GAF
Safety Data Sheet
SDS # 2063B
SDS Date: January 2018

SECTION 1: PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:	M-Thane (Part B)
TRADE NAME:	Pro Pack, Seal Pack, Flash Pack, Hardener
CHEMICAL NAME / SYNONYM:	N/A
CHEMICAL FAMILY:	Polymeric Isocyanate
MANUFACTURER:	GAF
ADDRESS:	1 Campus Drive, Parsippany, NJ 07054
24-HOUR EMERGENCY PHONE (CHEMTREC):	800 – 424 – 9300
INFORMATION ONLY:	800 – 766 – 3411
PREPARED BY:	Corporate EHS
APPROVED BY:	Corporate EHS

SECTION 2: HAZARD IDENTIFICATION

NFPA and HMIS RATINGS:

	NFPA Hazard Rating		HMIS Hazard Rating
Health	*2*	**Health**	*2*
Flammable	*1*	***Flammable***	*1*
Reactive	*1*	**Reactive**	*1*
Special Hazards	-	**Personal Protection**	X

GHS LABEL ELEMENTS:

GHS CLASSIFICATION:

Eye Irritant - Category 2
Skin Irritant - Category 2
Skin Sensitizer - Category 1
Respiratory Irritant
Target Organ (SE) - Category 3
Target Organ (RE) - Category 2
Carcinogen - Category 2
Acute Toxicity Inhalation - Category 2

GHS PICTOGRAMS: 

SIGNAL WORD: Danger

HAZARD STATEMENTS:
Causes skin irritation.
May cause an allergic skin reaction.
Causes eye irritation.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
Avoid breathing mist.
Wash with plenty of water and soap thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
In case of inadequate ventilation] wear respiratory protection.
In case of inadequate ventilation wear respiratory protection.
IF ON SKIN (or hair): Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Call a POISON CENTER or doctor/physician.
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
Take off contaminated clothing and wash before reuse.

Labeling of special preparations (GHS):

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION. ANIMAL TESTS AND OTHER RESEARCH INDICATE THAT SKIN CONTACT WITH MDI MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

ADDITIONAL HAZARD IDENTIFICATION INFORMATION:

PRIMARY ROUTE OF EXPOSURE: Dermal contact, Skin absorption, Eye contact, Inhalation and Ingestion.

SIGNS & SYMPTOMS OF EXPOSURE

EYES: Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal.

SKIN: Isocyanates react with skin protein and moisture and can cause irritation, which may include reddening, rash or blistering.

INGESTION: Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pains, nausea, vomiting and diarrhea.

INHALATION: Certain operations such as material heating may generate vapor or aerosol concentrations sufficient to cause irritation. Excessive exposure may irritate upper respiratory tract, causing sensitization in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic reactions to such persons. Symptoms include coughing, difficulty in breathing and a feeling of tightness in the chest. Such effects may be delayed.

ACUTE HEALTH HAZARDS: See signs and symptoms above.

CHRONIC HEALTH HAZARDS: Prolonged contact may cause skin and or respiratory sensitization.

CARCINOGENICITY: N/A

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

			OCCUPATIONAL EXPOSURE LIMITS		
CHEMICAL NAME	**CAS #**	**% (BY WT)**	**OSHA**	**ACGIH**	**OTHER**
Diphenylmethane Diisocyanate (MDI)	9016-87-9	20-45	NE	NE	NW
4,4' Methylene Diphenyl Isocyanate (MDI)	101-68-8	10-30	0.2 mg/m3 Ceil	.05 mg/m3	.05 mg/m3
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl] Methylenediphenyl diisocyanate	17589-24-1	0-1	NE	NE	NE
Methylenediphenyl diisocyanate	26447-40-5	0.5-5	NE	NE	NE
Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro-.omega.-hydroxypoly (oxy-1,2-ethanediyl)	57636-09-6	0-1	NE	TWA value 0.005 ppm	NE

NE = Not Established

SECTION 4: FIRST AID MEASURES

FIRST AID PROCEDURES

EYES: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available. Materials containing MDI may react with the moisture of the eye, forming a thick substance which may be difficult to wash from the eye.

