Yes	Yes	Yes	Yes	No	Yes
13. COUNTRY OF ORIGIN	USA	USA	USA	USA	USA	USA
14. COUNTRY OF MANUFACTURE	USA	USA/Canada	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)						1982
b) U.S.A. (Year, City-first installed)	1965-Mishawaka	1983-Greely, CO	1982-Franklin	1982-Franklin	1979-Salem	1965-Mishawaka
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign						15,000
b) U.S.A.	Thousands	Thousands			529,000	250,000
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	31 yrs (81 mil) 21 yrs (other)	21	10	10	10	10
b) Renewable after inspection	●	●			No	●
c) Scope of coverage (repair of leaks)						
c.1 Material only	Also Available	Also Available		●		
c.2 Workmanship & material	●	●	●		●	●
d) Monetary limitation						
d.1 None	●	●				
d.2 Original cost of installation			●	●	●	●
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE			Petroleum Contact Supplier	Petroleum Contact Supplier		Aromatic Hydrocarbons
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distributors		Direct		Direct	Contrs./Distrs.
22. # REGIONAL SERVICE LOCATIONS	62		2		4	20
23. LICENSED APPLICATOR AGREEMENT	No		Yes		Yes	Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	In Field Training, Seminars		Field, Seminars		Field	Field, Factory
25. SALES INFORMATION; CONTACT	T. Arras, A. Poremba		Ken Coffey		Charles Taft	Howells, Gettys
26. TECHNICAL INFORMATION; CONTACT	T. Arras, A. Poremba		Rick Dalainis		Steve Condren	H. Howells
COMPANY►	KELLY ENERGY SYSTEMS, INC.		KENDALL COMPANY POLYKEN ROOFING SYSTEMS		PLYMOUTH RUBBER CO., INC.	PROTECTIVE COATINGS, INC.

continued →

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

SUPEROOF-WHITE	SUPEROOF-GREY	SUPEROOF-WHITE FIRE RETARDANT	REEVETECH	SMI RUBBER ROOF BLACK	SMI RUBBER ROOF WHITE	AGAPER-E	.045 WEATHERGARD BLACK	.055 WEATHERGARD BLACK
None	None	None	None	None	None	None	None	None
White	Gray	White-Fire Ret.	Black	Black	Black	Black	Black	Black
.35	.35	.40	.28	.26	.26	.31	.28	.34
None	None	None	None	None	None	None	None	None
●	●	●	●	●	●	●	●	
●	●	●	●	●	●	●	●	
Splicing Cement	Splicing Cement		Contact Adhesive	Contact Adhesive	Contact Adhesive	Cold Tape	Contact Adhesive	Contact Adhesive
10	10		10	10 Min.	10 Min.	8	10	
Plate Bound	Plate Bound	Plate Bound		●	●	●	●	●
Contact Cement	Contact Cement	Plate		●	●	●	●	●
				●	●		●	●
Dead Level	Dead Level		Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●		●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●		●	●	●	●	●
Some May Require Barrier Sheet	Some May Require Barrier Sheet	Some May Require Barrier Sheet		See Specifications or Tech. Bulletin	See Specifications or Tech. Bulletin			
None	None	None	None	None	None	None	None	None
0°F-160°F	0°F-160°F	0°F-160°F	35°F-120°F			20°F-110°F	20°F-160°F	20°F-160°F
Uncured EPDM	Uncured EPDM	Uncured EPDM	Uncured Neo	Uncured EPDM	Uncured EPDM	EPDM	Uncured Neo	Uncured Neo
Splicing Adhesive	Splicing Adhesive	Splicing Adhesive	Adhesive	Contact Adhesive	Contact Adhesive	Tape	Contact Adhesive	Contact Adhesive
Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
USA	USA	USA	USA	USA	USA	Italy	USA	USA
USA	USA	USA	USA	USA	USA	Italy	USA	USA
						1970	1983-Puerto Rico	
1966-Mishawaka	1966-South Bend	1982-Ft. Wayne	1981-Washington	1965-Mishawaka	1965-Mishawaka	New Jersey	1981-Memphis	
				None	None	900,000		
50,000	1,000	3,000				3,000		
10	10	10	10	6 or 12 Available	6 or 12 Available	5/10	5/10/15	5/10/15
●	●	●	No	●	●	●	●	●
							15	15
●	●	●	●	●	●	●	5/10	5/10
●	●	●	●	●	●		●	●
						●		
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
Aromatic Hydrocarbons	Aromatic Hydrocarbons	Aromatic Hydrocarbons	Petroleum See Specifications	Petroleum See Specifications	Petroleum See Specifications	Petroleum	Petroleum Contaminants See Specifications	Petroleum Contaminants See Specifications
Contractors & Distributors			Contractors	Distributors		Distributors	Distrs./Reps.	
20			3	30		7	17	
Yes			Yes	Yes		Yes	Yes	
Field, Factory			Field Training	Field, Seminars		Seminars	On Site, Seminars	
Howells, Gettys			K. Schwarz	D. Creed		201/528-6727	901/458-2222	
H. Howells			B. Smith	S. DonFrancesco		201/528-6727	G. M. Bailey	
PROTECTIVE COATINGS, INC.			REEVES BROS., INC.	SYENERGY METHODS, INC.		WAT PRO, INC.	WEATHERGARD	

continued →

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

PRODUCT NAME ►	.060 WEATHERGARD BLACK	.045 WEATHERGARD WHITE	.060 WEATHERGARD WHITE	.045 WEATHERGARD BLACK FIRE RETARDANT	.055 WEATHERGARD BLACK FIRE RETARDANT	.060 WEATHERGARD BLACK FIRE RETARDANT
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	None	None	None
b) Color	Black	White	White	Black	Black	Black
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.36	.28	.36	.28	.34	.60
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing				●	●	●
b) Reroofing				●	●	●
4. FIELD LAP JOINT METHOD	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)				10		
b) Partially adhered-method	●	●	●	●	●	●
c) Fully adhered-method	●	●	●	●	●	●
d) Protected Membrane Roofing Assembly	●	●	●	●	●	●
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	●
g) Other						
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	20°F-160°F	20°F-160°F	20°F-160°F	20°F-160°F	20°F-160°F	20°F-160°F
10. FLASHING MATERIAL	Uncured Neoprene	Uncured White EPDM	Uncured White EPDM	Uncured Neoprene	Uncured Neoprene	Uncured Neoprene
11. FLASHING METHOD	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
12. PRE-FORMED ACCESS AVAILABLE	Yes	Yes	Yes	No	No	No
13. COUNTRY OF ORIGIN	USA	USA	USA	USA	USA	USA
14. COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)						
b) U.S.A. (Year, City-first installed)						
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign						
b) U.S.A.						
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	5/10/15	5/10/15	5/10/15	5/10/15	5/10/15	5/10/15
b) Renewable after inspection	●	●	●	●	●	●
c) Scope of coverage (repair of leaks)						
c.1 Material only	15	15	15	15	15	15
c.2 Workmanship & material	5/10	5/10	5/10	5/10	5/10	5/10
d) Monetary limitation						
d.1 None						
d.2 Original cost of installation	●	●	●	●	●	●
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Petroleum Contaminants See Specifications	Petroleum Contaminants See Specifications	Petroleum Contaminants See Specifications			
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distributor/Reps					
22. # REGIONAL SERVICE LOCATIONS	17					
23. LICENSED APPLICATOR AGREEMENT	Yes					
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	On Site, Seminars					
25. SALES INFORMATION; CONTACT	901/458-2222					
26. TECHNICAL INFORMATION; CONTACT	G. M. Bailey					
COMPANY►	WEATHERGARD ROOFING SYSTEMS, INC.					

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	HYDRO-SEAL .045 BLACK Type 1	HYDRO-SEAL .045 BLACK Class A	HYDRO-SEAL .045 WHITE Type 1	HYDRO-SEAL .045 WHITE Class A	HYDRO-SEAL .060 BLACK Type 1	HYDRO-SEAL .060 BLACK Class A
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	45 mils		45 mils		60 mils	
-Max. tolerance ± 10% nominal thickness	10 %		10 %		10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1500 psi		1400 psi		1500 psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
3. LAP JOINT STRENGTH						
TYPE 1 & 2						
Before exposure: min 68 lbf (300N)	75 lbf		75 lbf		75 lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	70 lbf		70 lbf		70 lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	85 %		85 %		85 %	
CLASS B-After immersion (min. 85%)	NA %		NA %		NA %	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	350 %		500 %		350 %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	3.0 %		5.0 %		3.0 %	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		Pass	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	3 %		7 %		3 %	
Shall not drop in strength by more than 10% as received (TEST 2)	0.0 %		0.0 %		0.0 %	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	1500 psi		1400 psi		1500 psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD 1.0 % XD 1.0 %		MD 1.5 % XD 1.5 %		MD 1.0 % XD 1.0 %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD 100 % XD 100 %		MD 100 % XD 100 %		MD 100 % XD 100 %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1500 psi		1400 psi		1500 psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)	Pass		Pass		Pass	
Have a min. elongation at break						
TYPE 1-210%	225 %		300 %		225 %	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD 1.5 % XD 1.5 %		MD 2.0 % XD 2.0 %		MD 1.5 % XD 1.5 %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass		Pass		Pass	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)	Pass		Pass		Pass	
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	100 %		100 %		100 %	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	1500 psi		1400 psi		1500 psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)	Pass		Pass		Pass	
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 7 lbf XD 7 lbf		MD 7 lbf XD 7 lbf		MD 7 lbf XD 7 lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	AMERICAN HYDROTECH, INC.					
NOTE: Blank lines = applicable data not reported by manufacturer.						

