SAFETY DATA SHEET 2241
10/14/2016

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1 Identification

Product identifier

TPO LRF Adhesive M Low Temp Part 1

Relevant identified uses of the substance or mixture. Adhesive

Manufacturer/Supplier:
GAF
1 Campus Drive
Parsippany NJ 07954
Information Phone Number: 800-766-3411

Emergency telephone number:
ChemTrec: Day or Night within USA and Canada: 1-800-424-9300.
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

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2 Hazard(s) identification

Classification of the substance or mixture

GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

GHS07

Acute Tox. 4 H302	Harmful if swallowed.
Acute Tox. 4 H332	Harmful if inhaled.
Skin Irrit. 2 H315	Causes skin irritation.
Eye Irrit. 2A H319	Causes serious eye irritation.
Skin Sens. 1 H317	May cause an allergic skin reaction.
STOT SE 3 H335	May cause respiratory irritation.

Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms

GHS07 GHS08

Signal word *Danger*

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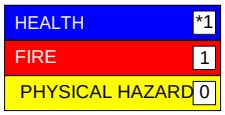
· **Hazard statements**
Harmful if swallowed or if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.
· **Precautionary statements**
Do not breathe dust/fume/gas/mist/vapors/spray.
[In case of inadequate ventilation] wear respiratory protection. Wear protective gloves.
Wear eye protection / face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Get medical advice/attention if you feel unwell. Rinse mouth.
IF ON SKIN: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 1
Reactivity = 0

· ***HMIS-ratings (scale 0 - 4)***



*Health = *1*
Fire = 1
Physical Hazard = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

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3 Composition/information on ingredients

Chemical characterization: Mixtures
Description: Mixture

Hazardous components:
and Non-Dangerous Components:

9016-87-9	diphenylmethanediisocyanate,isomeres and homologues	25-50%
101-68-8	4,4'-methylenediphenyl diisocyanate	25-50%
25322-69-4	Polyol	10-25%
26447-40-5	methylenediphenyl diisocyanate	2.5-10%

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4 First-aid measures

Description of first aid measures
General information:
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
After inhalation:
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
Call a doctor immediately.
Overexposure, remove to fresh air and seek medical attention.
After skin contact:
If skin becomes irritated seek medical attention.
Immediately wash with water and soap and rinse thoroughly.
After eye contact: Rinse opened eye for 20 minutes under running water. Call a Doctor immediately.
After swallowing:
Rinse out mouth with water. Drink 1 - 2 glasses of water but DO NOT induce vomiting. Do not give liquids to a drowsy, convulsing or unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
Seek medical treatment.
Information for doctor:
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

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5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents:
CO2, sand, extinguishing powder. Do not use water.
Use fire fighting measures that suit the environment.
For safety reasons unsuitable extinguishing agents: Water
Special hazards arising from the substance or mixture No further relevant information available.
Advice for firefighters
Protective equipment:
Mouth respiratory protective device.
Protective clothing and respiratory protective device.

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6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep away from ignition sources
Environmental precautions: No special measures required.
Methods and material for containment and cleaning up:
Cover spilled material with neutralization solution (see below) and mix Wait 15 minutes. Collect material in open-head metal containers. Repeat neutralization and cleaning process until surface is decontaminated. Apply drum lid but DO NOT secure. Allow containers to vent for 72 hours to let carbon dioxide escape.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste in accordance with federal state and local regulations.
Ensure adequate ventilation.
Reference to other sections
Neutralization solutions:
A mixture of 90% water. 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.
A mixture of 80% water, 20% non-ionic surfactant.
Apply solution. Wait 15 minutes. Collect in open-head container. Re-apply until surface is decontaminated. Apply drum lid but DO NOT secure. Let containers vent for 72 hours allowing carbon dioxide to escape. Secure drum lid.
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

Handling:
Precautions for safe handling
Avoid prolonged or repeated contact with skin.
Avoid contact with eyes.
Wash thoroughly after handling.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Product reacts with water. Reaction may produce heat and/or gases.

Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Keep containers tightly closed when not in use. Protect from atmospheric moisture.
Information about storage in one common storage facility: Keep away from open flames and high temperatures.
Further information about storage conditions:
Storage Temperature - 32F - 90F
Keep receptacle tightly sealed.
Specific end use(s) No further relevant information available.

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8 Exposure controls/personal protection

Additional information about design of technical systems: No further data.

Control parameters
Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

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101-68-8 4,4'-methylenediphenyl diisocyanate	
PEL	Ceiling limit value: 0.2 mg/m³, 0.02 ppm
REL	Long-term value: 0.05 mg/m³, 0.005 ppm Ceiling limit value: 0.2* mg/m³, 0.02* ppm *10-min
TLV	Long-term value: 0.051 mg/m³, 0.005 ppm

Additional information:
MDI products have poor warning properties, since recognition of an odor is far above the TLV. Observe OSHA regulations for respirator use (29 CFR 1910.134).
The lists that were valid during the creation were used as basis.