SKIN: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

INHALATION: Remove to fresh air. Give mouth-to-mouth resuscitation if not breathing.

	Administer oxygen for difficulty in breathing.
INGESTION:	Do not induce vomiting. Consult a physician.
NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:	Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and

SECTION 5: FIRE FIGHTING PROCEDURES

SUITABLE EXTINGUISHING MEDIA:	Water fog, foam, CO2, and dry chemical. Do not use direct water stream. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
HAZARDOUS COMBUSTION PRODUCTS:	Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen cyanide. Carbon monoxide. Carbon dioxide.
RECOMMENDED FIRE FIGHTING PROCEDURES:	Wear full protective clothing and NOISH approved self-contained breathing apparatus with full face piece, operated in positive pressure. Product reacts with water. Reaction may produce heat and/or gases. This reaction may be violent. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.
UNUSUAL FIRE & EXPLOSION HAZARDS:	At temperatures greater than 400^{o}F, polymeric MDI can polymerize and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:	Ventilate the area and remove all ignition sources. Contain the spill by building a dike using absorbent materials. Contain spilled material if possible. Absorb with materials such as: Dirt. Vermiculite. Sand. Clay. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums.

	Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 -8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact Dow for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE:	Minimize vaporization by sealing in tightly closed container. Store in a cool, well ventilated area. Avoid eye and skin contact when transferring from containers.
OTHER PRECAUTIONS:	Empty plastic or steel drums should be decontaminated by filling with water and allowed to stand for 48 hours. Drain, triple rinse and hole drums to prevent re-use. The undamaged, empty decontaminated container may also be offered for reconditioning and recycling. Follow all local, state and federal laws.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS / VENTILATION:	Use only with adequate ventilation. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.
RESPIRATORY PROTECTION:	When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place.
EYE PROTECTION:	Wear safety glasses or splash proof goggles.
SKIN PROTECTION:	Wear impervious body covering, gloves and boots where splashing may occur. Use Viton. Neoprene, Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR") gloves.
OTHER PROTECTIVE EQUIPMENT:	Not Applicable.
WORK HYGIENIC PRACTICES:	Avoid contact with eyes and skin. Wash thoroughly after handling and before eating or drinking.
EXPOSURE GUIDELINES:	Not Applicable.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR:	Paste, mild mint scent.		
FLASH POINT:	No data	**LOWER EXPLOSIVE LIMIT:**	No data
METHOD USED:	No data	**UPPER EXPLOSIVE LIMIT:**	No data
EVAPORATION RATE:	No data	**BOILING POINT:**	No data
pH (undiluted product):	No data	**MELTING POINT:**	No data
SOLUBILITY IN WATER:	No data	**SPECIFIC GRAVITY:**	No data
VAPOR DENSITY:	>1	**PERCENT VOLATILE:**	No data
VAPOR PRESSURE:	No data	**DENSITY:**	9.01lbs/gal
VOC (g/l):	15.8	**WITHOUT WATER (LBS/GAL):**	No data

SECTION 10: STABILITY AND REACTIVITY

THERMAL STABILITY: **STABLE X** **UNSTABLE** ☐

CONDITIONS TO AVOID (STABILITY): None known.

INCOMPATIBILITY (MATERIAL TO AVOID): Avoid contact with: Acids. Alcohols. Amines. Water. Ammonia. Bases. Metal compounds. Moist air. Strong oxidizers. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and sink to the bottom, but react lowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat. Avoid contact with metals such as: Aluminum. Zinc. Brass. Tin. Copper. Galvanized metals. Avoid contact with absorbent materials such as: Moist organic absorbents. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generate heat

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None known.

HAZARDOUS POLYMERIZATION:	Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction. Thermal decomposition may produce toxic fumes of CO and /or CO2.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases**.**

Acute Toxicity / Effects

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Typical for this family of materials. LD50, Rat > 10,000 mg/kg

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Dermal: Prolonged skin contact is unlikely to result in absorption of harmful amounts. Typical for this family of materials. LD50, Rabbit > 2,000 mg/kg.

Inhalation: At room temperature, vapors are minimal due to low volatility. However, certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation and other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates. Based on the available data, narcotic effects were not observed. LC50, Aerosol, Rat 490 mg/m3.

Eye damage/eye irritation: May cause moderate eye irritation. May cause slight temporary corneal injury.

Skin corrosion/irritation: Prolonged contact may cause slight skin irritation with local redness. May stain skin.

Sensitization

Skin

Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

Respiratory

May cause allergic respiratory response. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Repeated Dose Toxicity
Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.
Chronic Toxicity and Carcinogenicity
Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.
Developmental Toxicity
In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only
at high doses which were toxic to the mother.
Reproductive Toxicity
No specific, relevant data available for assessment.
Genetic Toxicology
Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:

Toxicity
The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
Toxicity to Soil Dwelling Organisms
LC50, Earthworm Eisenia foetida, adult, 14 d: > 1,000 mg/kg
Persistence and Degradability
In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble
polyureas which appear to be stable. In the atmospheric environment, material is expected to have a
short tropospheric half-life, based on calculations and by analogy with related diisocyanates.
Bioaccumulative potential
Bioaccumulation: In the aquatic and terrestrial environment, movement is expected to be limited by
its reaction with water forming predominantly insoluble polyureas.
Mobility in soil
Mobility in soil: No data available for assessment due to technical difficulties with testing.
Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
Other adverse effects
No specific, relevant data available for assessment.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: This product, as supplied, is not regulated as a hazardous waste by the U.S. Environmental Protection Agency (EPA) under Resource Conservation and Recovery Act (RCRA) regulations. Comply with state and local regulations for disposal.
For used, contaminated and residual materials additional evaluations may

be required. Do not dump into any sewers, on the ground, or into any body of water. Incineration under approved, controlled conditions using incinerators suitable or designed for the disposal of hazardous chemical wastes, is the preferred method for disposal. Small quantities of waste may be pretreated for example with polyol, to neutralise prior to disposal. Empty drums should be decontaminated (see Section 6) and either punctured and scrapped or given to an approved drum reconditioner.

RCRA HAZARD CLASS: None

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT TRANSPORTATION Not regulated for transport.

IATA Not regulated for transport.

IMDG Not regulated for transport.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

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

CERCLA: Reportable Quantity:
4,4' Methylene Diphenyl Isocyanate (MDI) 101-68-8 5,000 lbs

SARA

311/312 HAZARD CATEGORIES: Acute Health Hazard (Immediate), Chronic Health Hazard (Delayed)

313 REPORTABLE INGREDIENTS: 4,4' Methylene Diphenyl Isocyanate (MDI) 101-68-8
Polymeric Diphenylmethane Diisocyanate (MDI) 9016-87-9

CALIFORNIA PROPOSITION 65: N/A

Other state regulations may apply. Check individual state requirements. The following components appear on one or more of the following state hazardous substances lists:

Chemical Name	CAS #	CA	MA	MN	NJ	PA	RI
4,4' Methylene Diphenyl Isocyanate (MDI)	101-68-8	Yes	No	No	Yes	No	Yes
Polymeric Diphenylmethane Diisocyanate (MDI)	9016-87-9	No	No	No	No	No	No

SECTION 16: OTHER INFORMATION

ADDITIONAL COMMENTS:	None
DATE OF PREVIOUS SDS:	December 2014
CHANGES SINCE PREVIOUS SDS:	Updated GHS information, product ingredients.

This information relates to the specific material designated and may not be valid for such material used on combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee, expressed or implied, is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his particular use. We do not accept liability for any loss or damage that may occur from the use of this information. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license of valid patents.