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

HYDRO-SEAL .060 WHITE		BENOIT EPDM I		BENOIT EPDM I SUNSHIELD		BENOIT .045 EPDM II - BLACK		BENOIT .045 EPDM II - WHITE		BENOIT .060 EPDM II - BLACK	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A	1	A	1	A	1	A	1	A	1	A
60 mils		45 mils		45 mils		45 mils		45 mils		60 mils	
10 %		−.6 %		−.6 %		10 %		10 %		10 %	
1400 psi		1515 psi		1515 psi		1500 psi		1500 psi		1500 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
75 lbf		107 lbf		107 lbf		75 lbf		75 lbf		75 lbf	
70 lbf		91 lbf		91 lbf		70 lbf		70 lbf		70 lbf	
85 %		85 %		85 %		85 %		85 %		85 %	
NA %		NA %		NA %		NA %		NA %		NA %	
500 %		447 %		447 %		350 %		350 %		350 %	
NA %		NA %		NA %		NA %		NA %		NA %	
5.0 %		2.9 %		2.9 %		3.0 %		3.0 %		3.0 %	
Pass		Pass		Pass		Pass		Pass		Pass	
7 %		3.1 %		3.1 %		3.0 %		3.0 %		3.0 %	
0.0 %		+11 %		+11 %		0.0 %		0.0 %		0.0 %	
1400 psi		1679 psi		1679 psi		1500 psi		1500 psi		1500 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
MD 1.5 % XD 1.5 %		MD 0.0 % XD 0.5 %		MD 0.0 % XD 0.5 %		MD 1.0 % XD 1.0 %		MD 1.0 % XD 1.0 %		MD 1.0 % XD 1.0 %	
MD 100 % XD 100 %		MD 109 % XD — %		MD 109 % XD — %		MD 100 % XD 100 %		MD 100 % XD 100 %		MD 100 % XD 100 %	
1400 psi		1651 psi		1651 psi		1500 psi		1500 psi		1500 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
Pass		Pass		Pass		Pass		Pass		Pass	
300 %		197 %		197 %		225 %		225 %		225 %	
NA %		NA %		NA %		NA %		NA %		NA %	
MD 2.0 % XD 2.0 %		MD 1.3 % XD 0.8 %		MD 1.3 % XD 0.8 %		MD 1.5 % XD 1.5 %		MD 1.5 % XD 1.5 %		MD 1.5 % XD 1.5 %	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
100 %		+2.9 %		+2.9 %		100 %		100 %		100 %	
NA %		NA %		NA %		NA %		NA %		NA %	
1400 psi		1559 psi		1559 psi		1500 psi		1500 psi		1500 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
Pass		Pass		Pass		Pass		Pass		Pass	
MD 7 lbf XD 7 lbf		MD 199/in. lbf XD 177/in. lbf		MD 199/in. lbf XD 177/in. lbf		MD 7 lbf XD 7 lbf		MD 7 lbf XD 7 lbf		MD 7 lbf XD 7 lbf	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
AMERICAN HYDROTECH INC.		BENOIT, INC.									

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	BENOIT .060 EPDM II - WHITE		CARBOLINE EPDM 450		CARBOLINE EPDM 600	
	Type	Class	Type	Class	Type	Class
	1	A	1	A	1	A
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	60 mils		45 mils		60 mils	
-Max. tolerance ± 10% nominal thickness	10 %		10 %		10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1500 psi		1400 psi		1400 psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
3. LAP JOINT STRENGTH						
TYPE 1 & 2						
Before exposure: min 68 lbf (300N)	75 lbf		90 lbf		90 lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	70 lbf		77 lbf		77 lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	85 %		90 %		90 %	
CLASS B-After immersion (min. 85%)	NA %		NA %		NA %	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	350 %		300 %		300 %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	3.0 %		<5.0 %		<5.0 %	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		Pass	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	3.0 %		<2.0 %		<2.0 %	
Shall not drop in strength by more than 10% as received (TEST 2)	0.0 %		<10 %		<10 %	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	1500 psi		1260 psi		1260 psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD % XD %		MD <3.0 % XD <3.0 %		MD <3.0 % XD <3.0 %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD 100 % XD 100 %		MD 85 % XD 85 %		MD 85 % XD 85 %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1500 psi		1200 psi		1200 psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)	Pass		Pass		Pass	
Have a min. elongation at break						
TYPE 1-210%	225 %		210 %		210 %	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD 1.5 % XD 1.5 %		MD 2.0 % XD 2.0 %		MD 2.0 % XD 2.0 %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)			Pass		Pass	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)	Pass		Pass		Pass	
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	100 %		90 %		90 %	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	1500 psi		1260 psi		1260 psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)	Pass		Pass		Pass	
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 7 lbf XD 7 lbf		MD 14 lbf XD 14 lbf		MD 14 lbf XD 14 lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**BENOIT, INC.**		**CARBOLINE COMPANY**			
NOTE: Blank lines = applicable data not reported by manufacturer.						

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

SURE-SEAL EPDM		CELO-1 TYPE I		CELO-1 TYPE II		CELO-1 TYPE III		DUNSEAL .045		DUNSEAL .060	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A & B	1	A	1	A	1	A	1	A & B	1	A & B
45, 60 mils		45 mils		50 mils		45 mils		mils		mils	
±10 %		10 %		10 %		10 %		%		%	
1755 psi		1710 psi		2150 psi		1443 psi		1650 psi		1650 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
69.5 lbf		No Break lbf		No Break lbf		No Break lbf		77 lbf		77 lbf	
70.9 lbf		lbf		lbf		lbf		94 lbf		94 lbf	
102 %		%		%		%		122 %		122 %	
102 %		NA %		NA %		NA %		122 %		122 %	
445 %		423 %		462 %		410 %		350 %		350 %	
NA %		NA %		NA %		NA %		NA %		NA %	
0.1 %		%		%		%		0.0 %		0.0 %	
Pass		Pass		Pass		Pass		Pass		Pass	
2.3 %		2.2 %		2.1 %		2.8 %		3.0 %		3.0 %	
2.5 %		%		%		%		8.8 %		8.8 %	
1711 psi		psi		psi		psi		1508 psi		1508 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
MD 0.29 % XD 0.05 %		MD 0.4 % XD 0.8 %		MD 0.9 % XD 0.6 %		MD % XD %		MD 0.15 % XD 0.04 %		MD 0.15 % XD 0.04 %	
MD 97 % XD 97 %		MD % XD %		MD % XD %		MD % XD %		MD 1.06 % XD 0.40 %		MD 1.06 % XD 0.40 %	
1697 psi		1816 psi		2152 psi		1580 psi		1390 psi		1390 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
Pass											
263 %		249 %		376 %		238 %		240 %		240 %	
NA %		NA %		NA %		NA %		NA %		NA %	
MD 0.49 % XD 0.56 %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
Pass		Pass		Pass		Pass		Pass		Pass	
		Pass						Pass		Pass	
%		95 %		%		%		94 %		94 %	
NA %		NA %		NA %		NA %		NA %		NA %	
psi		1790 psi		psi		psi		1550 psi		1550 psi	
NA lbf		NA lbf		lbf		lbf		NA lbf		NA lbf	
Pass								Pass		Pass	
MD 8.2 lbf XD 8.2 lbf		MD 173 lbf XD 198 lbf		MD 205 lbf XD 187 lbf		MD 177 lbf XD 195 lbf		MD lbf XD lbf		MD lbf XD lbf	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
CARLISLE SYNTEC SYSTEMS		CELOTEX						DUNLOP CONSTRUCTION PRODUCTS INC.			

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	RUBBERGARD .045 Type 1	RUBBERGARD .045 Class A & B	RUBBERGARD .060 Type 1	RUBBERGARD .060 Class A & B	GAFPLY EP BALLASTED Type	GAFPLY EP BALLASTED Class
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	45 mils		60 mils		____ mils	
-Max. tolerance ± 10% nominal thickness	10 %		10 %		____ %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1650 psi		1650 psi		____ psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		____ lbf	
3. LAP JOINT STRENGTH						
TYPE 1 & 2						
Before exposure: min 68 lbf (300N)	____ lbf		____ lbf		____ lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	____ lbf		____ lbf		____ lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)		____ %		____ %		____ %
CLASS B-After immersion (min. 85%)		____ %		____ %		____ %
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	450 %		450 %		____ %	
TYPE 2-Min. 200% elongation	NA %		NA %		____ %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	<5.0 %		<5.0 %		____ %	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		____	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	+2.0 %		+2.0 %		____ %	
Shall not drop in strength by more than 10% as received (TEST 2)	____ %		____ %		____ %	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	870 psi		870 psi		____ psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		____ lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD <1.0 % XD <1.0 %		MD <1.0 % XD <1.0 %		MD ____ % XD ____ %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD 97 % XD 97 %		MD 97 % XD 97 %		MD ____ % XD ____ %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1600 psi		1600 psi		____ psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		____ lbf	
Pass low temperature flexibility test (Pass/Fail)	Pass		Pass		____	
Have a min. elongation at break						
TYPE 1-210%	295 %		295 %		____ %	
TYPE 2-140%	NA %		NA %		____ %	
Dimensional change not to exceed 3.0%	MD <1.0 % XD <1.0 %		MD <1.0 % XD <1.0 %		MD ____ % XD ____ %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass		Pass		____	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)	____		____		____	
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	____ %		____ %		____ %	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		____ %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	____ psi		____ psi		____ psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		____ lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)	Pass		Pass		____	
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 10 lbf XD 10 lbf		MD 10 lbf XD 10 lbf		MD ____ lbf XD ____ lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		____ lbf	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**FIRESTONE INDUSTRIAL PRODUCTS**				**GAF CORPORATION**	
NOTE: Blank lines = applicable data not reported by manufacturer.						

