

<b>Section 1 - Product and Company Identification</b>
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**Hazard Label** CAUTION label

**Company Information**

 Johns Manville  
 Roofing Systems  
 P.O. Box 5108  
 Denver, CO 80127 USA

 Telephone: 303-978-2000 8:00AM-5:00PM M-F  
 Internet Address: <http://www.jm.com>  
 Emergency: 800-424-9300 (Chemtrec, In English)

**Trade Names:**

DynaBase® PR;	DynaKap FR HW	DynaMax FR Plus;	DynaWeld® Base;
DynaBase XT;	DynaKap;	DynaMax FR S HW;	DynaWeld® Cap 180 FR CR;
DynaBase HW;	DynaKap T1;	DynaMax FR CR;	DynaWeld Cap FR XT
DynaBase ;	DynaKap FR T1	DynaMax FR;	DynaWeld Cap 180;
DynaClad® Copper;	DynaKap FR T1 CR	DynaMax S;	DynaWeld Cap 250 FR CR;
DynaClad ;	DynaKap FR T1 HW	DynaMax ;	DynaWeld GL;
DynaFlex® CR;	DynaLastic® 180 FR CR;	DynaMop® GL;	DynaWeld Cap 250 FR;
DynaFlex ;	DynaLastic 180 FR;	DynaMop PR;	DynaWeld Cap 250;
DynaGlas® 30 FR;	DynaLastic 180 S;	DynaPly®;	DynaWeld Cap FR CR;
DynaGlas FR CR;	DynaLastic 180;	DynaPly® HW	DynaWeld Cap FR;
DynaGlas FR;	DynaLastic 250 FR CR;	DynaPly T1	DynaWeld PR;
DynaGlas ;	DynaLastic 250 FR;	DynaPly T1 HW	GlasKap® CR;
DynaGlas FR XT	DynaLastic 250 S;	DynaWeld® 180 FR;	GlasKap® Plus;
DynaKap® FR CR;	DynaLastic 250;	DynaWeld 180 S;	GlasKap®;
DynaKap FR;	DynaMax® FR HW;	DynaWeld 250 S;	SBS Mop White

**Use:** These products are designed for use in roofing systems where two or more plies of modified bitumen are desired.

<b>Section 2 - Hazards Identification</b>
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**Emergency Overview**

Under normal conditions of use and handling, this product is not expected to create any health or safety hazards.

**Inhalation**

Not expected under normal conditions of use. However, irritation of the upper respiratory tract (scratchy throat), coughing, and congestion may occur in extreme exposures.

**Skin**

Not expected under normal conditions of use.

**Ingestion**

This product is not intended to be ingested (eaten). If ingested, it may cause temporary irritation to the gastrointestinal (digestive) tract.

**Eyes**

Not expected under normal conditions of use.

<b>Section 3 - Composition/Information on Ingredients</b>
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CAS #	Component	Percent
8052-42-4	Asphalt	20-70
64742-93-4	Asphalt, oxidized	0 -15*
13463-67-7	Titanium dioxide (Ingredient of CR products only)	2-10
21645-51-2	Aluminum trihydrate (Ingredient of CR products only)	2-10
Not Available	Mineral granules (Ceramic-coated granite; 35% crystalline silica, non-respirable)	0-35
1317-65-3	Calcium carbonate	0-35
12007-56-6	Calcium borate (Colemanite) (Products with FR suffix contain colemanite for fire resistance)	0-35
16389-88-1	Dolomite (CaMg(CO <sub>3</sub> ) <sub>2</sub> )	0-35
9003-55-8	Styrene-Butadiene polymer	4-10
25038-59-9	Polyester fiber	2-10
Not Available	Glass fiber mat	2-10
Not Available	Continuous filament glass fiber	2-10
Not Available	Glass fiber mat with polyester scrim	2-10

Not Available	Polyester mat	2-10
Not Available	Polyester mat with glass scrim	2-10
14808-60-7	Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable)	0-10
7429-90-5	Aluminum foil (DynaClad® has an aluminum foil surface)	4.4
9002-88-4	Polypropylene or Polyolefin Film	0-6
64742-11-6	Extracts, petroleum, heavy naphthenic	>1
64741-53-3	Distillates, petroleum, heavy naphthenic	>1
7705-08-0	Ferric chloride	>1

**Component Information**

\* Present in DynaLastic 250 S, DynaWeld 250 Smooth, DynaLastic 250, DynaWeld 250 Cap, DynaLastic 250FR, DynaWeld Cap 250 FR, DynaLastic 250 FR CR, DynaWeld Cap 250 FR CR. Occupational exposure to asphalt, oxidized is not expected to occur due to product form and intended application.