Exposure controls
Personal protective equipment (see listings below)
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment:
Use approved respiratory protection equipment when airborne exposure is excessive. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer.
Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Material of gloves
Chloroprene rubber, CR
Nitrile rubber, NBR
Butyl rubber, BR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection:
Face Shield
Safety glasses with side shields.

Tightly sealed goggles

Body protection:
Apron

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Protective work clothing

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9 Physical and chemical properties

Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Liquid
Color:	Off White - Light Amber
Odor:	Faint Aromatic
Odor threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point:	Undetermined.
Flash point:	176 °C (349 °F)
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	400 °C (752 °F)
Decomposition temperature:	Not determined.
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are
Flammable limits:	
Lower:	% by volume = .9
Upper:	% by volume = 6.7
Vapor pressure:	0 mm Hg
Specific gravity at 20 °C (68 °F):	1.12 g/cm³ (9.346 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	0.0 %
Other information	No further relevant information available.

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10 Stability and reactivity

Reactivity No further relevant information available.

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Chemical stability
Thermal decomposition / conditions to be avoided:
Contact with moisture, other materials that react with isocyanates, or temperatures above 350F (177C), may cause polymerization.
Possibility of hazardous reactions
May produce violent reactions with bases and numerous organic substances including alcohols and amines.
MDI reacts slowly with water to form Carbon Dioxide gas. This gas can cause sealed containers to expand and possibly rupture. Contact with moisture, other materials that react with isocyanates, or temperatures above 350F, may cause polymerization.
Conditions to avoid
Exposure to high temperatures.
Moisture
Incompatible materials:
Reacts with amines, caustic alkali solutions, alcohols, ammonia, oxidizers, acids, polyols.
Reacts with water forming carbon dioxide-may rupture sealed containers if contaminated with water.
Hazardous decomposition products:
Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, hydrogen cyanide, isocyanic acid, other undeterminated compounds.

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11 Toxicological information

Information on toxicological effects
· **Acute toxicity:**

LD/LC50 values that are relevant for classification:		
101-68-8 4,4'-methylenediphenyl diisocyanate		
Oral	LD50	2200 mg/kg (mouse)

Primary irritant effect:
on the skin:
Skin irritant.
Irritant to skin and mucous membranes.
on the eye: Irritating effect.
Sensitization:
Inhalation - Sensitization possible through inhalation.
Skin Contact - Sensitization possible through skin contact.
Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations: Harmful
Irritant

IARC (International Agency for Research on Cancer)	
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues
101-68-8	4,4'-methylenediphenyl diisocyanate
NTP (National Toxicology Program)	
None of the ingredients is listed.	
OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	

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12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes: At present there are no ecotoxicological assessments.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

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13 Disposal considerations

Waste treatment methods
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Must be specially treated adhering to official regulations.
Disposal must be made according to official regulations.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

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14 Transport information

UN-Number **DOT, ADR, ADN, IMDG, IATA**	not regulated
UN proper shipping name **DOT, ADR, ADN, IMDG, IATA**	not regulated
Transport hazard class(es) **DOT, ADR, ADN, IMDG, IATA** **Class**	not regulated
Packing group **DOT, ADR, IMDG, IATA**	not regulated
Environmental hazards:	Not applicable.
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	MDI (CAS 101-68-8) exhibits a CERCLA RQ equal to 5,000 pounds. Quantites less than the RQ amount are not regulated in transportation.
UN "Model Regulation":	not regulated

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15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Section 355 (extremely hazardous substances):	
None of the ingredients is listed.	
Section 313 (Specific toxic chemical listings):	
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues
101-68-8	4,4'-methylenediphenyl diisocyanate
TSCA (Toxic Substances Control Act):	
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues
101-68-8	4,4'-methylenediphenyl diisocyanate
26447-40-5	methylenediphenyl diisocyanate

Proposition 65

Chemicals known to cause cancer:
None of the ingredients is listed.
Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.
Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.
Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

(DSL) Canada Dosmestic Substance List

All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.

New Jersey Right-to-Know List:	
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues
101-68-8	4,4'-methylenediphenyl diisocyanate
New Jersey Special Hazardous Substance List:	
None of the ingredients is listed.	
Pennsylvania Right-to-Know List:	
101-68-8	4,4'-methylenediphenyl diisocyanate
Pennsylvania Special Hazardous Substance List:	
101-68-8	4,4'-methylenediphenyl diisocyanate

Cancerogenity categories

EPA (Environmental Protection Agency)		
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues	CBD
101-68-8	4,4'-methylenediphenyl diisocyanate	D, CBD
TLV (Threshold Limit Value established by ACGIH)		
None of the ingredients is listed.		
MAK (German Maximum Workplace Concentration)		
9016-87-9	diphenylmethanediisocyanate,isomeres and homologues	
101-68-8	4,4'-methylenediphenyl diisocyanate	

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NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carriedout.

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16 Other information

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