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

GAFPLY EP FULLY ADHERED		GACO SYSTEM I EPDM - 45 MILS		GACO SYSTEM I EPDM - 60 MILS		GENFLEX ACR		VERSIGARD .045		VERSIGARD .060	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
		1	A & B	1	A & B	1	A	1	A & B	1	A & B
— mils		45 mils		60 mils		45 mils		45 mils		60 mils	
— %		10 %		10 %		5 %		10 %		— %	
— psi		1500 psi		1500 psi		1350 psi		1450 psi		— psi	
— lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
— lbf		— lbf		— lbf		>68 lbf		117 lbf		— lbf	
— lbf		— lbf		— lbf		>68 lbf		115 lbf		— lbf	
— %		— %		— %		85 %		98 %		— %	
— %		— %		— %		— %		— %		— %	
— %		350 %		350 %		350 %		450 %		— %	
— %		NA %		NA %		NA %		NA %		NA %	
— %		<5.0 %		<5.0 %		>5.0 %		<5.0 %		— %	
—		—		—		Pass		Pass		—	
— %		3.0 %		3.0 %		1.0 %		2.7 %		— %	
— %		— %		— %		<10 %		7.1 %		— %	
— psi		— psi		— psi		870 psi		1030 psi		— psi	
— lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
MD — % XD — %		MD — % XD — %		MD — % XD — %		MD <3.0 % XD <3.0 %		MD 0.9 % XD 0.02 %		MD — % XD — %	
MD — % XD — %		MD — % XD — %		MD — % XD — %		MD >80 % XD >80 %		MD 100 % XD 100 %		MD — % XD — %	
— psi		1400 psi		1400 psi		870 psi		1570 psi		— psi	
— lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
—		—		—		Pass		Pass		—	
— %		250 %		250 %		245 %		230 %		— %	
NA %		NA %		NA %		255 %		NA %		NA %	
MD — % XD — %		MD — % XD — %		MD — % XD — %		MD 1.0 % XD 1.0 %		MD <1.0 % XD <1.0 %		MD — % XD — %	
—		Pass		Pass		Pass		Pass		—	
—		—		—		Pass		Pass		—	
— %		— %		— %		>90 %		100 %		— %	
— %		NA %		NA %		NA %		NA %		NA %	
— psi		— psi		— psi		>870 psi		1520 psi		— psi	
— lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
—		—		—		Pass		Pass		—	
MD — lbf XD — lbf		MD 6 lbf XD 6 lbf		MD 6 lbf XD 6 lbf		MD 10.4 lbf XD 10.4 lbf		MD 7.8 lbf XD 7.8 lbf		MD — lbf XD — lbf	
— lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
GAF CORPORATION		**GATES ENGINEERING CO., INC.**				**GENERAL TIRE**		**GOODYEAR**			

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	WHALESKIN/81 C-EPDM C-EPDM Type 1	WHALESKIN/81 C-EPDM C-EPDM Class A	WHALESKIN/81 WHITE EPDM Type 1	WHALESKIN/81 WHITE EPDM Class A	WHALESKIN/81 WHITE C-EPDM Type 1	WHALESKIN/81 WHITE C-EPDM Class A
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	45, 60 mils		45, 60, 81 mils		45,60 mils	
-Max. tolerance ± 10% nominal thickness	10 %		10 %		10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1445 psi		1774 psi		1774 psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
3. LAP JOINT STRENGTH **TYPE 1 & 2**						
Before exposure: min 68 lbf (300N)	lbf		lbf		lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	lbf		lbf		lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	%		%		%	
CLASS B-After immersion (min. 85%)	NA %		NA %		NA %	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	300 Min. %		300 Min. %		300 Min. %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	%		%		%	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		Pass	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	2.2 %		3.2 %		3.2 %	
Shall not drop in strength by more than 10% as received (TEST 2)	%		%		%	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	psi		psi		psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD 0.6 % XD 0.7 %		MD 1.0 % XD 0.7 %		MD 1.0 % XD 0.7 %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD % XD %		MD % XD %		MD % XD %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1540 psi		1574 psi		1574 psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)						
Have a min. elongation at break						
TYPE 1-210%	230 %		267 %		267 %	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD % XD %		MD % XD %		MD % XD %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass		Pass		Pass	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)						
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	%		%		%	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	psi		psi		psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)						
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 180 lbf XD lbf		MD 170 lbf XD lbf		MD 170 lbf XD lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	

LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction

NOTE: Blank lines = applicable data not reported by manufacturer.

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

WHALESKIN/81 EPDM		WHALESKIN/81 TALC FREE EPDM		POLYKEN M-45		POLYKEN M-60		PLYSEAL EPDM		SUPEROOF - BLACK	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A & B	1	A & B	1	A	1	A	2	A	1	A & B
45, 60, 81 mils		45, 60 mils		45 mils		60 mils		45 mils		45, 55, 60 mils	
10 %		10 %		5 %		5 %		+4.0-2.0 %		±10 %	
1445 psi		1400 psi		1600 psi		1600 psi		NA psi		1400 Min. psi	
NA lbf		NA lbf		NA lbf		NA lbf		89 lbf		200 lbf	
lbf		lbf		85 lbf		85 lbf		72 lbf		lbf	
lbf		lbf		100 lbf		100 lbf		68 lbf		lbf	
%		122 %		117 %		117 %		94 %		%	
NA %		NA %		NA %		NA %		94 %		%	
300 Min. %		300 Min. %		400 %		400 %		NA %		300 Min. %	
NA %		NA %		NA %		NA %		300 %		NA %	
%		0.0 %		0.0 %		0.0 %		NA %		%	
Pass		Pass		Pass		Pass		Pass		Pass	
2.2 %		3.0 %		.01 %		.01 %		+0.2 %		1.5 %	
%		8.8 %		0.0 %		0.0 %		9.0 %		5.0 %	
psi		1400 psi		1600 psi		1600 psi		NA psi		1325 psi	
NA lbf		NA lbf		NA lbf		NA lbf		90 lbf		NA lbf	
MD 0.6 % XD 0.7 %		MD 0.15 % XD 0.04 %		MD 0.0 % XD 0.0 %		MD 0.0 % XD 0.0 %		MD −0.06 % XD +0.03 %		MD 1.0 Max % XD %	
MD % XD %		MD >80 % XD >80 %		MD 100 % XD 100 %		MD 100 % XD 100 %		MD 90 % XD 90 %		MD 93 % XD 93 %	
1540 psi		1600 psi		1600 psi		1600 psi		NA psi		1200 psi	
NA lbf		NA lbf		NA lbf		NA lbf		90 lbf		NA lbf	
Pass		Pass		Pass		Pass		Pass		Pass	
230 %		230 %		400 %		400 %		NA %		300 Min. %	
NA %		NA %		NA %		NA %		250 %		NA %	
MD % XD %		MD 1.06 % XD 0.4 %		MD 0.0 % XD 0.0 %		MD 0.0 % XD 0.0 %		MD 1.0 % XD 1.0 %		MD 1.0 % XD 1.5 %	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass				Pass		Pass	
%		>90 %		99 %		99 %		NA %		92 %	
NA %		NA %		NA %		NA %		93 %		NA %	
psi		1600 psi		1584 psi		1584 psi		NA psi		1300 psi	
NA lbf		NA lbf		NA lbf		NA lbf		91 lbf		NA lbf	
		Pass		Pass		Pass				Pass	
MD 180 lbf XD lbf		MD 180 lbf XD lbf		MD 6.216 lbf XD 6.192 lbf		MD 7.952 lbf XD 7.748 lbf		MD NA lbf XD NA lbf		MD 9 lbf XD 9 lbf	
NA lbf		NA lbf		NA lbf		NA lbf		9 lbf		NA lbf	
KELLY ENERGY SYSTEMS, INC.				KENDALL CO. POLYKEN ROOFING SYSTEMS				PLYMOUTH RUBBER COMPANY, INC.		PROTECTIVE COATINGS, INC.	

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	SUPEROOF - WHITE		SUPEROOF - GRAY		SUPEROOF - WHITE FIRE RETARDANT	
	Type	Class	Type	Class	Type	Class
	1	A & B	1	A & B	1	A & B
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	45, 55, 60 mils		45, 55, 60 mils		45, 55, 60 mils	
-Max. tolerance ± 10% nominal thickness	±10 %		±10 %		±10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1400 Min. psi		1400 Min. psi		1400 Min. psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	200 lbf		200 lbf		200 lbf	
3. LAP JOINT STRENGTH **TYPE 1 & 2**						
Before exposure: min 68 lbf (300N)	lbf		lbf		lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	lbf		lbf		lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	%		%		%	
CLASS B-After immersion (min. 85%)	%		%		%	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	300 Min. %		300 Min. %		300 Min. %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	%		%		%	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		Pass	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	1.5 %		1.5 %		1.5 %	
Shall not drop in strength by more than 10% as received (TEST 2)	5.0 %		5.0 %		5.0 %	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	1325 psi		1325 psi		1325 psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD 1.0 Max % XD — %		MD 1.0 Max % XD — %		MD 1.0 Max % XD — %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD 93 % XD 93 %		MD — % XD 93 %		MD 93 % XD ~~93~~ %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1200 psi		1200 psi		1200 psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)	Pass		Pass		Pass	
Have a min. elongation at break						
TYPE 1-210%	300 Min. %		300 Min. %		300 Min. %	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD 1.0 % XD 1.5 %		MD 1.0 % XD 1.5 %		MD 1.0 % XD 1.5 %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass		Pass		Pass	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)	Pass		Pass		Pass	
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	92 %		92 %		92 %	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	1300 psi		1300 psi		1300 psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)	Pass		Pass		Pass	
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 9 lbf XD 9 lbf		MD 9 lbf XD 9 lbf		MD 9 lbf XD 9 lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**PROTECTIVE COATINGS, INC.**					
NOTE: Blank lines = applicable data not reported by manufacturer.						