Occupational exposure to titanium dioxide is not expected to occur due to product form and intended use. Exposure limit is given for reference only.

**General Product Description**

These products consist of a modified bitumen sheet incorporating the features of a fiber glass mat and/or polyester composite mat with a blend of SBS (Styrene-Butadiene-Styrene) rubber and high quality asphalt. Product may also contain fire retardant additives.

DynaClad is aluminum foil surfaced.

DynaClad Copper is copper surfaced.

GlasKap products are mineral surfaced, asphalt coated, fiber glass cap sheets for use in built-up roofing systems.

**Section 4 - First Aid Measures****First Aid: Inhalation**

Remove to fresh air. If symptoms persist contact a physician.

**First Aid: Skin**

Wash exposed skin with soap and water. If irritation develops or persists, seek medical attention.

**First Aid: Ingestion**

Product is not intended to be ingested or eaten. If this product is ingested, do not induce vomiting and seek medical attention immediately.

**First Aid: Eyes**

Flush eyes with large amounts of water until irritation subsides. If irritation persists, seek medical attention.

**Section 5 - Fire Fighting Measures**

**Flash Point:** Not applicable

**Upper Flammable Limit (UFL):** Not determined

**Auto Ignition:** 460°C/860°F

**Rate of Burning:** Not determined

**General Fire Hazards**

There is no potential for spontaneous fire or explosion.

**Extinguishing Media**

Carbon dioxide (CO<sub>2</sub>), dry chemical.

**Fire Fighting Equipment/Instructions**

No special procedures are expected to be necessary for this product. Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases.

**Section 6 - Accidental Release Measures****Clean-Up Procedures**

Pick up large pieces. Vacuum dusts.

**Method Used:** Not applicable

**Lower Flammable Limit (LFL):** Not determined

**Flammability Classification:** Not determined

**Section 7 - Handling and Storage****Handling Procedures**

Use protective equipment as described in Section 8 of this safety data sheet when handling uncontained material. Handle in accordance with good industrial hygiene and safety practices.

**Storage Procedures**

Warehouse storage should be in accordance with package directions, if any. Material should be kept clean, dry, and in original packaging.

**Section 8 - Exposure Controls / Personal Protection****Exposure Guidelines****A: General Product Information**

The Occupational Safety and Health Administration (OSHA) has not adopted specific occupational exposure standards for fiber glass. Fiber glass is treated as a nuisance dust and is regulated by OSHA as a particulate not otherwise regulated (total dust) shown in CFR 1910.1000 Table Z-3.

Respirable fraction 5 mg/m<sup>3</sup>

Total dust 15 mg/m<sup>3</sup>

JM has adopted the fiber glass industry voluntary Product Stewardship Program (PSP), formerly the NAIMA-OSHA Health and Safety Partnership Program (HSPP). Under the PSP, JM recommends that exposures be limited to the voluntary concentration of 1 f/cc TWA for fibers longer than 5 microns with a diameter less than 3 microns. This will help minimize potential irritation effects. The PSP also includes the PPE recommendations described below.

**B: Component Exposure Limits****Asphalt (8052-42-4)**

ACGIH: 0.5 mg/m<sup>3</sup> TWA (fume, inhalable fraction, as benzene soluble aerosol)

**Titanium dioxide (Ingredient of CR products only) (13463-67-7)**

OSHA: 15 mg/m<sup>3</sup> TWA (total dust)

10 mg/m<sup>3</sup> TWA (total dust)

ACGIH: 10 mg/m<sup>3</sup> TWA

**Calcium carbonate (1317-65-3)**

OSHA: 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction)

**Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable) (14808-60-7)**

OSHA: 0.1 mg/m<sup>3</sup> TWA (respirable dust)

((250)/(%SiO<sub>2</sub> + 5) mppcf TWA (respirable)); ((10)/(%SiO<sub>2</sub> + 2) mg/m<sup>3</sup> TWA (respirable));

((30)/(%SiO<sub>2</sub> + 2) mg/m<sup>3</sup> TWA (total dust))

ACGIH: 0.025 mg/m<sup>3</sup> TWA (respirable fraction)

**Aluminum foil (DynaClad® has an aluminum foil surface) (7429-90-5)**

OSHA: 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction)

ACGIH: 1 mg/m<sup>3</sup> TWA (respirable fraction)

**PERSONAL PROTECTIVE EQUIPMENT****Personal Protective Equipment: Eyes/Face**

Safety glasses with side shields or chemical goggles are recommended.

**Personal Protective Equipment: Skin**

Leather or cotton gloves should be worn to protect against mechanical abrasion.

**Personal Protective Equipment: Respiratory**

None required

**Personal Protective Equipment: General**

Protective equipment should be provided as necessary to prevent irritation of the throat, eyes, and skin, and to keep exposures below the applicable exposure limits identified in Section 8.

**Section 9 - Physical & Chemical Properties**

<b>Appearance:</b>	Dark mat with granule or white coated surface	<b>Odor:</b>	Asphalt odor
<b>Physical State:</b>	solid	<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable	<b>Vapor Density:</b>	Not applicable
<b>Boiling Point:</b>	>370°C/>700°F	<b>Melting Point:</b>	>95°C/>200°F
<b>Solubility (H<sub>2</sub>O):</b>	Nil	<b>Specific Gravity:</b>	Variable
<b>Freezing Point:</b>	Not determined	<b>Evaporation Rate:</b>	Not applicable
<b>Viscosity:</b>	Not applicable	<b>Percent Volatile:</b>	0
<b>VOC:</b>	Not Determined		

**Section 10 - Stability & Reactivity Information****Stability**

These products are not reactive.

**Hazardous Decomposition**

May form carbon dioxide and carbon monoxide.

**Hazardous Polymerization**

Will not occur.

**Section 11 - Toxicological Information****Acute Toxicity****A: General Product Information**

Vapors from this product may cause eye, respiratory and skin irritation,

**B: Component Analysis - LD50/LC50****Asphalt (8052-42-4)**

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit:>2000 mg/kg

**Titanium dioxide (Ingredient of CR products only) (13463-67-7)**

Oral LD50 Rat: >10000 mg/kg

**Aluminum trihydrate (Ingredient of CR products only) (21645-51-2)**

Oral LD50 Rat: >5000 mg/kg

**Calcium borate (Colemanite) (Products with FR suffix contain colemanite for fire resistance) (12007-56-6)**

Oral LD50 Rat: 5600 mg/kg

**Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable) (14808-60-7)**

Oral LD50 Rat: 500 mg/kg

**Polypropylene or Polyolefin Film (9002-88-4)**

Inhalation LC50 Mouse: 12 g/m<sup>3</sup>/30M

**Ferric chloride (7705-08-0)**

Oral LD50 Rat: 316 mg/kg

**Distillates, petroleum, heavy naphthenic (64741-53-3)**

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit:>2000 mg/kg

**Extracts, petroleum, heavy naphthenic (64742-11-6)**

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit:>2000 mg/kg

**Component Carcinogenicity**

**Asphalt (8052-42-4)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen (fume, coal tar-free)

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 35 [1985] (steam-refined cracking-residue and air-refined))

**Oxidized bitumens (64742-93-4)**

IARC: Group 2A - Probably Carcinogenic to Humans

**Titanium dioxide (Ingredient of CR products only) (13463-67-7)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 93 [in preparation], Monograph 47 [1989])

**Styrene-Butadiene polymer (9003-55-8)**

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 19 [1979])

**Continuous filament glass fiber (Not Available)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen (listed under Synthetic Vitreous Fibers)

IARC: Group 3 - Not Classifiable (IARC Monograph 81 [2002] (listed under Man-made mineral fibres), Monograph 43 [1988])

**Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable) (14808-60-7)**

ACGIH: A2 - Suspected Human Carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Group 1 - Known Human Carcinogen (IARC Monograph 68 [1997] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources))

**Aluminum foil (DynaClad® has an aluminum foil surface) (7429-90-5)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

**Polypropylene or Polyolefin Film (9002-88-4)**

IARC: Group 3 - Not Classifiable (IARC Supplement 7 [1987], Monograph 19 [1979])

**Chronic Toxicity**

Asphalt (asphalt CAS # 8052-42-4): In 1985/87, IARC (International Agency for Research on Cancer) concluded the following:  
(a) Bitumens are not classifiable as to their carcinogenicity to humans (Group 3).

Oxidized bitumens (oxidized asphalt) #64742-93-4: In 2011, the International Agency for Research on Cancer (IARC) announced its conclusion that "occupational exposures to oxidized bitumens and their emissions during roofing" are Group 2A (probably Carcinogenic to Humans). This finding pertains specifically to occupational exposures to oxidized asphalt, which is another name for bitumen, and their emissions during roofing. Occupational exposure to asphalt, oxidized is not expected to occur due to product form and intended use.

Continuous Filament Glass Fiber: No chronic health effects are known to be associated with exposure to continuous filament fiber glass. Results from epidemiologic studies have not shown any increases in respiratory disease or cancer. The International Agency for Research on Cancer (IARC) has classified continuous filament fiber glass as a Group 3 substance, not classifiable as to its carcinogenicity to humans. Because of the large diameter of continuous filament fibers, these products are not considered respirable.

Crystalline silica is considered a hazard by inhalation. The International Agency for Research on Cancer (IARC) has classified crystalline silica as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Several studies have been conducted to determine the risk of cancer to workers exposed to dusts which contain crystalline silica. However, these studies did not consider other factors or elements that workers may be exposed to. Therefore, the causes of the excess deaths due to cancer could not be precisely determined. Further studies are being conducted to determine the risk of cancer when working with crystalline silica products. Excessive exposure to crystalline silica can cause silicosis, a non-cancerous lung disease.

## Section 12 - Ecological Information

### Ecotoxicity

#### A: General Product Information

No data available for this product.

#### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

##### Ferric chloride (7705-08-0)

96 Hr LC50 *Gambusia affinis*: 75.6 mg/L [static]; 96 Hr LC50 *Lepomis macrochirus*: 20.26 mg/L [semi-static]; 96 Hr LC50 *Pimephales promelas*: 20.95-22.56 mg/L [semi-static]  
48 Hr EC50 *Daphnia magna*: 27.9 mg/L

##### Extracts, petroleum, heavy naphthenic (64742-11-6)

48 Hr EC50 *Daphnia magna*: 1.4 mg/L

## Section 13 - Disposal Considerations

### US EPA Waste Number & Descriptions

#### A: General Product Information

This product is not expected to be a hazardous waste when it is disposed of according to the U.S. Environmental Protection Agency (EPA) under Resource Conservation and Recovery Act (RCRA) regulations. Product characterization after use is recommended to ensure proper disposal under federal and/or state requirements.

#### B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

### Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

## Section 14 - Transport Information

### International Transport Regulations

These products are not classified as dangerous goods according to international transport regulations.

## Section 15 - Regulatory Information

### US Federal Regulations

#### A: General Product Information

SARA 311 Status. The following SARA 311 designations apply to this product: Immediate (acute) health hazard.

#### B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

##### Aluminum foil (DynaClad® has an aluminum foil surface) (7429-90-5)

SARA 313: 1.0 % de minimis concentration (dust or fume only)

##### Ferric chloride (7705-08-0)

CERCLA: 1000 lb final RQ; 454 kg final RQ

### State Regulations

#### A: General Product Information

The glass fibers in this product are not known to be regulated.  
Other state regulations may apply. Check individual state requirements.

**B: Component Analysis - State**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Asphalt	8052-42-4	Yes	No	Yes	Yes	Yes	Yes
Asphalt, oxidized	64742-93-4	No	No	No	No	Yes	No
Titanium dioxide (Ingredient of CR products only)	13463-67-7	No	No	Yes	Yes	Yes	Yes
Calcium carbonate	1317-65-3	No	No	Yes	Yes	Yes	Yes
Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable)	14808-60-7	No	No	Yes	Yes	Yes	Yes
Aluminum foil (DynaClad® has an aluminum foil surface)	7429-90-5	Yes	No	Yes	Yes	Yes	Yes
Ferric chloride	7705-08-0	Yes	No	Yes	No	Yes	Yes
Distillates, petroleum, heavy naphthenic	64741-53-3	No	No	Yes	No	No	No
Extracts, petroleum, heavy naphthenic	64742-11-6	No	No	Yes	No	No	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):  
**WARNING!** This product contains a chemical known to the state of California to cause cancer.

