Section 1 - Product and Company Identification

Hazard Label CAUTION

Company Information

Johns Manville
Insulation 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:

E-Glass Batch;
E-Glass Batchhouse Dust;
901 Mixed Glass Batch;
901 Batchhouse Dust

Section 2 - Hazards Identification

Emergency Overview

Inhalation of excessive amounts of dust from the product may cause temporary upper respiratory irritation and/or congestion--remove individual to fresh air.

Inhalation

Irritation of the upper respiratory tract (scratchy throat), coughing, and congestion may occur in extreme exposures.

Skin

Temporary irritation (itching) or redness may occur.

Ingestion

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

Eyes

Temporary irritation (itching) or redness may occur.

Primary Routes of Entry (Exposure)

Eyes, skin, inhalation (breathing dust and fibers) and ingestion.

Target Organs

Nose (nasal passages), throat, lungs, skin, eyes

Medical Conditions Aggravated by Exposure

Pre-existing chronic respiratory, skin, or eye diseases or conditions.

Section 3 - Composition/Information on Ingredients

CAS #	Component	Percent
14808-60-7	Sand (crystalline silica)	30-40
1317-65-3	Calcium carbonate	25-40*
1332-58-7	Kaolin	25-40*
37244-96-5	Nepheline syenite	15-25**
497-19-8	Sodium carbonate	10-20**
11130-12-4	Sodium tetraborate pentahydrate	2-20
12001-27-3	Lime, dolomitic	2-20
10043-35-3	Boric acid	5-10*
Not Available	Continuous filament glass fibers (generic CAS for glass is 65997-17-3)	0-10
7757-82-6	Sodium sulfate	<1*
7789-75-5	Calcium fluoride	<1*

Component Information

* Component of E-Glass Batch and Batchhouse Dust
** Component of 901 Mixed Glass Batch and Batchhouse Dust

General Product Description

APPEARANCE AND ODOR: Odorless, gray granules, fibers, and powder.

Inhalation of excessive amounts of dust from the product may cause temporary upper respiratory irritation and/or congestion--remove individual to fresh air.

Section 4 - First Aid Measures

First Aid: Inhalation

If dust is inhaled in excess of exposure limits referenced in section 8 of this safety data sheet, remove individual to fresh air. Drink water to clear throat, and blow nose to remove dust. A saline spray in the nose may help clear any fibers.

First Aid: Skin

Wash gently with soap and water to remove dust and fibers. Alternatively, fibers can be removed from the skin by use of ordinary masking or wrapping tape. Should irritation persist, seek medical attention.

First Aid: Ingestion

Rinse mouth with water to remove dust and fibers and drink plenty of water to help reduce irritation. If irritation persists, seek medical attention.

First Aid: Eyes

Do not rub or scratch eyes. Dust particles may cause the eye to be scratched. Flush eyes with large amounts of water until irritation subsides. If irritation persists, seek medical attention.

First Aid: Notes to Physician

Observation only is required for adult ingestion of less than 6 grams of boric acid. For ingestion in excess of 6 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boric acid analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment. For ingestion of Borax, gastric lavage with 5% sodium bicarbonate is suggested. This should be followed by saline catharsis. Assure adequate hydration. Borax 5M is not considered an acute poison. After ingestions or absorption into the bloodstream of large amounts (15 grams or more), symptoms may appear after 24-72 hours. Borates are readily dissipated through urine (70% in the first 24 hours).

Section 5 - Fire Fighting Measures

Flash Point: Not applicable
Method Used: Not applicable
Upper Flammable Limit (UFL): Not determined
Lower Flammable Limit (LFL): Not determined
Auto Ignition: Not determined
Flammability Classification: Not determined
Rate of Burning: Not determined

General Fire Hazards

Material is incombustible. However, if dolomitic lime contacts water or humid air, it may hydrate. This reaction evolves heat that could ignite combustible materials (e.g., rags, paper, wood). Silica may react with powerful oxidizing agents such as fluorine and chlorine trifluoride which may result in fire.