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

REEVETECH		SMI RUBBER ROOF BLACK		SMI RUBBER ROOF WHITE		AGAPER E		.045 WEATHERGARD BLACK		.055 WEATHERGARD BLACK	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A	1	A	1	A	1	A & B	1	A	1	A
45 mils		45 mils		45 mils		45 mils		45 mils		55 mils	
−7% +10% %		±10 %		±10 %		10 %		7 %		10 %	
1600 psi		1400 psi		1400 psi		1400 psi		1400 psi		1400 psi	
NA lbf		NA lbf		NA lbf		115 lbf		NA lbf		NA lbf	
lbf		lbf		lbf		lbf		82 lbf		82 lbf	
lbf		lbf		lbf		lbf		lbf		lbf	
%		%		%		%		%		%	
NA %		NA %		NA %		%		NA %		NA %	
350 %		300 %		300 %		350 %		300 %		300 %	
NA %		NA %		NA %		NA %		NA %		NA %	
.5 %		%		%		4.0 %		+4.0 %		+4.0 %	
Pass		Pass		Pass		Pass		Pass		Pass	
1.0 %		%		%		3.5 %		3.0 %		3.0 %	
0 %		%		%		%		%		%	
psi		psi		psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
MD % XD %		MD 2.0 % XD 2.0 %		MD 2.0 % XD 2.0 %		MD 1.0 % XD %		MD % XD %		MD % XD %	
MD 100 % XD 100 %		MD % XD %		MD % XD %		MD 110 % XD %		MD % XD %		MD % XD %	
1700 psi		1225 psi		1225 psi		psi		1200 psi		1200 psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
Pass		Pass		Pass		Pass					
250 %		225 %		225 %		300 %		210 %		210 %	
NA %		NA %		NA %		NA %		NA %		NA %	
MD 1.0 % XD 1.0 %		MD % XD %		MD % XD %		MD % XD %		MD ±2.0 % XD ±2.0 %		MD ±2.0 % XD ±2.0 %	
Pass		Pass		Pass		Pass		Pass		Pass	
Pass		Pass		Pass							
100 %		%		%		%		%		%	
NA %		NA %		NA %		NA %		NA %		NA %	
psi		psi		psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
Pass		Pass		Pass		Pass					
MD 7.0 lbf XD 7.0 lbf		MD 125 lbf XD 125 lbf		MD lbf XD lbf		MD lbf XD lbf		MD 7.0 lbf XD lbf		MD 7.0 lbf XD lbf	
NA lbf		NA lbf		NA lbf		NA lbf		NA lbf		NA lbf	
REEVES BROS. INC.		SYENERGY METHODS INC.				WAT PRO, INC.		WEATHERGARD			

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-52M	.060 WEATHERGARD BLACK		.045 WEATHERGARD WHITE		.060 WEATHERGARD WHITE	
	Type	Class	Type	Class	Type	Class
	1	A	1	A	1	A
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	60 mils		45 mils		60 mils	
-Max. tolerance ± 10% nominal thickness	10 %		7 %		10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1400 psi		1400 psi		1400 psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
3. LAP JOINT STRENGTH						
TYPE 1 & 2						
Before exposure: min 68 lbf (300N)	82 lbf		82 lbf		82 lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	lbf		lbf		lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	%		%		%	
CLASS B-After immersion (min. 85%)	NA %		NA %		NA %	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	300 %		300 %		300 %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	+4.0 %		+4.0 %		+4.0 %	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass		Pass		Pass	
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	3.0 %		4.0 %		4.0 %	
Shall not drop in strength by more than 10% as received (TEST 2)	%		%		%	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	psi		psi		psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD % XD %		MD % XD %		MD % XD %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD % XD %		MD % XD %		MD % XD %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	1200 psi		1200 psi		1200 psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)						
Have a min. elongation at break						
TYPE 1-210%	210 %		210 %		210 %	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD ±2.0 % XD ±2.0 %		MD ±2.0 % XD ±2.0 %		MD ±2.0 % XD ±2.0 %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass		Pass		Pass	
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)						
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	%		%		%	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	psi		psi		psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)						
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 7.0 lbf XD lbf		MD 7.0 lbf XD lbf		MD 7.0 lbf XD lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	

LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction

NOTE: Blank lines = applicable data not reported by manufacturer.

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EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 2: Test Results *(See Part 1 for General Information)*

.045 WEATHERGARD BLACK FIRE RETARDANT		.055 WEATHERGARD BLACK FIRE RETARDANT		.060 WEATHERGARD BLACK FIRE RETARDANT							
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
1	A	1	A	1	A						
45 mils		55 mils		60 mils		mils		mils		mils	
7 %		10 %		10 %		%		%		%	
1400 psi		1400 psi		1400 psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		lbf		lbf		lbf	
82 lbf		82 lbf		82 lbf		lbf		lbf		lbf	
lbf		lbf		lbf		lbf		lbf		lbf	
%		%		%		%		%		%	
NA %		NA %		NA %		%		%		%	
300 %		300 %		300 %		%		%		%	
NA %		NA %		NA %		%		%		%	
+4.0 %		+4.0 %		+4.0 %		%		%		%	
Pass		Pass		Pass							
3.0 %		3.0 %		3.0 %		%		%		%	
%		%		%		%		%		%	
psi		psi		psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		lbf		lbf		lbf	
MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
1200 psi		1200 psi		1200 psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		lbf		lbf		lbf	
210 %		210 %		210 %		%		%		%	
NA %		NA %		NA %		%		%		%	
MD ±2.0 % XD ±2.0 %		MD ±2.0 % XD ±2.0 %		MD ±2.0 % XD ±2.0 %		MD % XD %		MD % XD %		MD % XD %	
Pass		Pass		Pass							
%		%		%		%		%		%	
NA %		NA %		NA %		%		%		%	
psi		psi		psi		psi		psi		psi	
NA lbf		NA lbf		NA lbf		lbf		lbf		lbf	
MD 7.0 lbf XD lbf		MD 7.0 lbf XD lbf		MD 7.0 lbf XD lbf		MD lbf XD lbf		MD lbf XD lbf		MD lbf XD lbf	
NA lbf		NA lbf		NA lbf		lbf		lbf		lbf	
WEATHERGARD ROOFING SYSTEMS, INC.											

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes Part 1 *(See Part 2 for Test Results)*

	NEOPRENE Polychloroprene					
PRODUCT NAME ►	**SURE-SEAL NEO**	**GACO SYSTEM II NEOPRENE-BLACK**	**GACO SYSTEM II NEOPRENE-GRAY**	**PLYSHIELD NEOPRENE**	**WEATHERGARD NEOPRENE .045**	**WEATHERGARD NEOPRENE .060**
1. PRODUCT DESCRIPTION						
a) Reinforcement	None	None	None	None	None	None
b) Color	Grey/Black	Black	Gray	Black	Black	Black
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.46	.45	.45	.28		
2. COATING REQUIRED	None		●	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Adhesive/Sealant	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	●			10-13		
b) Partially adhered-method		Mech. Fastened	Mech. Fastened	Batten		
c) Fully adhered-method	●	Contact Adhesive	Contact Adhesive	●		
d) Protected Membrane Roofing Assembly	●			●		
6. MINIMUM SLOPE	None	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●	●	●	●	●
c) Wood fibre	●	●	●	●	●	●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●	●	●	●	●
f) Felt faced composites	●	●	●	●	●	●
g) Other	See Specifications	See Specifications	See Specifications	Approval of Plyroof Tech. Dept.	Consult Weathergard Technical Services	Consult Weathergard Technical Services
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	–25°F-180°F	50°F-90°F	50°F-90°F	15°F-120°F		
10. FLASHING MATERIAL	Elastoform	Uncured Neo	Uncured Neo	Uncured Neo	Uncured Neo	Uncured Neo
11. FLASHING METHOD	Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive	Contact Adhesive
12. PRE-FORMED ACCESS AVAILABLE	Yes	No	No	No	No	No
13. COUNTRY OF ORIGIN	USA	USA	USA	USA	USA	USA
14. COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1960	1973-Saudi Arabia	1973-Saudi Arabia			
b) U.S.A. (Year, City-first installed)	1960-Carlisle	1961-Wash., D.C.	1961-Wash., D.C.	1963-Denver		
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign		71,000 Black & Gray	71,000 Black & Gray			
b) U.S.A.	Thousands	180,000 Black & Gray	180,000 Black & Gray	179,000		
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	10	10	10	10
b) Renewable after inspection				No	No	No
c) Scope of coverage (repair of leaks)						
c.1 Material only						
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None						
d.2 Original cost of installation	●			●	●	●
d.3 $ per square		●	●			
e) Exclusion from coverage						
e.1 Damage to other roofing components	See Literature	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	See Literature	See Specifications	See Specifications		See Specifications	See Specifications
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distrs./Reps.	Distrs./Reps.		Direct	Distrs./Reps.	
22. # REGIONAL SERVICE LOCATIONS	39	31		4	17	
23. LICENSED APPLICATOR AGREEMENT	Yes	Yes		Yes	Yes	
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Field, Seminars Factory	Field, Seminars		Field	Onsite, Seminars	
25. SALES INFORMATION; CONTACT	Don Kyle	1-800-441-7464		Charles Taft	901-458-2222	
26. TECHNICAL INFORMATION; CONTACT	Ed Kane	1-800-441-7464		Steve Condren	901-458-2222	
COMPANY►	CARLISLE SYNTEC SYSTEMS	GATES ENGINEERING CO., INC.		PLYMOUTH RUBBER CO. INC.	WEATHERGARD ROOFING SYSTEMS, INC.	

