GAF
Safety Data Sheet
SDS # 2176
SDS Date: April 2024

SECTION 1: PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:	LRF Adhesive O Part A
MANUFACTURER:	GAF
ADDRESS:	1 Campus Drive, Parsippany, NJ 07054
24 HOUR EMERGENCY PHONE: (CHEMTREC)	800–424–9300
INFORMATION ONLY:	877–GAF–ROOF
APPROVED BY:	Corporate EHS

SECTION 2: HAZARDS IDENTIFICATION

NFPA and HMIS RATINGS:

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

GHS LABEL ELEMENTS:

GHS CLASSIFICATION:

Acute Toxicity, Inhalation: Hazard Category 4
Respiratory Sensitization: Hazard Category 1
Skin Sensitization: Hazard Category 1
Skin Irritation: Hazard Category 2
Eye Irritation: Hazard Category 2B
Specific Target Organ Toxicity, Single Exposure: Hazard Category 3
Specific Target Organ Toxicity, Repeated Exposure: Hazard Category 2

GHS PICTOGRAMS:

SIGNAL WORD: Danger

HAZARD STATEMENTS:	May be harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause an allergic skin reaction. Causes eye and skin irritation. May cause damage to the respiratory system and/or skin through prolonged or repeated exposure.
PRECAUTIONARY STATEMENTS:	Do not breathe mist, spray, or vapors. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear proper respiratory protection. Wear protective gloves and eye protection. Wash hands and forearms thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. If ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs, get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms or if you feel unwell, call a doctor or Poison Control Center. If IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. IF exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. If experiencing respiratory symptoms: Call a poison center/doctor.

Overexposure to components of this product by inhalation may cause respiratory irritation, asthma-like symptoms, and/or respiratory sensitization.

Skin contact may cause irritation and/or allergy-like symptoms, and eye contact may cause severe irritation. Avoid skin and eye contact, using proper personal protective equipment as needed. See Section #7 for recommendations on proper handling and work practices, and Section #8 for recommendations on personal protective equipment.

ADDITIONAL HAZARD IDENTIFICATION INFORMATION:

PRIMARY ROUTE OF EXPOSURE: Inhalation, Skin Contact, Eye Contact

SIGNS & SYMPTOMS OF EXPOSURE

EYES:	This product is irritating to the eyes.
SKIN:	This product may cause mild to moderate skin irritation and has the potential to cause skin sensitization among susceptible individuals.
INGESTION:	This product is not expected to be ingested. However, ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.
INHALATION:	Inhalation of toxicologically-significant quantities of ingredients is unlikely when the product is used in a well-ventilated area and in accordance with instructions.
ACUTE HEALTH HAZARDS:	See above. Inhalation overexposure to isocyanates may cause respiratory irritation, breathing difficulties, and asthma-like symptoms.

CHRONIC HEALTH HAZARDS: Long-term inhalation overexposure to this product may result in respiratory sensitization, which may be irreversible. May cause damage to the respiratory tract through prolonged or repeated inhalation.

CARCINOGENICITY: A single inhalation study exposing rats to aerosolized polymeric 4,4'-Methylene Bisphenyl Isocyanate identified a single malignant pulmonary tumor among 60 animals exposed at the highest exposure level.

Observations of pulmonary fibrosis and other pathological anomalies in the test animals precluded definitive determination as to the cause(s) of the tumor. Epidemiological studies of humans occupationally exposed to the isocyanates in this product have found no strong association or consistent pattern with respect to carcinogenicity..

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

			OCCUPATIONAL EXPOSURE LIMITS		
CHEMICAL NAME	**CAS #**	**% (BY WT)**	**OSHA**	**ACGIH**	**OTHER**
Diphenylmethane Diisocyanate, isomeres and homologues	9016-87-9	100	NE	NE	NE
4,4'-Methylene Bisphenol Isocyanate (MDI)	101-68-8	30-50 (part of 9016-87-9)	0.02 ppm – ceiling	0.005 ppm	0.005 ppm; 0.02 ppm – ceiling (10 min.)

NE = Not Established

SECTION 4: FIRST AID MEASURES

FIRST AID PROCEDURES

EYES: Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Seek medical attention.

SKIN: Wash exposed skin with soap and water. If irritation develops or persists, seek medical attention. Discard contaminated clothing.

INHALATION: If signs and symptoms of respiratory toxicity are observed, remove subject from area and seek immediate medical attention. Keep the subject warm and at rest. If necessary, administer oxygen or perform artificial respiration if necessary and qualified personnel are available to do so.

