

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

Section 1 – Chemical Product and Company Identification

Product Name (s): Acoustical Ceiling Panels (ACP), Blanket Insulation (BKT), Board Insulation (BD), Cavity Wall Insulation (CWI), Duct Liner (DL), Duct Liner Board (DLB), Faced Duct Wrap (FDW), HD Series Blanket Insulation (HDB), Heavy Density Pipe Insulation (PI), Mechanical Board Insulation (MBD), Pipe Wrap Insulation (PWI), Pre-engineered Metal Building Insulation (PEBI), Quiet Liner (QL), Quiet Liner Board (QLB), Roof Deck Board Insulation (RI/RD), Thermal Insulating Wool (TIW).

Manufacturer: Arabian Fiberglass Insulation Company Ltd.
J.V. of Gulf Insulation Group (A Zamil Industrial Subsidiary) & Owens Corning Co.
P.O. Box 1289 Dammam 31431 Kingdom of Saudi Arabia
Tel : +966 13 847-1519 / 847-2301 / 847-2901
Fax : +966 13 847-3605
E-mail : info@afico.com.sa



Emergency Contacts:
Emergencies ONLY (24 hours daily) +966 13 8471519 / 8472301 / 8472901 Extn. 1200/1215/1201/1213

Health and Technical Contacts:
Health Issues Information : +966 13 8471519 / 8472301 / 8472901
Technical Product Information : +966 13 8471519 / 8472301 / 8472901

Section 2 – Composition / Information on Ingredients

CAS #	Component	Percent by Weight
65997-17-3	Fiber Glass Wool (<i>Fibrous Glass</i>)	85-96
25104-55-6	Urea, Polymer with Formaldehyde and Phenol	4-15
50-00-0	Formaldehyde	< 0.1

Component Related Regulatory Information
This product may be regulated, have exposure limits or other information identified as the following:
Fiber Glass Wool, Fibrous Glass, Nuisance particulates.

Component Information / Information on Non-Hazardous Components
No additional information available.

Section 3 – Hazardous Identification

Appearance and Odor:
Pale Yellow, or tan fibrous material with faint resin odor. Some products have a vinyl, brown Kraft paper, FRK, WMSK, ASJ, DSF, BGT, WGF, Aluglass.

Emergency Overview
Acrid smoke may be generated in a fire. Exposure to dust may be irritating to eyes, nose and throat.

Potential Health Effects
Inhalation:
Dusts and fibers from this product may cause mechanical irritation of the nose, throat and respiratory tract. Use of these products has not been shown to cause cancer in humans. Fiber glass wool caused cancer in animals through un-natural routes of exposure (surgical implantation), but has not produced cancer by inhalation.

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

Skin Contact:

Dusts and fibers from these products may cause temporary mechanical irritation to the skin.

Eye Contact:

Dusts and fibers from these products may cause temporary mechanical irritation to the eyes.

Ingestion:

Ingestion of this product is unlikely. However, ingestion of product may produce gastrointestinal irritation and disturbances. Medical Conditions Aggravated by Exposure:
Chronic respiratory or skin conditions may temporarily worsen from exposure to these products.

Section 4 – First Aid Measures

Inhalation:

If inhaled, remove the affected person to fresh air. If irritation persists get medical attention.

Skin Contact:

For skin contact, wash with mild soap and running water. Use a washed cloth to help remove fibers. To avoid further irritation, do not rub or scratch the affected areas. Rubbing or scratching may force the fibers into the skin. If irritation persists get medical attention.

Never use compressed air to remove fibers from the skin. If fibers are seen penetrating from the skin, the fibers can be removed by applying and removing adhesive tape so that the fibers adhere to the tape and are pulled out of the skin.

Ingestion:

Ingestion of this material is unlikely. If it does occur, watch the person for several days to make sure that partial or complete intestinal obstruction does not occur. Do not induce vomiting unless directed to do so by medical personnel.

Section 5 – Fire Fighting Measures

Flash Point: None
Upper Flammability Limit: Not applicable
Flammability Classification: Non-Flammable

Flash Point Method: Not applicable
Lower Flammability Limit: Not applicable

Extinguishing Media:

Dry chemical, foam, carbon dioxide, water fog.

Unusual Fire & Explosion Hazards:

These products may release acrid smoke in a sustained fire.

Fire Fighting Instructions:

Use self-contained breathing apparatus (SCBA) and full banker turnout gear in a sustained fire.

Hazardous Combustion Products:

Primary combustion products are carbon monoxide, carbon dioxide, ammonia and water. Other undermined can be released in small quantities.

Section 6 – Accidental Release Measures

Containment Procedures:

This material will settle out of the air. If concentrated on land, it can then be scooped up for disposal as a non-hazardous waste. This material will sink and disperse along the bottom of waterways and ponds. It can not easily be removed after it is water borne; however, the material is non-hazardous in water.

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

Clean-Up Procedures:

Scoop up material and put into a suitable container for disposal as a non-hazardous waste.

Response Procedures:

Isolate the area. Keep un-necessary personnel away.

Special Procedures:

None.

Section 7 – Handling and Storage

Handling Procedures:

No special procedures are required for this material. Based on best practices of handling materials. Keep product in its packaging, as long as practicable to minimize potential dust generation. Keep work areas clean. avoid un-necessary handling of scrap materials by placing them in waste disposal containers and equipment, kept as to close working areas as possible, to prevent release of fibers and dusts.

Avoid inhaling dusts or vapors produced during thermal processing. Avoid eye and excessive skin contact. Use only adequate ventilation. As with all chemicals, good industrial hygiene practices should be followed when handling this material. Special care must be taken to avoid build up of dusts.

Storage Procedures:

Keep away from direct sunlight, rain and water store in a plain lease protected warehouse.

Section 8 – Exposure Controls / Personal Protection

Exposure Guidelines:

A: General Product Information

Follow all applicable exposure limits.

B: Components Exposure Limits.

ACGIH and OSHA exposure limits have been checked for those components with CAS registry numbers.

Fiber Glass Wool (Fibrous Glass) (65997-17-3)

ACGIH: 1 fiber/cc TWA for respirable fibers longer than 5 um with a diameter less than 3 um; (Listed under "Synthetic Vitreous Fibers") (related to Glass Wool Fibers) 10 mg/m³ TWA (inhalable particulate); 3mg/m³ TWA (respirable particulate) (These values are for particulate matter containing no asbestos and <1% crystalline silica) (related to Particulate Not Otherwise Classified (PNOC))

OSHA: 1fiber/cc (respirable) TWA (a) (See Note Below) (related to Glass Wool Fiber)

Formaldehyde (50-00-0)

ACGIH: C 0.3 ppm

OSHA: 0.75 ppm TWA PEL; 2 ppm STEL; 0.5 ppm TWA action level; Irritant and potential to cancer hazard (29 CFR 1910.1048)

Notes: (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 PELs for Particulate 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.
NAIMA = North American Insulation Manufacturers Association.

C: Ventilation.

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

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection:

Respiratory Protection: When the temperature of the surface being insulated exceeds 250 °F (121 °C), including initial system start up, the binder in these products may undergo various degrees of decomposition depending on the temperature of the 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 is installed on hot surfaces above 250 °F (121 °C), a full face respirator with cartridges approved for protection against organic vapors should be used. In the areas with good general and/or local exhaust ventilation where exposures are controlled below the formaldehyde, carbon monoxide, and ammonia PEL or STEL, and additive effects have been factored in, then respiratory protection is normally not needed.

Fiberglass Wool: If thermal decomposition of the product is not anticipated, use a 3M Model 8210 (formerly 8710) (3M Model 9900 in high humidity environments) or equivalent under the following conditions: 1) in any poorly ventilated space, 2) fabrication involving power tools, 3) any dusty environment.

Formaldehyde: In some applications this products may release concentration 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:

Normal work clothing (long sleeved shirts and long pants) is recommended. Use impervious gloves. Skin irritation is known to occur chiefly at the pressure points such as around the neck, wrist, waist and between the fingers.

Eyes/Face Protective Equipment:

Wear safety glasses, goggles or goggles over the gasses.

Section 9 – Physical & Chemical Properties

Appearance:	Fibrous	Odor:	Organic
Physical State:	Solid	PH:	Not applicable
Vapor Pressure (mm Hg @ 20 °C) :	Not applicable	Vapor Density (Air=1):	Not applicable
Boiling Point:	Not applicable	Solubility (H2O):	Insoluble
Specific Gravity (Water=1):	Not applicable	Freezing Point:	Not applicable
Evaporation Rate (n-Butyl Acetate=1):	Not applicable	Viscosity:	Not applicable

Physical Properties: Additional Information

No additional information available.

Section 10 – Chemical Stability & Reactivity Information

Stability:

This is a stable material.

Conditions to Avoid:

None expected.

Incompatible Materials:

None expected.

Hazardous Decomposition Products:

Primary combustion products are carbon monoxide, carbon dioxide, ammonia and water. Other undetermined can be released in a small quantities.

Hazardous Polymerization:

Will not occur.

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

Section 11 – Toxicological Information

Acute and Chronic Toxicity:

A: General Product Information

No information available for the product.

Dusts may cause mechanical irritation to eyes and skin. Ingestion may cause transient irritation to throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher exposure may cause difficulty in breathing, congestion, and chest tightness.

B: Component Analysis – LD50/LC50

Urea, polymer with formaldehyde and phenol (25104-55-6)

Oral LD50 Rat : 7 gm/kg

Oral LD50 Mouse : 7 gm/kg

Formaldehyde (50-00-0)

Inhalation LC50 Rat : 203 mg/m³

Inhalation LC50 Mouse : 454 mg/m³/4H

Oral LD50 Rat : 100 mg/kg

Oral LD50 Mouse : 42 mg/kg

Dermal LD50 Rabbit : 270 uL/kg

Carcinogenicity:

A: General Product Information

No information available for the product.

Fiber Glass Wool: The International Agency for Research on Cancer (IARC) in June 1987, classified fiberglass wool as possible cancer causing agents to humans (Group 2B). This classification was based on a combined evaluation of published human and animal studies. The human data included large scale mortality studies of U.S. and European fiberglass wool factory workers. IARC included that human studies did not provide sufficient evidence that fiberglass wool caused cancer to humans. The classification of fiberglass wool as a possible carcinogen to humans was substantially based on experimental animal studies in which they are exposed to wool glass fibers through non-natural routes, such as injection or implantation. IARC regards it prudent to treat a material with sufficient evidence of carcinogenicity in animals as if it is a carcinogen in humans.

In May 1997, the American Conference of Governmental Industrial Hygienists (ACGIH) adopted an A3 carcinogen classification for synthetic vitreous fiberglass wool insulation. The classification is the result of a lengthy review Process.

The ACGIH A3 classification considers glass wool to be carcinogenic in experimental animals at relatively high doses, by routes of administration, at sites, or by mechanisms that it does not 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 AICGH found that the available medical/scientific evidence suggests that glass wool is not likely to cause cancer in humans except under un-common or unlikely routes of levels of exposure.

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

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

ANIMAL STUDIES

Over the 50+ years there have been numerous studies on the potential health effects of glass fibers in animals. There are two major types of animal studies: 1) inhalation where the animals breath glass wool fibers, and 2) instillation studies where the fibers are injected or surgically implanted directly into the animal. Inhalation is the most similar to the way that humans are exposed to fibers.

Animal inhalation experiments in which laboratory animals were exposed to large quantities of glass wool fibers, have not resulted in a positive association with glass fibers and fibrosis, lung cancer, or mesothelioma. When large quantities of glass wool fibers were injected or surgically implanted into sterile, sensitive body cavities of experimental animals, they have produced mesotheliomas, but not fibrosis or lung cancer.

Another type of glass fibers, special purpose, in 1997, for the first time, produced fibrosis, lung cancer and mesothelioma in rats. Those special purpose glass fibers were different from these glass wool fibers in composition, biosolubility and end use.

All glass wool fibers manufactured by AFICO are designed not to be bio persistent. That is, should they be respired into lungs, they will be removed by either the lung's mechanical clearance mechanism or be dissolved, in such a short period of time that they will not cause fibrosis, lung cancer, or mesothelioma.

EPIDEMIOLOGY

There have been numerous study of workers exposed to glass wool. A small study of Canadian glass wool workers reported statistically significant increase in lung cancer mortality. The study did not demonstrate a co-relation between fiber glass wool exposure and diseases.

Large scale studies published in 1987 which examined the mortality rates of U.S. and European fiber glass wool factory workers found no significant differences in lung cancer rates between those workers and the populations in their local or regional communities. A 1990 update of the U.S. cohort reported a small statistically significant excess for respiratory cancer in workers when compared with populations in their local communities. While the overall mortality rates in this mortality studies were slightly raised and did increase (but not significantly) with time since the first exposure, the increases were not related to duration of exposure or to an estimated time weighted measure of exposure.

Georgetown University recently studied the oldest and largest fiberglass plant in the U.S. The results indicate that smoking was the likely cause of this cancer excess. A study at the University of Massachusetts is investigating other possible factors.

A large recently completed morbidity study reported no association with fiberglass exposure and non-malignant respiratory disease. Another smaller screening of workers at a plant that manufactured appliances concluded that fiberglass wool appeared to produce "asbestosis" in the workers. That study has been severely criticized for many reasons, not the least of which is failure to factor in the workers exposures to asbestos.

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 on humans) to a probable human carcinogen (Group 2A based on limited evidence on humans). A number of new epidemiological studies on persons in a variety of occupations with potential exposure to formaldehyde was used in the evaluation. Cancers that occurred in excess in more than one study area: Hodgkin's disease, leukemia, and cancer of the buccal cavity and pharynx (particularly nasopharynx), lung, nose, prostate, bladder, brain, colon, skin and kidney.

Exposures to formaldehyde at concentrations in excess of 1 ppm may cause significant irritation of the eye 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 exposure to solution 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, cause nasal tumor in laboratory animals. Many epidemiological studies have failed to link cancer in humans with occupational exposure to formaldehyde.

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

The American Conference of Governmental Industrial hygienist (ACGIH) A2 designation, suspected human carcinogen, is based on cancer in experimental animals and conflicting or insufficient epidemiological 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.

B: Component Carcinogenicity

ACGIH, IARC, OSHA and NTP carcinogen lists have been checked for those components with CAS registry numbers.

Fiber Glass Wool (Fibrous Glass) (65997-17-3)

ACGIH: A3 – animal carcinogen (related to glass wool fibers)
NTP: Suspect carcinogen (related to Glass wool) (Possible Select Carcinogen)
IARC: Monograph 43, 1998 (related to glass wool) (Group 2B (possibly carcinogenic to humans))

Formaldehyde (50-00-0)

ACGIH: A2 – suspected human carcinogen
OSHA: 0.75 ppm TWA PEL; 2 ppm STEL; 0.5 ppm TWA action level; Irritant and potential cancer hazard (29 CFR 1910.1048)
NTP: Suspect Carcinogen (Possible Select Carcinogen)
IARC: Monograph 62, 1995 (Group 2A (probably carcinogenic to humans))

Section 12 – Ecological Information

Ecotoxicity:

A: General Product Information

No data available in this product. This material is not expected to cause harm to animals, plants or fish.

B: Component Analysis – Ecotoxicity – Aquatic Toxicity

Formaldehyde (50-00-0)

LC50 (96 hr) fathead minnow: 24.1 mg/L. Cond: Flow-through, 21.7 degrees C, pH 6.8, 50.8 mg/L CaCO₃; LC50 (96 hr) bluegill: 0.10 mg/L. Cond: Flow-through.; EC50 (96 hr) water flea: 20 mg/L.; EC50 (30 min) Photo bacterium Phosphoreum: 3.00-10.2 mg/L Microtox test.

C: Environmental Fate / Other Adverse Effects

Ozone depletion potential 0
Global Warming Potential < 5

Section 13 – Disposal Considerations

US EPA Waste Number & Descriptions:

A: General Product Information

Material, if discarded, is not expected to be characteristic hazardous waste under RCRA.

B: Component Waste Numbers

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

C: Disposal Instructions

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

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

☞ **Section 14 – Transportation Information** ☜

US DOT Information

Shipping Name: Not regulated for transport.
Hazard Class: None
UN/NA #: None
Packing Group: None
Required label (s): None

TDG Information

Shipping Name: Not regulated for transport.
Hazard Class: None
UN/NA #: None
Packing Group: None
Required label (s): None
Additional Info.: None

Additional Transportation Regulations:
No additional information available.

☞ **Section 15 – Regulatory Information** ☜

US Federal Regulations:

A: General Information

No additional information available. Formaldehyde content is below the SARA 313 0.1% “de minimis concentration”

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)

Fiber Glass Wool (Fibrous Glass) (65997-17-3)

CERCLA: Includes mineral fiber emissions from facilities manufacturing or processing glass rock or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less; Statutory RQ=1pound (.454 kg); no final RQ is being assigned to the generic or broad class (related to fine mineral fibers)

Formaldehyde (50-00-0)

SARA 302: TPQ = 500 pounds; RQ = 100 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern)
SARA 313: Form R reporting required for 0.1% de minimis concentration
CERCLA: Final RQ = 100 pounds (45.4 kg)

SARA 311 / 312

Acute Health Hazard: Yes
Chronic Health Hazard: Yes
Fire Hazard: No
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

C: Clean Air Act

The following components appear on the Clean Air Act – 1990 Hazardous Air Pollutants Lists:

Component	CAS	CAA
Fiber Glass Wool (Fibrous Glass) (related to fine mineral fibers)	65997-17-3	Yes
Formaldehyde	50-00-0	Yes

Material Safety Data Sheet

Material Name: Fiber Glass Insulation
MSDS No.: MSD-01-2017

State Regulations:

A: General Product Information

No additional information available.

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
Fiber Glass Wool (Fibrous Glass related to Mineral Wool Fiber)	65997-17-3	Yes ¹	No	Yes ¹	Yes ¹	No	Yes ¹
Formaldehyde	50-00-0	Yes	Yes	Yes	Yes	Yes	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.

Other Regulations:

A: General Product Information

No additional information available.

B: Component Analysis - WHMIS IDL

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

Component	CAS	
Fiber Glass Wool (Fibrous Glass) (related to fine mineral fibers)	65997-17-3	1% item 768 (844) related to fibrous glass)

Section 16 – Other Information

HMIS and NFPA Hazard Ratings:	Category	HMIS	NFPA
	Acute Health	1*	2
	Flammability	0	2 (facing, packaging)
	Reactivity	0	0

NFPA Unusual Hazards: None

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

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend:

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act; DSL = Canadian Domestic Substance List; EINECS = European Inventory of New and Existing Chemical Substances; WHMIS = Workplace Hazardous Materials Information System; CAA = Clean Air Act

Summary:

This is the initial release of MSDS with document control MSD-01-2017 in a current formatting and updated exposure limits and toxicological information. Read this information carefully.

This is the end of MSD-01-2017