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes Part 1 *(See Part 2 for Test Results)*

CSPE HYPALON						PIB Polyisobutylene		
BURKELINE M-341	BURKELINE M-356	CSPE HYPALON UNIROOF	DUNSEAL HYPALON	GREAT WHITE HYPALON WHITE	GREAT WHITE HYPALON BLACK	ALPHAGARD	CARBOLINE PIB 1000	GEOFLEX
*Polyester Fiber	M.F. Backing	None	Polyester	Yes	Yes	60 Mil PIB 40 Mil Fleece	Yes	Polyester
White	White	White	All Colors	White	Black	Black	White or Black	Black or White
.25	.31	.25	.30-.40	.25	.25	.57	.57	.57
None	None	None	None	None	None	None	None	None
●	●	●	Yes	●	●	●	●	●
●	●	●	Yes	●	●	●	●	●
Solvent/Heat Weld	Solvent/Heat Weld	Heat Weld	Heat or Adhesive	Solvent/Heat Weld	Solvent/Heat Weld	Self-sealing	Self-sealing	Self-sealing
10	10		10	●	●	10		12
Mech. Fastened			Mech. Fastened	●	●	Asphalt/Adhesive	Fasteners/Adhesive	●
	Latex Adhesive	●	Adhesive	●	●	Asphalt Adhesive	Adhesive	
●	●		Yes	●	●	●	●	●
Dead Level	Dead Level	Dead Level	None	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
●				●*	●*	●	●	●
●		●	●	●*	●*	●	●	●
●		●	●	●*	●*	●	●	●
●		●	●	●*	●*	●	●	●
●		●	●	●*	●*	●	●	●
●		●	●	●*	●*	Recovery Board	●	●
See Specifications	See Specifications		See Specifications	*Contact KES for application methods over each type or see specs	*Contact KES for application methods over each type or see specs		Existing Roof	See Specifications
None	None	None	None	None	None	None	None	None
0°F-120°F	0°F-120°F	10°F-120°F	0°F-160°F	-25°F-150°F	-25°F-150°F	20°F-100°F	20°F-160°F	20°F-100°F
Burkeline Hypalon	Burkeline Hypalon	Hypalon	Unreinforced Hypalon	Hypalon	Hypalon	Unbacked PIB	PIB	PIB
Solvent/Heat Weld Self-Contact Adhesive	Solvent/Heat Weld Self-Contact Adhesive	Cement	Adhesive	Solvent or Heat Weld	Solvent or Heat Weld	Solvent/Weld	Solvent/Weld	Solvent & Adhesive
Yes	Yes	Yes	No			Yes	Yes	Yes
USA	USA	UK	Canada	USA	USA	Germany	USA	West Germany
USA	USA	UK	Canada	USA	USA	Germany & USA	USA	USA
1982	1982	1963	1972			1950	1968	1950
1976	1976	1978-LaVerne, CA	1980-Tennessee	1983-Waterbury	1983-Waterbury	1977-St. Louis	1979-St. Louis	1977-St. Louis
120	2,000	325,000	Thousands			8,200,000	Thousands	8,200,000
20,000	30	3,000				165,000	Thousands	170,000
10	10	10	15	21	21	10	10	5 or 10
		●				No		Yes
				Also Available	Also Available			
●	●	●	5-10	●	●	●	●	●
		●		●	●			●
●	●		●				●	
								●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
See Specifications	See Specifications	None	None	See Specifications	See Specifications	Yes See Specifications	Contact Supplier	Yes See Literature
Distributors		Distributors	Agent/Direct	Distributors		Distrs./Reps.	Sales Reps	Mfgr./Reps.
3		6		62		2	24	4
Yes		Yes	Yes			Yes	Yes	Yes
Field		Field	Field, Seminars	Field, Seminars		Yes	Field, Seminars	Field, Seminars Factory
Doug Bartlett		J. Whittemore	P. Hyrsko	T. Arras		Charles Kellar	R. Bradley	Joe Chew
Ralph Woodley		J. Whittemore	D. Brazier	T. Arras		Werner H. Huhn	R. Bradley	Joe Chew
BURKE RUBBER COMPANY		CENTRAL STATES ASSOC. CORP.	DUNLOP CONSTRUCTION PRODUCTS, INC.	KELLY ENERGY SYSTEMS, INC.		AGR COMPANY	CARBOLINE CO.	REPUBLIC POWDERED METALS

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes Part 1 *(See Part 2 for Test Results)*

	PIB Polyisobutylene	CPE Chlorinated Polyethylene				
PRODUCT NAME ►	**TROPIGARD**	**ALKORFLEX 35093**	**ALKORFLEX 35094**	**ALKORFLEX 35096**	**COOL TOP 40**	**FLEXHIDE CPE**
1. PRODUCT DESCRIPTION						
a) Reinforcement	60 Mil PIB 40 Mil Fleece	None	None	Polyester Fiber	Polyester	Polyester
b) Color	Black	Light Grey	Light Grey	Light Grey	White	White
c) Installed wt. (lbs. per sq. ft. w/o ballast)	.57	.33	.30	.30	.31	.30
2. COATING REQUIRED	None	None	None	None	None	None
3. USE						
a) New roofing	●	●	●	●	●	●
b) Reroofing	●	●	●	●	●	●
4. FIELD LAP JOINT METHOD	Self-sealing	Solvent/Heat	Solvent/Heat	Solvent/Heat	Heat	Solvent/Heat
5. TYPE OF ROOF SYSTEM						
a) Loose laid/ballasted (ballast: lbs. per sq. ft.)	13	10		10		
b) Partially adhered-method	Asphalt or Adhesive		●		●	Mech. Fastened
c) Fully adhered-method	Asphalt or Adhesive		●			
d) Protected Membrane Roofing Assembly	●			●		
6. MINIMUM SLOPE	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level	Dead Level
7. USE OVER						
a) Perlite	●	●	●	●	●	●
b) Urethane	●	●		●	●	●
c) Wood fibre	●	●		●		●
d) Fibre glass	●	●	●	●	●	●
e) Expanded polystyrene	●	●		●	●	●
f) Felt faced composites	Recovery Board	●	●	●	●	●
g) Other	Existing Smooth Asphalt BUR				Extruded Polystyrene, Isocyanurate	Extruded Polystyrene, Isocyanurate
8. RESTRICTED REGIONS *(See "Important Notes")*	None	None	None	None	None	None
9. WORKABLE TEMP RANGE	20°F-100°F	0°F-115°F	0°F-115°F	0°F-115°F	0°F-120°F	
10. FLASHING MATERIAL	Unbacked PIB	CPE Coated Metal	CPE Coated Metal	CPE Coated Metal	Cool Top 40 & CPE Coated Metal	Coated Metal
11. FLASHING METHOD	Solvent/Weld	Solvent/Heat	Solvent/Heat	Solvent/Heat	Heat	Solvent/Heat
12. PRE-FORMED ACCESS AVAILABLE	Yes	Yes	Yes	Yes	Yes	Yes
13. COUNTRY OF ORIGIN	Germany	Belgium	Belgium	Belgium	USA	USA
14. COUNTRY OF MANUFACTURE	Germany & USA	Belgium	Belgium	Belgium	USA	USA
15. YEAR FIRST COMMERCIAL USE						
a) Foreign (Year)	1950	1973	1976	1974		
b) U.S.A. (Year, City-first installed)	1978-Amsterdam, NY	1979-Madison	1980-St. Louis	1979-Madison	1978-Newark	1982-Stanhope
16. NO. OF SQUARES INSTALLED (1 square=100 sq. ft.)						
a) Foreign	75,000,000					
b) U.S.A.	1,500,000	>20,000	>20,000	>50,000	250,000	
17. WARRANTY *(See "Important Notes")*						
a) Duration (years)	10	10	10	10	10	5 or 10
b) Renewable after inspection	Available on Request					
c) Scope of coverage (repair of leaks)						
c.1 Material only						
c.2 Workmanship & material	●	●	●	●	●	●
d) Monetary limitation						
d.1 None	●	●	●	●		
d.2 Original cost of installation					●	●
d.3 $ per square						
e) Exclusion from coverage						
e.1 Damage to other roofing components	●	●	●	●	●	●
e.2 Consequential damages	●	●	●	●	●	●
18. LIMITATIONS OR RESTRICTED USE	Yes See Specifications				Consult Cooley	Petroleum, Coal Tar Products See Specifications
19. UL *(See "Important Notes")*						
20. FM *(See "Important Notes")*						
21. METHOD OF DISTRIB.	Distrs./Reps.	Mfgr./Reps.			Mfgr./Reps.	Licensed Contractors Only
22. # REGIONAL SERVICE LOCATIONS	2				2	1
23. LICENSED APPLICATOR AGREEMENT	Yes	Yes			Yes	Yes
24. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)	Yes	On Job Training			Field, Seminars	Field, Seminars, Factory
25. SALES INFORMATION; CONTACT	Ron Utzler	Office			Office	S. Steck
26. TECHNICAL INFORMATION; CONTACT	Ron Utzler	Office			Office	F. Neuwirth
COMPANY►	TROPICAL INDUSTRIAL COATINGS, INC.	ALKOR-DIVISION OF THE SOLVAY AMERICAN CORP.			COOLEY ROOFING SYSTEMS INC.	U.S. MINERAL PRODUCTS CO.

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes Part 1 *(See Part 2 for Test Results)*

OTHER FABRICATED SHEET APPLIED MEMBRANES								
BOND GREY 35	**DURO-LAST**	**OTTO SINGLE-PLY STR**	**SEAL-DRY, 30 MILS**	**SEAL-DRY, 34 MILS**	**FIBERTITE**			
Polyester	Reinforced Polyester	Woven Fiberglass	Polyester	Fiberglass	Reinforced Polyester			
Grey	White	White	White	White	Beige			
.22	.21	.19	.25	.25	.25			
None	None	None	None	None	None			
•	•	•	•	•	•			
•	•	•	•	•	•			
Heat Weld	Heat Gun	Air Cure	Heat Weld	Heat Weld	Heat Weld			
•	•		•	•				
•	Mechanically		Mech. Fastened	Mech. Fastened	Mech. Fastened			
	•	•	•	•				
Dead Level	Any	Dead Level	Dead Level	Dead Level	Dead Level			
•	•		•	•	•			
•	•		•	•	•			
•	•		•	•	•			
•	•		•	•	•			
•	•	•	•	•	•			
•	•		•	•	•			
			•	•	Check With Manufacturer			
None	None	None	None	None	None			
–30°F-180°F	–10°F-100°F	No Restrictions	–30°F-160°F	–30°F-160°F	–30°-160°F			
Conventional	Roof Material	Same Materials & Silicone Caulking	Roof Membrane	Roof Membrane	Roof Membrane			
Conventional	Heat Gun & Metal	Air Cure	Heat Weld	Heat Weld	Heat Weld			
Yes	Yes	Not Necessary	Yes	Yes	Yes			
USA	USA	USA	USA	USA	USA			
USA	USA	USA	USA	USA	USA			
					1974			
1981	1978	1979-Kansas City	1983-Owasso,MI	1983-Providence,KY	1968-Sarasota			
	None				10,000			
	120,000	10,000			Thousands			
10	20	10	15	15	10			
	No		No	No				
	Last 10 Years							
•	First 10 Years	•	•	•	•			
		•						
•	•		•	•	•			
•	•	•	•	•	•			
•	•	•			•			
See Specifications	None	See Specifications	None	None	See Specifications			
Contrs./Direct	Reps./Dealers	Licensed Distrs.	Reps./Installers		Direct			
	2				3			
Yes	Yes	Yes	Yes		Yes			
Yes	Seminars, Field, Factory	Yes	Field, Seminars, Factory		Field, Seminars, Factory			
Steve Irwin	Bill Frederick	Tom Olsen	Bill Shroyer		Sam Eisentrout			
Wayne Holden	John Burt	John Sweeney	Jack Givens		Sam Eisentrout			
BOND COTE SYSTEMS	**DURO-LAST ROOFING, INC.**	**OTTO FABRIC, INC.**	**SEAL DRY/U.S.A, INC.**		**SEAMAN CORP.**			