An explosion hazard exists if Borax reacts with elemental zirconium; potassium sulfate and sodium sulfate are melted with aluminum; or boric acid reacts with strong reducing agents such as metal hydrides or alkali metals to generate hydrogen gas.

Hazardous Combustion Products

Sodium sulfate, when heated to decomposition, may emit toxic oxides of sulfur and sodium.

Extinguishing Media

Sand, carbon dioxide (CO_2), water, water fog, dry chemical.

Fire Fighting Equipment/Instructions

Use NIOSH-approved self-contained breathing apparatus operating in the pressure demand mode and full fire fighting protective clothing. Avoid inhalation of vapors.

Section 6 - Accidental Release Measures

Clean-Up Procedures

Pick up large pieces. Vacuum dusts. If sweeping is necessary, use a dust suppressant such as water. Do not dry sweep dust accumulation. These procedures will help to minimize potential exposures.

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/m3
Total dust 15 mg/m3

B: Component Exposure Limits

Sand (crystalline silica) (14808-60-7)

OSHA: 0.1 mg/m3 TWA (respirable dust)
((250)/(%SiO2 + 5) mppcf TWA (respirable)); ((10)/(%SiO2 + 2) mg/m3 TWA (respirable));
((30)/(%SiO2 + 2) mg/m3 TWA (total dust))
ACGIH: 0.025 mg/m3 TWA (respirable fraction)

Kaolin (1332-58-7)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
ACGIH: 2 mg/m3 TWA (respirable fraction, particulate matter containing no asbestos and <1% crystalline silica)

Calcium carbonate (1317-65-3)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Nepheline syenite (37244-96-5)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
ACGIH: 10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Nuisance particulates)

Sodium carbonate (497-19-8)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
ACGIH: 10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Nuisance particulates)

Lime, dolomitic (12001-27-3)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
ACGIH: 10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Nuisance particulates)

Sodium tetraborate pentahydrate (11130-12-4)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
ACGIH: 10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Nuisance particulates)

Boric acid (10043-35-3)

ACGIH: 2 mg/m3 TWA (inhalable fraction, listed under Borate compounds, inorganic)
6 mg/m3 STEL (inhalable fraction, listed under Borate compounds, inorganic)

Calcium fluoride (7789-75-5)

OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Nuisance particulates)

ACGIH: 10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Nuisance particulates)

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Safety glasses with side shields are recommended to keep dust out of the eyes.

Personal Protective Equipment: Skin

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

Personal Protective Equipment: Respiratory

A respirator should be used if ventilation is unavailable, or is inadequate for keeping dust and fiber levels below the applicable exposure limits referenced in Section 8 of this SDS. Wear a NIOSH-certified disposable or reusable particulate respirator with an efficiency rating of N95 or higher (per 42 CFR 84) when dust or fiber concentrations exceed the applicable exposure limits. Operations such as sawing, blowing, tear out, and spraying may generate airborne fiber concentrations requiring a higher level of respiratory protection. For exposures up to 50 times the established exposure limits use a full-face respirator, rated N99 or higher.

Ventilation

In fixed manufacturing settings, local exhaust ventilation should be provided at areas of cutting, milling or other processing to remove airborne dust and fibers.

Personal Protective Equipment: General

Wear a cap, a loose-fitting, long-sleeved shirt and long pants to protect skin from irritation. Exposed skin areas should be washed with soap and water after handling or working with fiber glass. Clothing should be washed separately from other clothes, and the washer should be rinsed thoroughly (run empty for a complete wash cycle). This will reduce the chances of fiber glass being transferred to other clothing.

Section 9 - Physical & Chemical Properties

Appearance:	Gray granules, fibers and powder	**Odor:**	Odorless
Physical State:	Solid	**pH:**	Not applicable
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Melting Point:**	871ºC/1600ºF
Solubility (H_2O):	10%	**Specific Gravity:**	2-3
Freezing Point:	Not determined	**Solids Content**	100%
Evaporation Rate:	Not applicable	**Viscosity:**	Not determined
Percent Volatile:	0	**VOC:**	0

Section 10 - Stability & Reactivity Information

Stability

This is a stable material.

