

Safety Data Sheet

LUPRANATE®M20 ISO

Revision date : 2015/10/05
Version: 5.2

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(30089687/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

LUPRANATE*M20 ISO

Recommended use of the chemical and restriction on use

Recommended use*: polyurethane component; industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: aromatic isocyanates
Synonyms: POLYMETHYLENE POLYPHENYLISOCYANATE

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
Skin Corr./Irrit.	2	Skin corrosion/irritation
Skin Sens.	1B	Skin sensitization
Resp. Sens.	1	Respiratory sensitization
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

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STOT RE 2 (by inhalation) Specific target organ toxicity — repeated exposure

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H320 Causes eye irritation.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H373 May cause damage to organs (Olfactory organs) through prolonged or repeated exposure (inhalation).

Precautionary Statements (Prevention):

P280 Wear protective gloves.
P271 Use only outdoors or in a well-ventilated area.
P260 Do not breathe dust/gas/mist/vapours.
P261 Avoid breathing mist.
P284 In case of inadequate ventilation wear respiratory protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P314 Get medical advice/attention if you feel unwell.
P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash before reuse.
P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

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No specific dangers known, if the regulations/notes for storage and handling are considered.

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.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

WARNING:

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.
AVOID CONTACT WITH SKIN AND EYES.
SKIN OR EYE CONTACT MAY CAUSE IRRITATION.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
9016-87-9	>= 50.0 - < 75.0%	P-MDI
101-68-8	>= 25.0 - < 50.0%	Diphenylmethane-4,4'-diisocyanate (MDI)
17589-24-1	>= 1.0 - < 3.0%	1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl]-
26447-40-5	>= 3.0 - < 7.0%	Methylenediphenyl diisocyanate
57636-09-6	>= 1.0 - < 3.0%	Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
9016-87-9	>= 50.0 - < 75.0%	P-MDI
101-68-8	>= 25.0 - < 50.0%	Diphenylmethane-4,4'-diisocyanate (MDI)
17589-24-1	>= 1.0 - < 3.0%	1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl]-
26447-40-5	>= 3.0 - < 7.0%	Methylenediphenyl diisocyanate
57636-09-6	>= 1.0 - < 3.0%	Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)

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4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Hazards: Symptoms can appear later.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Hazards: Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

Indication of any immediate medical attention and special treatment needed

Note to physician

Antidote:	Specific antidotes or neutralizers to isocyanates do not exist.
Treatment:	Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide, foam

Special hazards arising from the substance or mixture

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Hazards during fire-fighting:
nitrous gases, fumes/smoke, isocyanate, vapour

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Absorb isocyanate with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 8 % concentrated ammonia, 2 % detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide.

For large amounts: If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For residues: The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

Dike spillage.

7. Handling and Storage

Precautions for safe handling

Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Protection against fire and explosion:

No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases. Segregate from bases.

Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

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Further information on storage conditions: Formation of CO₂ and build up of pressure possible. Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture.

Storage stability:
Storage temperature: 32 - 110 °F
Protect against moisture.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

Diphenylmethane-4,4'-diisocyanate (MDI)	OSHA PEL	CLV 0.02 ppm 0.2 mg/m ³ ; CLV 0.02 ppm 0.2 mg/m ³ ;
	ACGIH TLV	TWA value 0.005 ppm ;
P-MDI	OSHA PEL	CLV 0.02 ppm 0.2 mg/m ³ ; CLV 0.02 ppm 0.2 mg/m ³ ;
	ACGIH TLV	TWA value 0.005 ppm ;
Isocyanic acid, polymethylenepolyphenylene ester (P-MDI)	OSHA PEL	CLV 0.02 ppm 0.2 mg/m ³ ; CLV 0.02 ppm 0.2 mg/m ³ ;
	ACGIH TLV	TWA value 0.005 ppm ;

Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

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. For emergency or non-routine, high exposure situations, including confined space entry, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves should be worn to prevent all skin contact., Suitable materials may include, chloroprene rubber (Neoprene), nitrile rubber (Buna N), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, depending upon conditions of use.

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Cover as much of the exposed skin as possible to prevent all skin contact., Suitable materials may include, saran-coated material, depending upon conditions of use.