Crystalline silica (sand) 14808-60-7

Methyl Carbamate (trace)

formaldehyde &lt;0.1%

1,4 dioxane &lt;0.1%

ethylene oxide &lt;0.1%

acrylamide &lt;0.1%

ethyl acrylate &lt;0.1%

acrylonitrile &lt;0.1%

styrene &lt;0.1%

Asphalt fumes may contain trace amounts of the following California Proposition 65 Listed Substances as known to the state of California to cause cancer or reproductive effects: Poly nuclear aromatic hydrocarbons (benz(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene).

**TSCA Status**

This product and its components are listed on the TSCA 8(b) inventory.

None of the components listed in this product are listed on the TSCA Export Notification 12(b) list.

**International Regulations****A: General Product Information**

These products are considered articles under both U.S. and international product regulations and as such, these products do not require registration or notification on the various country-specific inventories.

**B: Component Analysis - WHMIS IDL**

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Continuous filament glass fiber	Not Available	1 % (related to Fibrous glass)
Crystalline silica (sand) (adhered to product and is >99.9% too large to become airborne or to be respirable)	14808-60-7	1 %
Aluminum foil (DynaClad® has an aluminum foil surface)	7429-90-5	1 %

**WHMIS Classification**

This is not a WHMIS controlled product. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations. This SDS contains all the information required by the Controlled Products Regulations.

**Section 16 - Other Information****Other Information**

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 Roofing Systems

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Prepared by:  
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The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Date	MSDS #	Reason
7/1/00	3003-1.0000	New MSDS Authoring System
4/11/01	3003-1.0100	Sect. 8, 11: Update TLV for asphalt and crystalline silica.
11/06/02	3003-1.0101	Sect. 1: Designated as Articles per TSCA/CEPA; updated trade names. Sect. 11: Revise IARC Group 3 for asphalt fumes.
07/02/03	3003-1.0102	Sect. 1: Deleted discontinued trade name, Roof Defender SBS Cap.
03/05/04	3003-1.0103	Sect. 1, added DynaBase® XT Plus and DynaMax® S (S=Smooth) to trade names. Regulatory update. Minor edits.
05/10/04	3003-1.0104	Regulatory update. Minor edits.
09/04/04	3003-1.0105	Sect. 1 addition of trade name GlasKap®; label ID update.
08/17/05	3003-1.0106	Sect. 1 addition of trade names DynaWeld 180 FR and DynaWeld 180 S.
12/15/05	3003-1.0107	Regulatory update. Minor edits to Section 8 Exposure and Section 15 WHMIS.
02/13/06	3003-1.0108	Edited polyester entries in Section 2 to clarify that it is a mat or used in a mat for RR reinforcement
03/06/06	3003-1.0109	Addition of GlasKap Energy Coat to trade names
06/29/06	3003-1.0110	Changed GlasKap® Energy Coat to GlasKap® CR. Added DynaClad Copper to list of product trade names.
05/09/08	3003-1.0111	Removed DynaBase® XT, DynaGlas 30 FR XT, DynaGlas S, and DynaGlas S XT Plus from trade names. Updated SDS to GHS format.
12/12/08	3003-1.0112	Addition of methyl carbamate to Section 15 as a Prop 65 carcinogen in the glass mats.
02/12/09	3003-1.0113	Addition of the following trade names: DynaGlas FR CR, DynaWeld Cap FR CR, DynaLastic 180 FR CR, DynaLastic 250 FR CR, DynaKap FR CR, DynaFlex CR
05/12/09	3003-1.0114	Addition of the following trade names: DynaWeld® Cap 180 FR CR and DynaWeld® Cap 250 FR CR
09/11/09	3003-1.0115	Addition of DynaMax® FR Plus to trade names.
10/26/09	3003-1.0116	Addition of DynaWeld Cap 250 FR and DynaWeld 250 S
12/02/09	3003-1.0117	Addition of DynaMax FR S HW and DynaMax FR HW to trade names
03/23/10	3003-1.0118	Addition of California Prop 65 carcinogens present in PES mat.
07/27/10	3003-1.0119	Addition of SBS Mop White to trade names.
08/03/12	3003-2.0000	Addition of asphalt, oxidized to composition information.
08/22/12	3003-2.0001	Addition of the T1 series trade names.
01/25/13	3003-2.0002	Addition of GlasKap trade names.

End of Sheet 3003