



Material Safety Data Sheet

Section 1: Product and Company Information

Product Name: High Temperature Pipe Insulation (1200 Premolded, BWT, Thermaloc), High Temperature Industrial Board, High Temperature Flexible Batt, High Temperature Metal Mesh Blanket, High Temperature Tank and Pipe Fabrication Board, High Temperature Fabrication Board, High Temperature Marine (Board, Flex, F11OC), Bulk Wool

Manufacturer: Owens Corning, World Headquarters, One Owens Corning Parkway, Attn. Product Stewardship, Toledo, OH, 43659, Telephone: 1-419-248-8234 (8am-5pm ET weekdays).

Emergency Contacts:

Emergencies ONLY (after 5pm ET and weekends): 1-419-248-5330,
CHEMTREC (24 hours everyday): 1-800-424-9300,
CANUTEC (Canada - 24 hours everyday): 1-613-996-6666.

Health and Technical Contacts:

Health Issues Information (8am-5pm ET):1-419-248-8234,
Technical Product Information (8am-5pm ET): 1-800-GET-PINK

Section 2: Composition and Ingredient Information

| <u>Common Name</u> | <u>Chemical Name</u> | <u>CAS No.</u> | <u>Wt. %</u> |
|--------------------|--|----------------|--------------|
| Mineral Wool | Mineral Wool | None Assigned | 95 |
| Cured Binder | Urea, polymer of phenol & formaldehyde | 25104-55-6 | 2-5 |
| Formaldehyde | Formaldehyde | 50-00-0 | <0.1 |
| Lubricating Oil | Lubricating Oil | 8012-95-1 | <2 |

Note: See Section 8 of MSDS for exposure limit data for these ingredients.



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Section 3: Hazards Identification

Appearance and Odor: Solid, greenish/yellow color.

Emergency Overview

Acrid smoke may be generated in a fire.

Primary Route(s) of Exposure: inhalation, skin, eye

Potential Health Effects:

ACUTE (short term): Mineral wool is a mechanical irritant and may cause temporary irritation of the respiratory tract, skin and eyes. See Section 8 for exposure controls.

CHRONIC (long term): Mineral wool is a possible cancer hazard. Use of these products has not been shown to cause cancer in humans. Mineral wool caused cancer in animals through unnatural routes of exposure (surgical implantation), but has not produced significant cancer by inhalation. See Section 11 of MSDS for additional toxicological data.

Medical Conditions Aggravated by Exposure: Chronic respiratory or skin conditions may temporarily worsen from exposure to these products.

Section 4: First Aid Measures

Inhalation: Move person to fresh air. If irritation persists get medical attention.

Eye Contact: Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.

Skin Contact: Wash with mild soap and running water. Use a washcloth to help remove fibers. To avoid further irritation, do not rub or scratch irritated areas. Rubbing or scratching may force fibers into skin. Seek medical attention if irritation persists.

Ingestion: Ingestion of this material is unlikely. If it does occur, observe individual for several days to ensure that partial or complete intestinal obstruction does not occur.



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Section 5: Fire Fighting Measures

Flash Point and Method (°F): Not Applicable.

Flammability Limits (%): Not Applicable.

Auto Ignition Temperature (°F): Not Applicable.

Extinguishing Media: Use media appropriate to the surrounding fire conditions, such as water, foam, CO₂ or dry chemical.

Unusual Fire and Explosion Hazards: May release acrid smoke in a sustained fire. The organic binder will emit toxic fumes and smoke when oxidized and ventilation is recommended on initial equipment startup.

Fire Fighting Instructions: Use self contained breathing apparatus (SCBA) in a sustained fire.

Hazardous Combustion Products: Primary combustion products are carbon monoxide, carbon dioxide, ammonia and water. Other undetermined compounds could be released in small quantities.

Section 6: Accidental Release Measures

Releases of this product to the land, water and air may require reporting to state, local and federal agencies.

Land Spill: Scoop up or vacuum material and put into suitable container for disposal as a non-hazardous waste.