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-54M	NEOPRENE Polychloroprene					
	SURE-SEAL NEOPRENE		GACO SYSTEM II NEOPRENE - BLACK		GACO SYSTEM II NEOPRENE - GRAY	
	Type	Class	Type	Class	Type	Class
	1	A & B	1	A & B	1	A & B
1. THICKNESS						
TYPE 1 & 2-Min. 39 mils in (1.0 mm)	45,60 mils		60 mils		60 mils	
-Max. tolerance ± 10% nominal thickness	±10 %		10 %		10 %	
2. STRENGTH OF MEMBRANE						
TYPE 1-Tensile strength: min. 870 psi (6MPa)	1750 psi		2000 psi		1400 psi	
TYPE 2-Breaking strength: min 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
3. LAP JOINT STRENGTH **TYPE 1 & 2**						
Before exposure: min 68 lbf (300N)	lbf		lbf		lbf	
After exposure:						
Min. of 85% of value before exposure but not less than 68 lbf (300N)	lbf		lbf		lbf	
CLASS A-After immersion and freeze thaw cycles (min. 85%)	%		%		%	
CLASS B-After immersion (min. 85%)	%		%		%	
4. ELONGATION AT BREAK						
TYPE 1-Min. 300% elongation	360 %		350 %		650 %	
TYPE 2-Min. 200% elongation	NA %		NA %		NA %	
5. TENSILE SET						
TYPE 1 ONLY-Not greater than 5.0%	1.0 %		<5 %		<5 %	
6. LOW TEMPERATURE FLEXIBILITY						
Shall show no cracking (Pass/Fail)	Pass					
7. WATER ABSORPTION - after immersion in water:						
Change in mass not to exceed 5.0%	±10 %		10 %		25 %	
Shall not drop in strength by more than 10% as received (TEST 2)	%		%		%	
Strength not less than:						
TYPE 1-Tensile strength: 870 psi (6MPa)	psi		psi		psi	
TYPE 2-Breaking strength: 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
8. DIMENSIONAL STABILITY AFTER WATER ABSORPTION						
Change in length not to exceed 3.0%	MD % XD %		MD % XD %		MD % XD %	
9. HEAT AGING						
After exposure:						
Shall retain 80% of strength as received and in no case less than min. strength measured in test 2	MD % XD %		MD % XD %		MD % XD %	
TYPE 1-Tensile strength: min. 870 PSI (6 MPa)	psi		psi		psi	
TYPE 2-Breaking strength: min. 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
Pass low temperature flexibility test (Pass/Fail)	Pass					
Have a min. elongation at break						
TYPE 1-210%	%		%		%	
TYPE 2-140%	NA %		NA %		NA %	
Dimensional change not to exceed 3.0%	MD 0.5 % XD 0.5 %		MD % XD %		MD % XD %	
10. OZONE RESISTANCE						
No visible cracks under 7 power magnification (Pass/Fail)	Pass					
11. RESISTANCE TO ACCELERATED WEATHERING						
CLASS A ONLY						
TYPE 1 & 2-Shall show no cracking, blistering or visible defects (Pass/Fail)	Pass					
Shall retain min. of 90% of strength prior to weathering and in no case less than min. strength specified in Test 2.						
TYPE 1-Shall retain 90% of tensile strength	%		%		%	
TYPE 2-Shall retain 90% of breaking strength	NA %		NA %		NA %	
TYPE 1-Min. tensile strength of 870 psi (6 MPa)	psi		psi		psi	
TYPE 2-Min. breaking strength of 112 lbf (500N)	NA lbf		NA lbf		NA lbf	
12. DYNAMIC IMPACT (PUNCTURING) TEST						
Will withstand puncturing test of an energy impact of 1.8 ft. lbs (2.45J) (Pass/Fail)	Pass					
13. TEAR RESISTANCE						
TYPE 1 ONLY-Shall exceed 6 lbf (26N) per mm of thickness	MD 6.6 lbf XD 6.6 lbf		MD 7.9 lbf XD 7.9 lbf		MD 7.9 lbf XD 7.9 lbf	
14. TEARING STRENGTH						
TYPE 2 ONLY-Shall exceed 8 lbf (35N)	NA lbf		NA lbf		NA lbf	
LEGEND: NA = not applicable; MD = machine direction; XD = cross machine direction	**CARLISLE SYNTEC SYSTEMS**		**GATES ENGINEERING CO., INC.**			
NOTE: Blank lines = applicable data not reported by manufacturer.						

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

NEOPRENE Polychloroprene						CSPE HYPALON					
PLYSHIELD NEOPRENE		**WEATHERGARD NEOPRENE .045**		**WEATHERGARD NEOPRENE .060**		**UNIROOF**		**GREAT WHITE HYPALON WHITE**		**GREAT WHITE HYPALON BLACK**	
Type	Class	Type	Class	Type	Class	Type	Class	Type	Class	Type	Class
2	A	1	A	1	A	1	A	2	A	2	A
32 mils		45 mils		60 mils		39 mils		Approx .36 or .48 mils		Approx .36 or .48 mils	
+4.0 - 2.0 %		10 %		10 %		10 %		10 %		10 %	
NA psi		1500 psi		1500 psi		1200 psi		NA psi		NA psi	
90 lbf		NA lbf		NA lbf		NA lbf		165 lbf		165 lbf	
76 lbf		91 lbf		91 lbf		lbf		lbf		lbf	
69 lbf		lbf		lbf		lbf		lbf		lbf	
90 %		%		%		%		%		%	
NA %		NA %		NA %		NA %		NA %		NA %	
NA %		330 %		330 %		854 %		NA %		NA %	
250 %		NA %		NA %		NA %		250 %		250 %	
NA %		±4.0 %		±4.0 %		%		NA %		NA %	
Pass		Pass		Pass		Pass		Pass		Pass	
3.4 %		3.5 %		3.5 %		0.0 %		5.0 max %		5.0 max %	
10 %		%		%		0.0 %		%		%	
NA psi		psi		psi		1200 psi		NA psi		NA psi	
88 lbf		NA lbf		NA lbf		NA lbf		lbf		lbf	
MD +0.3 % XD +0.3 %		MD % XD %		MD % XD %		MD 0.0 % XD 0.0 %		MD <3.0 % XD <3.0 %		MD <3.0 % XD <3.0 %	
MD 85 % XD 85 %		MD % XD %		MD % XD %		MD % XD %		MD % XD %		MD % XD %	
NA psi		1300 psi		1300 psi		psi		NA psi		NA psi	
98 lbf		NA lbf		NA lbf		NA lbf		165 lbf		165 lbf	
Pass						Pass		Pass		Pass	
NA %		210 %		210 %		854 %		NA %		NA %	
205 %		NA %		NA %		NA %		200 %		200 %	
MD 1.0 % XD 1.0 %		MD % XD %		MD % XD %		MD 0.0 % XD 0.0 %		MD <3.0 % XD <3.0 %		MD <3.0 % XD <3.0 %	
Pass						Pass		Pass		Pass	
Pass		Pass		Pass		Pass		Pass		Pass	
NA %		95 %		94 %		100 %		NA %		NA %	
95 %		NA %		NA %		NA %		>90 %		>90 %	
NA psi		1450 psi		1450 psi		1200 psi		NA psi		NA psi	
95 lbf		NA lbf		NA lbf		NA lbf		>112 lbf		>112 lbf	
Pass		Pass		Pass				Pass		Pass	
MD NA lbf XD NA lbf		MD 11.4 lbf XD lbf		MD 13.8 lbf XD lbf		MD lbf XD lbf		MD NA lbf XD lbf		MD NA lbf XD lbf	
10 lbf		NA lbf		NA lbf		NA lbf		lbf		lbf	
PLYMOUTH RUBBER COMPANY, INC.		**WEATHERGARD ROOFING SYSTEMS, INC.**				**CENTRAL STATES ASSOC. CORP.**		**KELLY ENERGY SYSTEMS, INC.**			

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

		CSPE HYPALON			PIB Polyisobutylene	
PRODUCT NAME►		**BURKELINE M-341**	**BURKELINE M-356**	**DUNSEAL HYPALON**	**ALPHAGARD**	**CARBOLINE PIB 1000**
Product Description►		POLYESTER REINFORCED CSPE	CSPE W/M.F. BACKING	CSPE HYPALON	PIB	PIB
1. Thickness	Method:	ASTM D751	ASTM D412		Own quality control (high frequency)	ASTM D751
	Results:	**36 mils nominal**	**40 mils nominal**	**.036 and .045 ±10%**	**100 mil ±10%**	**100 mil ±10%**
2. Tensile Strength	Method:	ASTM D751, Grab method	ASTM D882	ASTM D412	ASTM D412 & D882	ASTM D751, Grab method
	Results:	**155 x 158 pounds**	**24 x 17 pounds/inch width**	**1500 psi**	**550 psi**	**150 lbf**
3. Lap Joint Strength	Method:	ASTM D751, Grab method	ASTM D3083, Para. 9.3		ASTM D751	ASTM D751
	Results:	**123 pounds**	**15 pounds/inch width**	**Exceeds parent material**	**159.5 lbf**	**157 lbf**
4. Elongation at Break	Method:	ASTM D751, Grab method	ASTM D882	ASTM D412	ASTM D882	ASTM D412 unbacked sheet
	Results:	**103 x 90%**	**400 x 590%**	**300%**	**410%**	**500% Min**
5. Tensile set	Method:				ASTM D395 (Method B)	
	Results:				**91.5%**	
6. Low Temperature Flexibility	Method:	ASTM D2136		ASTM D2136 – 45 °F	ASTM D2136, – 40 °F/ – 40 °C	ASTM D2136
	Results:	**– 40 °F**		**No cracks**	**Satisfactory; 3 of 3 passed**	**– 40°F**
7. Water Absorption	Method:	ASTM D471, 7 days @ 70 °F	ASTM D471, 7 days @ 70 °F	ASTM D570	ASTM D570	ASTM D570 (Rubber only)
	Results:	**5%**	**5%**	**<2%**	**0.032%**	**>1.0%**
8. Dimensional Stability After Water Absorption	Method:			ASTM D570	Not tested because technically no water absorption	
	Results:			**No change**		
9. Heat Aging	Method:	ASTM D573 14 days@212 °F	ASTM D573, 14 days@212 °F	ASTM D571	ASTM D573 after 6 hrs.	CGSB standard 37-GP-56M, test 2, test 4 & delamination
	Results:	**Tensile 100%, Elong 60%**	**Tensile 100%, Elong 60%**	**Retained 60%**	**2.3% loss@376°F**	**Passed**
10. Ozone Resistance	Method:	ASTM D1149, 100pphm, 1/8" bentloop 7 days@104 °F	ASTM D1149, 100 pphm @20% strain 7 days @104 °F	ASTM D3041	DIN 4102 (no U.S. test)	ASTM D1149, 1 ppm @100 °F
	Results:	**No cracks @7X**	**No cracks @7X**	**Passed**	**Excellent**	**Passes 168 hrs.**
11. Resistance to Accelerated Weathering	Method:	ASTM E838	ASTM E838	10 yr. Panama	U.S. Testing	ASTM D1499 (Model XW)
	Results:	**>1 Million Langleys**	**>1 Million Langleys**	**Pass; CGSB testing in progress**	**15,000 hrs.**	**10,000 hrs.**
12. Dynamic Impacting (Puncturing)	Method:	FTMS 101C, Method 2031	FTMS 101C, Method 2031	FTMS 101B	FTMS 191 (Method 5120)	
	Results:	**151 lbs.**	**51 lbs.**	**150 lbs.**	**208.4 lbs**	
13. Tear Resistance	Method:		ASTM D1004, Die C	ASTM D751, Tongue	ASTM D1004	
	Results:		**7/6 lbs**	**100 lbs. min.**	**176 lbs/in thickness**	
14. Tearing Strength	Method:	ASTM D751, Tongue method		ASTM D751, Tongue	ASTM D751 a. Method B b. Grab method	ASTM D751 (Trapazoid method)
	Results:	**47/58 lbs.**		**100 lbs. min**	**a. 52 lbs** **b. 139.4 lbs**	**50 lbf (min)**
15. Low Temperature Impact	Method:	ASTM D2137	ASTM D1790	ASTM D2136 – 45 °F	ASTM D2136,-1/8″ mandrel	1 ft lb impact (own test)
	Results:	**– 40 °F**	**– 40 °F**	**No cracks**	**No cracks@ – 30°F**	**Passes at – 50°F**
16. Permeability	Method:	ASTM E96	ASTM E96	ASTM E96	ASTM E96	ASTM E96
	Results:	**3 x 10^{-3} metric perm-CM.**	**3 x 10^{-3} metric perm-CM.**	**<2.0 perm**	**0.01 perm**	**0.01 perm**
17. Dimensional Change After Stress Relaxation	Method:	ASTM D1204 1 hr. @212 °F	ASTM D1204 15 min. @212 °F	ASTM 1204	ASTM (24 hrs.@212 °F)	ASTM D1204
	Results:	**1.5%**	**1.0%**	**< ±10%**	**– 0.7%**	**Max. 1.0%**
18. Cone Penetration	Method:					
	Results:					
COMPANY►		**BURKE RUBBER COMPANY**		**DUNLOP CONSTRUCTION PRODUCTS INC.**	**AGR COMPANY**	**CARBOLINE CO.**

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

		PIB Polyisobutylene		CPE Chlorinated Polyethylene		continued→
PRODUCT NAME►		**GEOFLEX**	**TROPIGARD**	**ALKORFLEX 35093**	**ALKORFLEX 35094**	**ALKORFLEX 35096**
Product Description►		PIB	PIB	CPE	CPE	CPE
1. Thickness	Method:	ASTM D751	Own quality control (high frequency)	ASTM D3083	ASTM D3083	ASTM D3083
	Results:	**100 mils**	**100 mil ±10%**	**48 mil**	**40 mil + fleece**	**44 mils**
2. Tensile Strength	Method:	ASTM D412 & D882	ASTM D412 & D882	ASTM D412	ASTM D412	ASTM D412
	Results:	**550 psi**	**500 psi**	**2000 psi MD & XD**	**2000 psi MD & XD**	**2200 psi MD & XD**
3. Lap Joint Strength	Method:	ASTM D751	ASTM D751	ASTM D412	ASTM D412	ASTM D412
	Results:	**159.7 lbf**	**159.5 lbf**	**>75% MD & XD**	**>75% MD & XD**	**>75% MD & XD**
4. Elongation at Break	Method:	ASTM D882 with backing	ASTM D882	ASTM D412	ASTM D412	ASTM D1682
	Results:	**410%**	**410%**	**>400% MD & XD**	**>400% MD & XD**	**>15% MD & XD**
5. Tensile set	Method:	ASTM D395 (Method B)	ASTM D395 (Method B)	ASTM D412	ASTM D412	ASTM D412
	Results:	**91.5%**	**91.5%**	**<5.0%**	**<5.0%**	**<5.0%**
6. Low Temperature Flexibility	Method:	ASTM D2136	ASTM D2136, – 40 °F/ – 40 °C	Mandrel test	Mandrel test	Mandrel Test
	Results:	**– 40°F**	**Satisfactory; 3 of 3 passed**	**– 40°F**	**– 40°F**	**– 40°F**
7. Water Absorption	Method:	ASTM D570, percent by weight (24 hr. immersion)	ASTM D570	ASTM E96	ASTM E96	ASTM E96
	Results:	**0.032%**	**0.032%**	**<1.0%**	**<1.0%**	**<1.0%**
8. Dimensional Stability After Water Absorption	Method:	ASTM D1204, 24 hrs.@212 °F	Not tested because technically no water absorption			
	Results:	**– 0.7%**				
9. Heat Aging	Method:	ASTM D573, after 6 hrs.@376 °F	ASTM D573 after 6 hrs.	CGSB standard 37-GP-56M, test 2, test 4 & delamination	CGSB standard 37-GP-56M, test 2, test 4 & delamination	CGSB standard 37-GP-56M, test 2, test 4, & delamination
	Results:	**2.3%**	**2.3% loss @376°F**	**Passed**	**Passed**	**Passed**
10. Ozone Resistance	Method:	DIN 4102 (no U.S. test)	DIN 4102 (no U.S.test)	ASTM D3041, 100 hrs	ASTM D3041, 100 hrs	ASTM D3041, 100 hrs
	Results:	**Excellent**	**Excellent**	**Passed**	**Passed**	**Passed**
11. Resistance to Accelerated Weathering	Method:	U.S. Testing	U.S. Testing	Xenon 1200 DIN 53387 Xenon 150 DIN 53387	Xenon 1200 DIN 53387 Xenon 150 DIN 53387	Xenon 1200 DIN 53387 Xenon 150 DIN 53387
	Results:	**15,000 hrs.**	**15,000 hrs.**	**20,000 hrs.**	**20,000 hrs.**	**20,000 hrs.**
12. Dynamic Impacting (Puncturing)	Method:	FTMS 191 (Method 5120)	FTMS 191 (Method 5120)			
	Results:	**208.4 lbs**	**208.4 lbs**			
13. Tear Resistance	Method:	ASTM D1004	ASTM D1004	ASTM D624	ASTM D624	ASTM D624
	Results:	**176 lbs/in thickness**	**176 lbs/in thickness**	**>335 lbs/in MD & XD**	**>335 lbs/in MD & XD**	**>335 lbs/in MD & XD**
14. Tearing Strength	Method:	a. ASTM D624 w/o backing b. ASTM D624 with backing	ASTM D751 a. Method B b. Grab method			
	Results:	**a. 92 pli** **b. 190 pli**	**a. 52 lbs** **b. 139.4 lbs**			
15. Low Temperature Impact	Method:	ASTM D2136, -1/8″ mandrel	ASTM D2136,-1/8″ mandrel	ASTM D746	ASTM D746	ASTM D746
	Results:	**No cracks@ – 30°F**	**No cracks@ – 30°F**	**– 50°F**	**– 50°F**	**– 60°F**
16. Permeability	Method:	ASTM E96 (Procedure A) gms/24 hr./in²	ASTM E96	ASTM E96, Procedure E @100 °F	ASTM E96, Procedure E @100 °F	ASTM E96, Procedure E @100 °F
	Results:	**0.112 W.V.T.**	**0.01 perm**	**0.6 g/m²d**	**0.6 g/m²d**	**0.6 g/m²d**
17. Dimensional Change After Stress Relaxation	Method:	ASTM (24 hrs.@212°F)	ASTM (24 hrs.@212°F)	ASTM D1204, 6 hrs.@176°C	ASTM D1204, 6 hrs.@176°C	ASTM D1204, 6 hrs@176°F
	Results:	**– 0.7%**	**– 0.7%**	**< ±2-0%**	**< ±2-0%**	**< ±0.5%**
18. Cone Penetration	Method:			DIN 53443, Blatt 2, d = 1.5mm	DIN 53443, Blatt 2, d = 1.5mm	DIN 53443, Blatt 2, d = 1.5mm
	Results:			**1600 N@ +23°C**	**1600 N@ +23°C**	**1500 N@ +23°C**
COMPANY►		**REPUBLIC POWERED METALS**	**TROPICAL INDUSTRIAL COATINGS, INC**	**ALKOR-DIVISION OF THE SOLVAY AMERICAN CORP.**		