General safety and hygiene measures:

Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL or TLV value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

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9. Physical and Chemical Properties

Form:	liquid
Odour:	faint odour, aromatic
Odour threshold:	not applicable
Colour:	dark amber
pH value:	not applicable
Freezing point:	3 °C (1 ATM)
Boiling point:	200 °C (5 mmHg)
Sublimation point:	No applicable information available.
Flash point:	220 °C (open cup)
Flammability:	not flammable
Lower explosion limit:	For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit:	For liquids not relevant for classification and labelling.
Autoignition:	> 250 °C
Vapour pressure:	0.00016 mmHg (20 °C)
Density:	1.22 g/cm ³ (20 °C)
Relative density:	1.22 (25 °C)
Bulk density:	10.17 lb/USg (25 °C)
Vapour density:	not applicable
Partitioning coefficient n-octanol/water (log Pow):	not applicable
Self-ignition temperature:	not self-igniting
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	200 mPa.s (20 °C)
Viscosity, kinematic:	No applicable information available.
Solubility in water:	Reacts with water.
Solubility (quantitative):	No applicable information available.
Solubility (qualitative):	No applicable information available.
Molar mass:	360 g/mol
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:

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not fire-propagating

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalis. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to avoid

Avoid moisture.

Incompatible materials

acids, amines, alcohols, water, Alkalines, strong bases, Substances/products that react with isocyanates.

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapours

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. 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

Acute toxicity

Assessment of acute toxicity: Inhalation of vapours may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed.

Oral

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LD50

Species: rat (male/female)

Value: > 2,000 mg/kg (Directive 84/449/EEC, B.1)

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: 2.0 mg/l (OECD Guideline 403)

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An aerosol was tested.

Dermal

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LD50

Species: rabbit (male/female)

Value: > 9,400 mg/kg

Assessment other acute effects

Assessment of STOT single:

Causes temporary irritation of the respiratory tract.

Irritation / corrosion

Assessment of irritating effects: Irritating to eyes, respiratory system and skin. Skin contact may result in dermatitis, either irritative or allergic.

Skin

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Eye

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Sensitization

Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapour-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Buehler test

Species: guinea pig

Result: sensitizing

Mouse Local Lymph Node Assay (LLNA)

Species: mouse

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*Result: sensitizing
Can cause skin sensitization*

other

*Species: guinea pig
Result: sensitizing*

Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. The substance may cause damage to the lung after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Experimental/calculated data: rat (Wistar) (male/female) Inhalation 2 yrs, 6 hr/day 0, 0.2, 1, 6 mg/m³, olfactory epithelium

NOAEL: 0.2 mg/m³

LOAEL: 1 mg/m³

The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure. Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Genetic toxicity

Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, these results could not be confirmed in tests with mammals.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Genetic toxicity in vitro: OECD Guideline 471 Ames-test Salmonella typhimurium:with and without metabolic activation ambiguous

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

*Genetic toxicity in vivo: OECD Guideline 474 Micronucleus assay rat (male) Inhalation negative
No clastogenic effect reported.*

Carcinogenicity

Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: P-MDI

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Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: Methylenediphenyl diisocyanate

Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: 1,3-Diazetidone-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl]-

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.

Information on: Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro-.omega.-hydroxypoly(oxy-1,2-ethanediyl)

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.

Experimental/calculated data: OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m³
Result: Lung tumors

Reproductive toxicity

Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity

Assessment of teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Development

OECD Guideline 414 rat Inhalation 0, 1, 4, 12 mg/m³

NOAEL Mat.: 4 mg/m³

NOAEL Teratog.: 4 mg/m³

The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Medical conditions aggravated by overexposure

The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing. Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Preemployment and periodic medical examinations with respiratory function tests (FEV₁, FVC as a minimum) are suggested. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

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12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Based on long-term (chronic) toxicity study data, the product is very likely not harmful to aquatic organisms.

The product may hydrolyse. The test result maybe partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to fish

LC0 (96 h) > 1,000 mg/l, Brachydanio rerio (OECD Guideline 203, static)

Aquatic invertebrates

EC50 (24 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants

EC0 (72 h) 1,640 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aquatic

aerobic bacteria from a domestic water treatment plant/EC50 (3 h): > 100 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Elimination information

0 % BOD of the ThOD (28 d) (OECD Guideline 302 C) (aerobic, activated sludge) Poorly biodegradable.

Assessment of stability in water

In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis)

t_{1/2} 20 h (25 °C)

Bioaccumulative potential

Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential

Bioconcentration factor: 200 (28 d), Cyprinus carpio (OECD Guideline 305 E)

Mobility in soil

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Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

13. Disposal considerations

Waste disposal of substance:

Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

DRUMS:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

Further information

DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this MSDS for the RQ for this product.