Water Spill: This material will sink and disperse along the bottom of waterways and ponds. It can not easily be removed after it is waterborne, however, the material is non-hazardous in water.

Air Release: This material will settle out of the air. It can then be scooped up or vacuumed for disposal as a non-hazardous waste.



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Section 7: Handling and Storage

Storage Temperature: Not Applicable

Storage Pressure: Not applicable.

General: No special storage or handling procedures are required for this material.

Section 8: Exposure Controls and Personal Protection

| <u>Ingredient</u> | <u>OSHA PEL</u> (8-hr TWA) | <u>ACGIH TLV</u> (8-hr TWA) |
|-------------------|--|---|
| Mineral Wool | 5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust) 1 fiber/cc (respirable) (a) (See Note Below) | 10 mg/m ³ (inhalable fraction) 3 mg/m ³ (respirable) 1 fiber/cc (respirable) |
| Cured Binder | None Established | None Established |
| Formaldehyde | 0.75 ppm TWA 2 ppm STEL | 0.3 ppm ceiling |
| Lubricating Oil | None Established | None Established |

(a) Voluntary PEL established by NAIMA and OSHA per the Health and Safety Partnership Program (HSPP) agreement for Synthetic Vitreous Fibers (SVF). Prior to the HSPP agreement, the OSHA 8 hr-TWA PEL's for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m³ (total particulate) and 5 mg/m³ (respirable particulate) applied to airborne glass wool fibers and dusts. These PELs were based on gravimetric measurements of airborne particulates including glass dusts and fibers.

Personal Protection:

Respiratory Protection: When the temperature of the surface being insulated exceeds 400 °F (194 °C) or during initial system startup, the binder in these products may undergo various degrees of decomposition depending on the temperature of the



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application. The need for respiratory protection will vary according to the airborne concentration of the decomposition products released and accumulated in the area. If the insulation must be installed on hot surfaces above 400 °F (194 °C), a full face respirator approved for protection against organic vapors should be used. In areas with good general and/or local exhaust ventilation where exposures are controlled below the formaldehyde PEL or STEL, respiratory protection is normally not needed.

Mineral wool: Use a 3M Model 8210 (formerly 8710) (3M Model 9900 in high humidity environments) or equivalent under the following conditions: 1) in any confined or poorly ventilated space, 2) fabrication involving power tools, or 3) any dusty environment.

Formaldehyde: In some applications these products may release concentrations of formaldehyde equal to or greater than 0.1 ppm, but less than 0.5 ppm. Airborne concentrations should be assessed to determine the appropriate type of respiratory protection to be used. When in doubt, use supplied air respiratory protection.

Skin Protection: Loose fitting long sleeved shirt, long pants and gloves.

Eye Protection: Safety glasses, goggles or face shield.

Engineering Controls: General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits. Dust collection systems should be used in operations involving cutting or machining and may be required in operations using power tools.

Section 9: Physical and Chemical Properties

Vapor Pressure (mm Hg @ 20°C): Not Applicable

Vapor Density (Air=1): Not Applicable

Specific Gravity (Water=1): Variable

Boiling Point: Not Applicable

Solubility in Water: Insoluble

Viscosity: Not Applicable

pH: Not Applicable

Physical State: Solid

Appearance: Fibrous

Freezing Point: Not Applicable

Odor Type: Organic

Evaporation Rate (n-Butyl Acetate=1): Not Applicable



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Section 10: Stability and Reactivity

General: Stable

Incompatible Materials and Conditions to Avoid: Hydrofluoric Acid

Hazardous Decomposition Products: None, except in fire. See Section 5 of MSDS for combustion products statement.

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

CARCINOGENICITY: The following table indicates whether or not each agency has listed each ingredient as a carcinogen:

| <u>Ingredient</u> | <u>ACGIH</u> | <u>IARC</u> | <u>NTP</u> | <u>OSHA</u> |
|-------------------|--------------|-------------|------------|-------------|
| Formaldehyde | A2 | Yes | Yes | Yes |
| Mineral Wool | A3 | Yes | Yes | No |
| Cured Resin | No | No | No | No |
| Lubricating Oil | No | No | No | No |

ACGIH A2: Suspected Human Carcinogen
A3: Animal Carcinogen

| | <u>LD₅₀ Oral</u> (mg/kg) | <u>LD₅₀ Dermal</u> (mg/kg) | <u>LC₅₀ Inhalation</u> (ppm, 4 hrs.) |
|-----------------|--|--|--|
| Mineral Wool | Not Available | Not Available | Not Available |
| Formaldehyde | 500-800 (rat) | 270 (rabbit) | 250-478 (rat) |
| Cured Resin | Not Available | Not Available | Not Available |
| Lubricating Oil | > 200 (rat) | > 2000 (rabbit) | > 5 mg/l (rat) |

Formaldehyde: In March 1987 the International Agency for Research on Cancer (IARC) upgraded their overall evaluation of formaldehyde gas, based on evidence of carcinogenicity in humans, from a possible human carcinogen (Group 2B based on inadequate evidence in humans) to a probable human carcinogen (Group 2A based on limited evidence in humans). A number of new epidemiological studies on persons in a variety of occupations with potential exposure to formaldehyde were used in the evaluation. Cancers that occurred in excess in



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more than one study are: Hodgkin's disease, leukemia, and cancers of the buccal cavity and pharynx (particularly nasopharynx), lung, nose, prostate, bladder, brain, colon, skin and kidney.

Exposure to formaldehyde at concentrations in excess of 1 ppm may cause significant irritation of the eyes and upper respiratory tract. The irritation threshold appears to be about 0.3 ppm. Pulmonary sensitization, although rare, does occur in humans. Formaldehyde solutions can cause severe eye and moderate skin irritation. Repeated skin exposure to solutions of 2% or more formaldehyde has caused allergic skin reactions. Formaldehyde was found to be weakly active in a number of *in vitro* genotoxicity tests, but inactive *in vivo*. Formaldehyde did not cause birth defects in offspring of female mice who were exposed to concentrations up to 10 ppm. Lifetime inhalation of formaldehyde at concentrations above 5 ppm for 6 hours per day, caused nasal tumors in laboratory animals. Many epidemiological studies have failed to link cancer in humans with occupational exposure to formaldehyde.

The American Conference of Governmental Industrial Hygienists (ACGIH) A2 designation, suspected human carcinogen, is based on cancer in experimental animals and conflicting or insufficient epidemiologic studies of workers. The recommended ceiling TLV of 0.3 ppm for workplace air formaldehyde is based on evidence of irritation of occupational exposure to formaldehyde as well as human formaldehyde exposures in other settings.

Mineral Wool: The International Agency for Research on Cancer (IARC) in June, 1987, classified mineral wool (rock/slag-wool) as "possibly carcinogenic to humans" (Group 2B). IARC's assessment said that there was "limited evidence for the carcinogenicity of rock/slag-wool in humans", "limited evidence for the carcinogenicity of rockwool in experimental animals", and "inadequate evidence for the carcinogenicity of slagwool in animals". The human data included large scale mortality studies of U.S. and European mineral wool factory workers.

Animal inhalation experiments in which laboratory animals were exposed to large quantities of mineral wool fibers have not resulted in a positive association between mineral wool and lung cancer. Malignant tumors were produced in animals when large doses of mineral wool were implanted surgically or injected into the chest or abdomen bypassing the animal's natural defense mechanisms.

In a large lifetime animal inhalation study, minimal fibrosis (i.e. lung scarring) has been observed late in the lives of animals exposed to high concentrations of rockwool. Exposures were hundreds to thousands of times higher than currently seen in manufacturing and end-use environments.

The most recent update of the U.S. study reporting on deaths through 1989 was reported in early 1996. For the mineral wool cohort, elevated risk of death from respiratory system cancer and nonmalignant respiratory disease was observed in some of the cohort subgroups but there was no consistent evidence of an association between those elevated risks and respirable mineral wool fibers. There were no deaths from mesothelioma during the latest follow-up period.



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In late 1995 IARC reported on their follow-up through 1990 on mortality and cancer incidence of a cohort of rock/slag wool production workers from seven European countries. No excess of mesothelioma cases was found. Although slight to moderate increases in lung cancer were observed within certain segments of this cohort, the investigators concluded that "The ensemble of these results is not sufficient to conclude that the increased lung cancer risk is related specifically to exposure to MMVF (man-made vitreous fibre) ...". An IARC case-control study within the rock/slag wool subcohort is in progress to clarify the impact of tobacco smoking, socio-economic factors, and other occupational factors on the study results.

OVERALL EVALUATION

In May 1997, the American Conference of Governmental Industrial Hygienists (ACGIH) adopted an A3 carcinogen classification for synthetic vitreous fibers - mineral wool (rock/slag wool) insulation. The classification is the result of a lengthy review process.

The ACGIH A3 classification considers mineral wool to be carcinogenic in experimental animals at a relatively high doses, by routes of administration, at sites, or by mechanisms that it does not consider relevant to worker exposure. It also reviewed the available epidemiological studies and concluded that they do not confirm an increased risk of cancer in exposed humans. Overall the ACGIH found that the available medical/scientific evidence suggests that mineral wool is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

The TLV-TWA of 1 respirable fiber/cc was adopted to prevent irritation of the respiratory tract or any possible long-term respiratory health effects in workers.

Section 12: Ecological Information

This product is not toxic to animals, plants or fish.

Section 13: Disposal Considerations

RCRA Hazard Class: Non-hazardous



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Section 14: Transport Information

DOT Shipping Names: Not regulated

Hazard Class or Division: none

Secondary: none

Identification No.: none

Packing Group: none

Label(s) required (if not excepted): none

Special Provisions: none

Packaging Exceptions: none

Non-bulk Packaging: none

Bulk packaging: none

EPA Hazardous Substances: Formaldehyde

RQ: 100 lbs

Quantity Limitations:

Passenger Aircraft: none

Cargo Aircraft: none

Marine Pollutants: none

Freight Description: (NMHC)

Hazardous Material Shipping Description: none

Transportation of Dangerous Goods - Canada

TDG Hazard Classification: (Primary): None

(Secondary): None

IMO Classification: None

ICAO/IATA Classification: None

Product Identification Number: None

Packing Group: None

Control Temperature: None

Emergency Temperature: None



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Schedule XII Quantity Restriction: None

Reportable Quantity for US Shipments: None

IATA Packing Instructions: **Passenger/Cargo:** None
 Cargo Only: None
 Limited Quantity: None

Maximum Net Quantity per Package: **Passenger/Cargo:** None
 Cargo Only: None
 Limited Quantity: None

Special Provisions: None

Section 15: Regulatory Information

TSCA Status: Each ingredient is on the Inventory.

NSR Status (Canada): Each ingredient is on the DSL.

SARA Title III: **Hazard Categories:**
 Acute Health: Yes
 Chronic Health: Yes
 Fire Hazard: No
 Pressure Hazard: No
 Reactivity Hazard: No

Reportable Ingredients:
Sec. 302/304: None
Sec. 313: None

California Proposition 65: Formaldehyde is known to the State of California to cause cancer.

Clean Air Act: Formaldehyde is listed as a hazardous air pollutant.

WHMIS (Canada): **Status:** Controlled
WHMIS Classifications: D2A – Carcinogenicity



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Section 16: Other Information

HMIS and NFPA Hazard Rating:

| <u>Category</u> | <u>HMIS</u> | <u>NFPA</u> |
|-----------------|-------------|-------------|
| Acute Health | 1 | 2 |
| Flammability | 0 | 2 |
| Reactivity | 0 | 0 |

NFPA Unusual Hazards: None.

HMIS Personal Protection: To be supplied by user depending upon use.

Revision Summary: This MSDS replaces 15-MSD-20888-B dated 16 December 1997. The exposure limits in Section 8 in Section 11 have been clarified. Please read this information carefully.

Get OC MSDS electronically via Internet: <http://owenscorning.mtcibs.com> or by calling 1-419-248-8234.

End of 15-MSD-20888-01-C