May react with acids. May react with hydrated lime when moist to form caustic soda. Boric acid may corrode base metals. Reactions with strong reducing agents may generate hydrogen gas which could create an explosion hazard. Fires may result if silica reacts with powerful oxidizing agents or dolomite reacts wit water. Hydration of lime releases heat which may ignite combustible material.

Stability: Conditions to Avoid

Do not expose to acids, moisture, oxidizing, or reducing agents.

Incompatibility

Keep from contact with oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, and oxygen difluoride; from reducing agents; from aluminum; phosphorus pentoxide; sulfuric acid; magnesium, acids; ammoniacal silver nitrate; molten lithium; and elemental zirconium.

Hazardous Decomposition

Silica will dissolve in hydrofluoric acid and produce a corrosive gas (silicon tetrafluoride). Sodium carbonate decomposes at temperatures above 1000℃/1832℉, releasing carbon dioxide gas. The sodium oxide residue sublimes at 1275℃/2327℉, forming vapors and mists of caustic soda on contact with moisture or water. Sodium sulfate, when heated to decomposition, may release toxic oxides of sulfur and sodium.

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Acute Toxicity

A: General Product Information

Dust from this product is a mechanical irritant, which means that it may cause temporary irritation or scratchiness of the throat, and/or itching of the eyes and skin.

B: Component Analysis - LD50/LC50

Sand (crystalline silica) (14808-60-7)
Oral LD50 Rat: 500 mg/kg

Sodium carbonate (497-19-8)
Oral LD50 Rat: 4090 mg/kg; Dermal LD50 Mouse:2210 mg/kg

Boric acid (10043-35-3)
Oral LD50 Rat: 2660 mg/kg; Inhalation LC50 Rat:>0.16 mg/L/4H; Dermal LD50 Rabbit:>2000 mg/kg

Sodium sulfate (7757-82-6)
Oral LD50 Rat: >10000 mg/kg

Calcium fluoride (7789-75-5)
Oral LD50 Rat: 4250 mg/kg

Component Carcinogenicity

Sand (crystalline silica) (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))

Kaolin (1332-58-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Boric acid (10043-35-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (listed under Borate compounds, inorganic)

Continuous filament glass fibers (generic CAS for glass is 65997-17-3) (Not Available)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (listed under Synthetic Vitreous Fibers) (related to Glass filaments)
IARC: Group 3 - Not Classifiable (IARC Monograph 81 [2002] (listed under Man-made mineral fibres), Monograph 43 [1988])

Chronic Toxicity

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.

Animal testing for carcinogenicity of boric acid has been negative. Animal studies show that ingestion of large amounts of borates, including boric acid, over prolonged periods of time causes decrease in sperm production and testicle size in laboratory animals and developmental effects in fetuses, including reduced birth weights. Dietary boric acid levels of 6,700 ppm in chronic feeding studies of male rats and dogs produced testicular atrophy, while animals receiving doses of 2,000 ppm did not develop testicular changes. An ingestion study of male mice yielded similar reproductive results at 5,000 ppm, with no significant atrophy at 2,500 ppm. A dietary study of pregnant rats yielded fetal malformations and maternal toxicity at doses of 2,000 ppm, whereas a similar study of pregnant mice yielded malformations at 4,000 ppm and fetal weight loss above 2,000 ppm. Dietary levels at 1,000 ppm throughout gestation caused a slight reduction in fetal weight, but is considered to be close to the no observable adverse effect level (NOAEL). There is no evidence of such health effects in humans.

Repeated or prolonged skin contact to sodium carbonate may result in dermatitis and/or ulceration of the skin. Also, the incidence of perforations and impending perforation of the nasal septum in workers with large, moderate, slight, and no exposure to sodium carbonate dust was, respectively, 11.1%, 12.1%, 1%, and 0%. This data suggests that repeated or prolonged inhalation of sodium carbonate dust may be related to perforations of the nasal septum. A group of workers were exposed to a dust containing 10% sodium carbonate for one year. All workers (number not specified) developed lesions of the upper respiratory tract, possibly due to irritation caused by the sodium carbonate.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Sodium carbonate (497-19-8)

96 Hr LC50 Lepomis macrochirus: 300 mg/L [static]; 96 Hr LC50 Pimephales promelas:<310-1220 mg/L [static]
120 Hr EC50 Nitzschia: 242 mg/L
48 Hr EC50 Daphnia magna: 265 mg/L

Boric acid (10043-35-3)

72 Hr LC50 Carassius auratus: 1020 mg/L [flow-through]
48 Hr EC50 water flea: 115.0 mg/L [Static]; 48 Hr EC50 Daphnia magna: 658-875 mg/L

Sodium sulfate (7757-82-6)

96 Hr LC50 Pimephales promelas: 13500-14500 mg/L; 96 Hr LC50 Pimephales promelas:6800->10000 mg/L [static]; 96 Hr LC50 Lepomis macrochirus:3040-4380 mg/L [static]; 96 Hr LC50 Lepomis macrochirus:13500 mg/L
96 Hr EC50 water flea: 4547 mg/L; 48 Hr EC50 Daphnia magna: 2564 mg/L

Environmental Fate

Persistence/Degradation: Boric acid decomposes in the environment to natural borate.
Octanol/Water Partition Coefficient: log P o w: -0.7570 at 25℃
Soil Mobility: Boric acid is water-soluble and is leachable through normal soil.

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

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

State Regulations

A: General Product Information

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

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
Sand (crystalline silica)	14808-60-7	No	No	Yes	Yes	Yes	Yes
Kaolin	1332-58-7	No	No	Yes	Yes	Yes	Yes
Calcium carbonate	1317-65-3	No	No	Yes	Yes	Yes	Yes
Sodium sulfate	7757-82-6	No	No	Yes	No	No	Yes

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.

Component	CAS #
Sand (crystalline silica)	14808-60-7

Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sand (crystalline silica)	14808-60-7	Yes	Yes	Yes
Kaolin	1332-58-7	Yes	Yes	Yes
Calcium carbonate	1317-65-3	Yes	No	Yes
Nepheline syenite	37244-96-5	No	Yes	No
Sodium carbonate	497-19-8	Yes	Yes	Yes
Lime, dolomitic	12001-27-3	Yes	Yes	No
Sodium tetraborate pentahydrate	11130-12-4	No	No	No
Boric acid	10043-35-3	Yes	Yes	Yes
Continuous filament glass fibers (generic CAS for glass is 65997-17-3)	Not Available	Yes	Yes	Yes
Sodium sulfate	7757-82-6	Yes	Yes	Yes
Calcium fluoride	7789-75-5	Yes	Yes	Yes

Component Analysis - WHMIS IDL

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

Component	CAS #	Minimum Concentration
Sand (crystalline silica)	14808-60-7	1 %
Sodium carbonate	497-19-8	1 %
Boric acid	10043-35-3	1 %

WHMIS Classification

Controlled Product Classification: D2A, D2B
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

Prepared for:
Johns Manville

Insulation Systems
P. O. Box 5108
Denver, CO USA 80217-5108

Prepared by:
Johns Manville Technical Center
P.O. Box 625005
Littleton, CO USA 80162-5005

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
08/01/00	2091-1.0000	New MSDS authoring system.
01/10/01	2091-1.0100	Update crystalline silica Sect. 8 (ACGIH exposure guideline) and Sect. 11 (ACGIH suspected carcinogen).
11/10/03	2091-1.0101	Regulatory review. Minor edits.
07/18/05	2091-1.0102	Regulatory updates: Sections 8, 11, 12, & 15
05/11/10	2091-1.0103	Regulatory update. Updated SDS to GHS format.

End of Sheet 2091