INGESTION: DO NOT induce vomiting. If the subject is conscious, wash mouth with water. Seek immediate medical assistance. Do not attempt to give anything by mouth to an unconscious or convulsive person.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:	Inhalation exposure can irritate the respiratory tract and induce respiratory sensitization. Treatment of acute irritation and bronchial constriction should be done according to symptoms. Eye contact can cause moderate to severe irritation. Skin contact can cause moderate irritation, and may elicit an allergic response among susceptible individuals. Treat eye and skin irritation or injury according to symptoms. Extended medical treatment may be necessary for individuals exhibiting respiratory sensitization and/or skin disorders.

SECTION 5: FIRE FIGHTING PROCEDURES

SUITABLE EXTINGUISHING MEDIA:	Water spray, carbon dioxide, or dry chemical. Fight larger fires with water spray. Use fire fighting measures that suit the environment. Do not use water jet.
HAZARDOUS COMBUSTION PRODUCTS:	Carbon monoxide, carbon dioxide, nitrogen oxides, isocyanates, hydrogen cyanide, hydrogen fluoride, and carbonyl halides
RECOMMENDED FIRE FIGHTING PROCEDURES:	Firefighters should wear full protective clothing including self contained breathing apparatus.
UNUSUAL FIRE & EXPLOSION HAZARDS:	The container may burst if exposed to elevated temperatures, spilling the contents. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. If present in a fire or explosion, potential decomposition byproducts include carbon monoxide, oxides of nitrogen, isocyanates, hydrogen cyanide, hydrogen fluoride, and carbonyl halides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:	Absorb spilled material with a sorbent such as sawdust or calcium silicate hydrate. When absorbed, transfer to an impervious container. Neutralize with solution of 8-10% sodium carbonate and 2% liquid detergent in water (10:1 ratio of solution to product). Do not seal container, as CO2 will be released. Neutralize in a well-ventilated area for at least 48 hours before sealing containers for disposal. Avoid contact with skin, eyes, and mucous membranes. Wear appropriate personal protective equipment (see Section #8) during cleanup and decontamination. Restrict unauthorized personnel during cleanup and disposal operations.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE:	Containers should be kept tightly closed to prevent contact with moisture and other chemicals. Do not reuse empty containers for any purpose. When handling the product, avoid contact with eyes, skin, and clothing, using protective equipment as needed. Do not use this product around children, and secure it away from children.

To prevent ingestion or contact following use of the product, wash hands and face before eating, drinking, applying cosmetics, or using tobacco. Remove contaminated clothing and protective equipment before entering eating/drinking areas.

OTHER PRECAUTIONS: Keep containers tightly sealed during storage. Store in a dry, well- ventilated area away from sources of ignition and incompatible materials (see Section #10). Recommended temperature range for storage is 55-85°F. (12.8-29.4°C.).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS / VENTILATION: Provide adequate local ventilation to maintain worker exposure below exposure limits.

RESPIRATORY PROTECTION: If an exposure level to a component exceeds an applicable standard, use a NIOSH-approved respirator of a class and configuration effective for protection from the component(s) generated. Where exposures exceed the OSHA Permissible Exposure Limit (PEL), an airline respirator or self-contained breathing apparatus (SCBA) is recommended. Consult OSHA regulations (29CFR1910.134) and/or American National Standard Z88.2 (ANSI, New York, NY 10036, USA) for guidance.

EYE PROTECTION: Wear eye protection adequate to prevent eye contact with the product. Plastic-frame spectacles with side shields, chemical goggles, or a face shield are recommended.

SKIN PROTECTION: Wear protective gloves and clothing to prevent skin irritation or injury from contact with the product. Glove materials known to be effective against permeation by isocyanates include butyl rubber, nitrile rubber, and polychloroprene.

OTHER PROTECTIVE EQUIPMENT: Eye wash stations and safety showers are recommended.

WORK HYGIENIC PRACTICES: Wash exposed skin prior to eating, drinking or smoking and at the end of each shift. Immediately remove all soiled and contaminated clothing. Avoid contact with the eyes and skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR:	Dark brown liquid with faint aromatic odor.		
FLASH POINT:	~484°F./220°C	**LOWER EXPLOSIVE LIMIT:**	not determined
METHOD USED:	not determined	**UPPER EXPLOSIVE LIMIT:**	not determined
EVAPORATION RATE:	not determined	**BOILING RANGE:**	≥200°F./93°C
IGNITION TEMPERATURE:	500 °F	**MELTING POINT:**	not determined
SOLUBILITY IN WATER:	Not Miscible	**SPECIFIC GRAVITY:**	1.22
VAPOR DENSITY:	not determined	**PERCENT VOLATILE:**	not determined

VAPOR PRESSURE:	4271 hPa@20oC (propellant)	**MOLECULAR WEIGHT:**	not determined
VOC (G/L):	<50	**SPECIFIC GRAVITY (LBS/GAL):**	not determined

SECTION 10: STABILITY AND REACTIVITY

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

CONDITIONS TO AVOID (STABILITY): May react with water and incompatible materials

INCOMPATIBILITY (MATERIAL TO AVOID): Water, alcohols, acids, alkalis, and amines

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon monoxide, carbon dioxide, nitrogen oxides, isocyanates, hydrogen cyanide, hydrogen fluoride, and carbonyl halides.

HAZARDOUS POLYMERIZATION: May occur at temperatures >392°F./200°C.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Ingredients Toxicology Data	LD_{50} Oral	LD_{50} Dermal	LC_{50}
Diphenylmethane Diisocyanate, Isomers and Homologues	>10,000 mg/kg (rat)	>9400 mg/kg (rabbit)	0.49 mg/L/4h (rat)
4,4'-Methylene Bisphenyl Isocyanate	>10,000 mg/kg (rat)	>9400 mg/kg (rabbit)	2.24 mg/l. for 1 hour (rat)

Primary Route(s) of Entry: Inhalation; ingestion

Eye Hazards: This product causes eye irritation.
Skin Hazards: This product may cause mild to moderate skin irritation and has the potential to cause skin sensitization among susceptible individuals.
Ingestion Hazards: The product is nontoxic by ingestion, but ingestion may cause nausea, vomiting, and/or gastrointestinal irritation.
Inhalation Hazards: Inhalation of toxicologically-significant quantities of ingredients is unlikely when the product is used in a well-ventilated area and in accordance with instructions.

Symptoms Related to Overexposure:

Inhalation overexposure to isocyanates may cause respiratory irritation, breathing difficulties, and asthma-like symptoms.

Delayed Effects from Long Term Overexposure:

Long-term inhalation overexposure to this product may result in respiratory sensitization, which may be irreversible. May cause damage to the respiratory tract through prolonged or repeated inhalation. Irritant.

Acute Toxicity Estimates:

LD50 (oral): >10,000 mg/kg
LD50 (dermal): >9,400 mg/kg
LC50: 2.24 mg/L/1 hr as aerosol

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:

4,4'-Methylene-diphenyl Diisocyanate

Aquatic Toxicity to Fish: LC50 >1,000 mg/l. for 96 h. (zebra fish)
Aquatic Toxicity to Invertebrates: EC50 >1,000 mg/l. for 24 h. (daphnia)
Aquatic Toxicity to Plants: EC50 >1,640 mg/l. for 72 h. (algae)
Aquatic Toxicity to Microorganisms: EC50 >100 mg/l. for 3 h. (bacteria)
Toxicity to Terrestrial Organisms: EC0 = 1,000 mg/kg for 14 d. (worms)
No data available for Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Do not allow undiluted product or large quantities of it to reach groundwater, water course or sewage system.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Empty containers should be decontaminated prior to disposal. Consult applicable Federal, State/Provincial, and local regulations.

SECTION 14: TRANSPORTATION INFORMATION

DOT
Not Regulated

IATA
Not Regulated

IMDG
Not Regulated

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

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

CERCLA: CERCLA Hazardous Substances (40 CFR 302)

Reportable Quantity – Components

4,4'-Methylene Bisphenol Isocyanate (MDI): 101-68-8, 5000 lbs.

SARA

311/312 HAZARD CATEGORIES: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

313 REPORTABLE INGREDIENTS: 4,4'-Methylene Bisphenol Isocyanate (MDI), 101-68-8, 30 – 60% diphenylmethanediisocyanate,isomeres and homologues, 9016-87-9, 30 – 60%

CALIFORNIA PROPOSITION 65: None.

Canadian Regulatory Information
All ingredients in this product are listed in the Domestic Substances List (DSL).
This product has been classified in accordance with Canada's Hazardous Products Regulations (SOR/DORS/2015-15).

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 Bisphenol Isocyanate (MDI)	101-68-8	Yes	Yes	Yes	Yes	Yes	Yes
diphenylmethanediisocyanate ,isomeres and homologues	9016-87-9	Yes	Yes	Yes	Yes	Yes	Yes

SECTION 16: OTHER INFORMATION

ADDITIONAL COMMENTS: None

DATE OF PREVIOUS SDS: September 2016

CHANGES SINCE PREVIOUS SDS: Ingredient Change

This information relates to the specific material designated and may not be valid for such material used in 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.