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

		CPE Chlorinated Polyethylene		OTHER FABRICATED SHEET APPLIED MEMBRANES		
PRODUCT NAME►		**COOL TOP 40**	**FLEXHIDE CPE**	**BOND GREY 35**	**DURO-LAST**	**OTTO SINGLE-PLY**
Product Description►		CPE	CPE	NITRITE ALLOY	TRIMERIC POLYMER COATED POLYESTER	SILICONE FIBERGLASS
1. Thickness	Method:	ASTM D374, Method A	ASTM D374, Method A	ASTM D3083	ASTM D751	ASTM D1777-64
	Results:	**40 mils**	**45 mils**	**.035 in min**	**30 mils**	**29 mils**
2. Tensile Strength	Method:	ASTM D882	ASTM D751, Grab method	a. ASTM D751, Grab method b. ASTM D882	a. ASTM D751, Grab method b. ASTM D882	ASTM D579-66
	Results:	**2500 psi**	**224 lbs**	**a. 390 × 415 lbs** **b. 7000 psi**	**a. 350 × 390 lbs** **b. 6000 psi**	**20,000 psi**
3. Lap Joint Strength	Method:	ASTM D751	ASTM D751, Modified Grab method	ASTM D751	ASTM D751	
	Results:	**95% of material breaking strength**	**92% of material breaking strength**	**350 lbs**	**350 lbs**	
4. Elongation at Break	Method:	ASTM D751		ASTM D751	ASTM D751	ASTM D412, Die C
	Results:	**27%**		**28%**	**27%**	**280%**
5. Tensile set	Method:					
	Results:					
6. Low Temperature Flexibility	Method:	MIL C-20696B	ASTM D2136, 1/8″ mandrel	ASTM D2136	ASTM D2136	ASTM D2176-69 MOD 180° bend @ - 80°
	Results:	**−40°F**	**−40°F, pass**	**−30°F, No cracks**	**−30°F, No cracks**	**No cracks**
7. Water Absorption	Method:	ASTM D2842-69, Modified				24 hr test
	Results:	**0.2%**				**No change**
8. Dimensional Stability After Water Absorption	Method:		ASTM D1204, 176°F, 30 min			24 hr test
	Results:		**0.5%**			**No change**
9. Heat Aging	Method:	ASTM D751	ASTM D751, after 7 days @176°F	176°F, 7 days	176°F, 7 days	
	Results:	**100% of breaking strength**	**Retains 100% breaking strength**	**Retains 95% of tensile strength**	**Retains 95% of tensile strength**	
10. Ozone Resistance	Method:			ASTM D1149, 100 pphm, 1/8″, 104°F, 1/8″ bent loop	ASTM D1149, 100 pphm, 1/8″, 104°F - 7 days	
	Results:			**No cracks, 7X**	**No cracks, 7X**	
11. Resistance to Accelerated Weathering	Method:	a. Twin carbon arc FED 195, Method 5804 b. Desert sun ASTM E838		FS191, Method 5804, carbon and w/water spray 5000 hrs.	FS191, Method 5804, carbon and w/water spray	Atlas & Q-panel weatherometer
	Results:	**a. 15,000 hrs** **b. 3 yrs**		**No cracking**	**No cracking**	**+24,045 hrs, no change**
12. Dynamic Impacting (Puncturing)	Method:			FS101B, Method 2031	FS101B, Method 2031	FTM 191-5122-2
	Results:			**250 lbs**	**250 lbs**	**775 lbs**
13. Tear Resistance	Method:	ASTM D2262			ASTM 751, Tongue	FTM 191-5136
	Results:	**Warp 60 lbs** **Fill 85 lbs**		**Same as tear strength**	**90×90 lbs**	**60 lbs×33 lbs**
14. Tearing Strength	Method:		ASTM D751 (Tongue Tear) 8″×8″ specimen	ASTM D751, 8″×10″ sample	ASTM D751, Tongue	
	Results:		**81 lbs**	**90×100 lbs**	**90×90 lbs**	
15. Low Temperature Impact	Method:		ASTM D746	ASTM D2136, - 30°F		ASTM D2176-69 MOD
	Results:		**−50°F pass**	**No cracking**		**No cracking**
16. Permeability	Method:	ASTM E96	ASTM E96	(Permeance) ASTM E96, Method A	a. ASTM E96, Proc. B b. ASTM E96 (WVT), Proc. B, Method A	ASTM E96-66, Method B
	Results:	**1.62 perms**	**0.4 perms**	**0.379 U.S. perms**	**a. 0.151g/hr** **b. 0.151g/hr/m²**	**7.2**
17. Dimensional Change After Stress Relaxation	Method:	ASTM D1204	ASTM D1204, 176°, 30 min			
	Results:	**Less than 1.0%**	**0.5%**			
18. Cone Penetration	Method:					
	Results:					
COMPANY►		**COOLEY ROOFING SYSTEMS, INC.**	**U.S. MINERAL PRODUCTS CO.**	**BOND COTE SYSTEMS**	**DURO-LAST ROOFING, INC.**	**OTTO FABRIC, INC.**

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Other Single-Ply Pre-Fabricated Sheet Applied Membranes
Part 2: Test Results *(See Part 1 for General Information)*

		OTHER FABRICATED SHEET APPLIED MEMBRANES				
PRODUCT NAME►		**SEAL-DRY, 30 MILS**	**SEAL-DRY, 34 MILS**	**FIBERTITE**		
Product Description►		POLYESTER REINFORCED CPA	FIBERGLASS REINFORCED CPA	POLYESTER REINFORCED EPA		
1. Thickness	Method:	FS 191, Method 5030.2 ASTM D751	ASTM D751	ASTM D3083		
	Results:	**30 mils min**	**34 mils**	**30 mils min**		
2. Tensile Strength	Method:	FS 191, Grab method 5100, ASTM D751	ASTM D751, Grab tensile	a. ASTM D882 b. ASTM D751, Grab method		
	Results:	**450×390 lbs min**	**350 lb ×340 lb**	**a. 8500 psi** **b. 375 lbs×350 lbs**		
3. Lap Joint Strength	Method:			ASTM D751		
	Results:			**>300 lbs**		
4. Elongation at Break	Method:	FS 191, Method 5102	FS 191, Method 5102	ASTM D751		
	Results:	**25%×35%**	**7%×7%**	**20% warp, 30% fill**		
5. Tensile set	Method:					
	Results:					
6. Low Temperature Flexibility	Method:	ASTM D2136, – 30°F, 1/8″ mandrel	ASTM D2136, – 30°F, 1/8″ mandrel	ASTM D2136		
	Results:	**No cracks**	**No cracks**	**–30°F, no cracks**		
7. Water Absorption	Method:	ASTM D570@70°F, @122°F, 48 hrs	ASTM D570@70°F, @122°F, 48 hrs	ShelterRite water wicking test, 24 hrs		
	Results:	**1.5% max, 2.0% max**	**2.7% max**	**1/8″max**		
8. Dimensional Stability After Water Absorption	Method:	ASTM D570@70°F, @122°F, 48 hrs	ASTM D570@70°F, @122°F, 48 hrs	ShelterRite water wicking test, 24 hrs		
	Results:	**No change**	**No change**	**Less than 0.2%**		
9. Heat Aging	Method:	14 days@175°F	14 days@175°F	160°F - 7 days		
	Results:	**>95% strength retained** **No cracking, crazing, blistering**	**>95% strength retained** **No cracking, crazing, blistering**	**>95% strength retention**		
10. Ozone Resistance	Method:			3 days at 100pphm - 100°F & 3 days at 300 pphm - 100°F		
	Results:			**No cracking**		
11. Resistance to Accelerated Weathering	Method:	ASTM D2565 weatherometer		Carbon arc weatherometer w/water spray, 5000 hrs		
	Results:	**2000 hrs, no cracking** **crazing, blistering**		**No cracking**		
12. Dynamic Impacting (Puncturing)	Method:	FS 101B, Method 2031	FS 101B, Method 2031	FS 101B, Method 2031		
	Results:	**250 lbs min**	**168 lbs**	**250 lbs**		
13. Tear Resistance	Method:	FS 191, Method 5134, ASTM D751, 8″×8″ sample	FS 191, Method 5134, ASTM D751, 8″×8″ sample	ASTM D751 8″×10″ sample		
	Results:	**160 lbw×190 lbf**	**41 lbs×41 lbs**	**100 lbs**		
14. Tearing Strength	Method:	FS 191, Method 5134, ASTM D751, 8″×8″ sample		ASTM D751 8″×10″ sample		
	Results:	**160 lbw×190 lbf**		**100 lbs**		
15. Low Temperature Impact	Method:			ASTM D2136 – 30°F		
	Results:			**No cracking**		
16. Permeability	Method:			Water Vapor Transmission, ASTM E96, Proc A		
	Results:			**1.3 g/m²/24h**		
17. Dimensional Change After Stress Relaxation	Method:			37-GP-54M		
	Results:			**Shall not change** **more than 0.24**		
18. Cone Penetration	Method:			37-GP-54M		
	Results:			**Pass**		
COMPANY►		**SEAL DRY/U.S.A., INC.**		**SEAMAN CORP.**		

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