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Acute; Chronic

EPCRA 313:

CAS Number

101-68-8
9016-87-9

Chemical name

Diphenylmethane-4,4'-diisocyanate (MDI)
P-MDI

CERCLA RQ

5000 LBS

CAS Number

101-68-8; 9016-

Chemical name

Diphenylmethane-4,4'-diisocyanate (MDI); P-MDI

Safety Data Sheet

LUPRANATE®M20 ISO

Revision date : 2015/10/05
Version: 5.2

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(30089687/SDS_GEN_US/EN)

87-9
Reportable Quantity for release: 13,157.9 lb

State regulations

<u>State RTK</u>	<u>CAS Number</u>	<u>Chemical name</u>
NJ	101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)
	9016-87-9	P-MDI
	26447-40-5	Methylenediphenyl diisocyanate
PA	101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)
	9016-87-9	P-MDI

NFPA Hazard codes:

Health : 2 Fire: 1 Reactivity: 1 Special:

HMIS III rating

Health: 2⁺ Flammability: 1 Physical hazard: 1

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2015/10/05

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END OF DATA SHEET

SAFETY DATA SHEET

GRA Services International
5000 E 2nd St.
Edmond, OK 73034
405-330-2395

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME: **Secure Set, B-Side**
CHEMICAL FAMILY: Polyurethane Resin System
CHEMICAL NAME.....: Polyol Blend with Catalysts

2. HAZARDS IDENTIFICATION:

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the Product

Aquatic Acute	3	Hazardous to the aquatic environment – acute
Skin Irritation	2	Contact may cause irritation
Eye Irritation	2	Contact may cause severe irritation

Label elements

Pictogram:



Signal Word:
Warning

Hazard Statement:

H402	Harmful to aquatic life.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary Statements (Prevention):

P273	Avoid release to the environment.
P264	Wash with plenty of water and soap thoroughly after handling.
P202	Do not handle until all safety precautions have been read and understood.

Precautionary Statements (Response):

- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P303+P352 IF ON SKIN: Wash with plenty of soap and water.
- P308+P311 IF exposed or concerned: call a POISON CENTER or doctor/physician
- P332+P313 IF skin irritation occurs: get medical advice/attention
- P337+P311 IF eye irritation persists: Call a POISON CENTER or doctor/physician

Precautionary Statements (Disposal):

- P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

CAUTION! Dark amber colored, liquid with an ammonical odor. May cause skin, eye and respiratory tract irritation. Irritating gases/fumes may be given off during burning or thermal decomposition.

POTENTIAL HEALTH EFFECTS:

- INGESTION...: May cause irritation to digestive tract.
- INHALATION: Exposure to vapors or mist may cause irritation of the nose, throat and lungs.
- CHRONIC EFFECTS OF EXPOSURE: Upon repeated contact, slight skin irritation is possible.
- CARCINOGENICITY: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.
- MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate an existing skin condition.

3. COMPOSITION / INFORMATION ON INGREDIENTS:

Catalyzed polyol resin blend of proprietary composition, with surfactant.

HAZARDOUS INGREDIENTS

This product contains no hazardous ingredients as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

4. FIRST AID MEASURES:

FIRST AID FOR EYES: Flush with large amounts of water for at least 15 minutes, occasionally holding eyelids open with fingers to ensure that the eyes are being irrigated. Consult a physician if irritation occurs.

FIRST AID FOR SKIN: Remove all contaminated clothing and shoes. Wash skin thoroughly with soap and water. Wash clothing before wearing again. Dispose of contaminated shoes. If irritation develops consult a physician.

FIRST AID FOR INHALATION: Remove to fresh air. If breathing has stopped administer artificial respiration (e.g. mouth-to-mouth). If breathing is still difficult administer oxygen (to be done by qualified medical personnel). Consult a physician.

FIRST AID FOR INGESTION: This is not a likely route of entry. However, if ingested administer water for dilution, do not induce vomiting. Should vomiting occur keep head lower than hip level to prevent aspiration of fluid into the lungs.

NOTE TO PHYSICIAN: Treat any ill effects symptomatically.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >210° F (99° C) Pensky-Martens Closed Cup

FLAMMABLE LIMITS.....: not available

UPPER EXPLOSIVE LIMIT (UEL), %: Not Determined

LOWER EXPLOSIVE LIMIT (UEL), %: Not Determined

AUTO-IGNITION TEMPERATURE...: Not Determined

EXTINGUISHING MEDIA.....: Water; Carbon Dioxide; Dry Chemical; Foam

SPECIAL FIRE FIGHTING PROCEDURES: This material supports combustion. Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by fire-fighters. Use cold water spray to cool fire-exposed containers to minimize risk of rupture. During a fire, irritating and toxic gases such as carbon monoxide may be generated by thermal decomposition or combustion. A stream of water directed into the hot burning liquid could cause frothing.

UNUSUAL FIRE / EXPLOSION HAZARDS: None reported.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES: Remove sources of ignition. Equip clean-up personnel with proper protective equipment. Cover spill with absorbent material, such as oil-dry, sand, sweeping compound or

diatomaceous earth; collect material for disposal. Wash spill area with water.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE (MIN/MAX): 65° F (18° C) / 90° F (32° C)

SHELF LIFE: 6 months

SPECIAL SENSITIVITY: Material is hygroscopic and may absorb small amounts of atmospheric moisture.

HANDLING/STORAGE PRECAUTIONS: Containers should be kept tightly closed to prevent contamination with foreign materials and moisture. Material is not considered hazardous under normal handling operations, but reasonable care should be exercised. Avoid skin and eye contact. Avoid breathing vapors if generated. If contamination with isocyanates is suspected, do not reseal containers.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS: Do not wear contact lenses when handling this material. Chemical goggles or safety glasses under full face shield are recommended.

SKIN PROTECTION REQUIREMENTS: Chemically resistant gloves and clothing required.

VENTILATION REQUIREMENTS: Positive ventilation to the outside of building is required during drum opening and foam processing.

RESPIRATOR REQUIREMENTS: A NIOSH approved air-supplying respirator is recommended. Observe all OSHA regulations for respirator use (29 CFR 1910.134).

ADDITIONAL PROTECTIVE MEASURES: Safety showers and eye wash stations should be easily accessible to the work area. Educate and train employees in safe use of the product. Follow all label instructions.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
COLOR.....: Yellow & Slight Hazy
ODOR.....: Slight Ether & Amine
pH.....: Not Determined
BOILING POINT:: Not Determined
MELTING/FREEZING POINT.: Not Determined
SOLUBILITY IN WATER.....: Slightly Soluble
SPECIFIC GRAVITY.....: 1.0046 g/ cm³ @ 77°F (25°C)
VISCOSITY: 1091.6 mPa.s @ 77°F (25°C)
BULK DENSITY.....: 1.0046 g/cm³
VAPOR PRESSURE.....: Not Determined
VAPOR DENSITY.....: Not Determined (Air = 1)
VOC BY WEIGHT.....: Not Determined
HOC BY WEIGHT.....: None

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION: Will not occur.
INCOMPATIBILITIES.....: Oxidizing materials and isocyanates.
INSTABILITY CONDITIONS.....: None noted.
DECOMPOSITION PRODUCTS.....: By fire - CO, CO₂, NO_x and aliphatic fragments.

11. TOXICOLOGICAL INFORMATION:

No toxicity data has been established for this product.

12. ECOLOGICAL INFORMATION:

No ecological information is available.

13. DISPOSAL CONSIDERATIONS:

WASTE DISPOSAL METHOD: Liquid waste must be incinerated or disposed of in compliance with federal, state or local environmental control regulations. If incinerated, toxic and corrosive combustion gases must be handled properly.

EMPTY CONTAINER PRECAUTIONS: Empty containers may retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity or other sources of ignition. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME: Resin Compound
FREIGHT CLASS BULK.....: Resins
FREIGHT CLASS PACKAGE....: Resin Compound
PRODUCT LABEL.....: Product Label Established

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION.....: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER: Non-Regulated

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER: Unknown Rating

15. REGULATORY INFORMATION:

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS: All ingredients are on TSCA inventory.

CERCLA REPORTABLE QUANTITY: None Reported

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: None

SECTION 311/312 HAZARD CATEGORIES.....: Non-hazardous under Section 311/312.

SECTION 313 TOXIC CHEMICALS.....: None

RCRA STATUS:

If discarded in its original form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements.

New Jersey...: None

Pennsylvania: None hazardous present at 3% or greater.

CALIFORNIA PROPOSITION 65:

To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.

MASSACHUSETTS SUBSTANCE LIST (MSL)

Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. To the best of our knowledge, this product contains no substances at a level which could require reporting under the statute.

16. OTHER INFORMATION:

HMIS RATINGS: Health Flammability Reactivity

 1 1 0



O=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe