

Safety Data Sheet

ReMARKable Water Based Dry-Erase - CLEAR – RESIN PART B

Revision date: 2018/07/24

1. Identification

Product identifier used on the label

Water Based Dry-Erase - CLEAR – Resin Part B

Recommended use of the chemical and restriction on use:

DRY-ERASE COATING

* 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:

TSC Coatings LLC
Bakersfield CA 93314

800-936-2159

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: Acrylic Polymer in Water

2. Hazards Identification

According to 49 CFR Criteria & Hazardous Products Regulations (HPR) (SOR/2015-17)

Skin Sens. 1B Skin sensitization

Pictogram:



Signal Word:
Warning

Hazard Statement:

H317 May cause an allergic skin reaction.

H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280 Wear protective gloves.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P273 Avoid release to the environment.

P272 Contaminated work clothing should not be allowed out of the workplace.

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Precautionary Statements (Response):

P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.

P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.

P362 + P364 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

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 Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

SENSITIZER.

May cause sensitization by skin contact.

The statements are based on the properties of the individual components.

3. Composition / Information on Ingredients

Components	CAS Number	Concentration (Weight)
Poly(oxy-1,2-ethanediyl), .alpha.-[3-[3-(2H-benzotriazol-2- yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]- .omega.-[3-[3-(2 H- benzotriazol-2-yl)-5-(1,1- dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]-	104810-47-1	< 3 %
Poly(oxy-1,2-ethanediyl), .alpha.-[3-[3-(2H-benzotriazol-2- yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]- .omega.-hydroxy-	104810-48-2	< 3 %
bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate	41556-26-7	< 3 %
Glycol Ether DPNP	29911-27-1	< 2%
Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	82919-37-7	< 1 %
Ammonia	7664-41-7	< 1 %
Proprietary (Non-hazardous)	N/A	> 50 %

4. First-Aid Measures

Description of first aid measures

General advice:

Immediately remove contaminated clothing.

If inhaled:

Remove to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.

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If on skin:

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

If in eyes:

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician

If swallowed:

Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

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., Further important symptoms and effects are so far not known.

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: Preferable: Dry chemical, CO2 or water spray.

Unsuitable extinguishing media: Solid water jet ineffective as extinguishing medium

Special hazards arising from the substance or mixture

Hazards during fire-fighting: No information available

Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak.

Methods and material for containment and cleaning up

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Do not discharge into drains/surface waters/groundwater..

7. Handling and Storage

Precautions for safe handling

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas. In case of insufficient ventilation, wear suitable respiratory equipment.

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Conditions for safe storage, including any incompatibilities

Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep from freezing.

Storage Temperature: 15 – 25 C

Storage Area:

Protect from freezing. Store in a cool area. Keep out of direct sunlight. Store in a dry area. Store in a dark area.

INCOMPATIBLE MATERIALS: Water reactives, Oxidizing agents

8. Exposure Controls/Personal Protection

Ammonia (7664-41-7)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 25 ppm

US. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 35 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Permissible exposure limit: 50 ppm, 35 mg/m³

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 25 ppm

US. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 35 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Permissible exposure limit: 50 ppm, 35 mg/m³

Engineering Measures

Provide readily accessible eye wash stations and safety showers.

Provide natural ventilation

Personal protective equipment

Respiratory protection:

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hand protection:

Chemical resistant protective gloves

Eye protection:

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

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid inhalation of mists. Contact with eyes and skin must be avoided.

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Occupational Exposure limit(s)

N/A

9. Physical and Chemical Properties

Form:	liquid
Odor:	Slightly sweet
Color:	White
pH value:	8.0-9.0
Melting point:	No data available
Boiling point:	100 °C
Flash point:	N/A
Flammability:	N/A
Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Vapor pressure:	No data available
Viscosity, Dynamic	500-1000 CPS
Solubility in Water	Yes
Evaporation rate:	Not determined
Volatile Organic Compounds:	< 50 g/l (per AQMD)

10. Stability and Reactivity

Reactivity:
No Data Available

Chemical Stability:
Stable under normal conditions.

Conditions to avoid:
Extreme temperatures and direct sunlight

Materials to avoid:
Water reactives Oxidizing agents

Hazardous decomposition products:
Carbon monoxide. Carbon dioxide (CO₂), Hydrocarbons

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: Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

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Oral

Type of value: LD50 Species: rat

Value: > 5,000 mg/kg (OECD Guideline 401)

No mortality was observed.

Inhalation

Type of value: LC50 Species: rat

Value: > 5.8 mg/l (OECD Guideline 403) Exposure time: 4 h

No mortality was observed.

Dermal

Type of value: LD50 Species: rat

Value: > 2,000 mg/kg (OECD Guideline 402) No mortality was observed.

Assessment other acute effects Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

Skin

Species: rabbit Result: non-irritant

Method: OECD Guideline 404

Eye

Species: rabbit Result: non-irritant

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Caused skin sensitization in animal studies.

Guinea pig maximization test Species: guinea pig

Result: sensitizing

Method: OECD Guideline 406

Aspiration Hazard not applicable

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The substance may cause damage to the liver after repeated ingestion. Effect found in rodents only. The relevance to humans is questionable. Due to the species specific mode of action, the effects are not expected to occur in humans.

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity

Assessment of carcinogenicity: No data was available concerning carcinogenic activity.

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Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Teratogenicity

Assessment of teratogenicity: In animal studies the substance did not cause malformations.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Toxic to aquatic organisms based on long-term (chronic) toxicity study data.

< 10% Additives:

Toxicity to fish

LC50 (96 h) 2.8 mg/l, *Oncorhynchus mykiss* (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

LC50 (96 h) 0.97 mg/l, *Lepomis macrochirus* (OECD Guideline 203) LC50 (96 h) 7.9 mg/l, *Oncorhynchus mykiss* (OECD Guideline 203)

LC50 (96 h) 0.9 mg/l, *Brachydanio rerio* (OECD Guideline 203, semistatic)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Nominal concentration.

Aquatic invertebrates

EC50 (48 h) 4 mg/l, *Daphnia magna* (static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Nominal concentration.

Aquatic plants

EC50 (72 h) > 100 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201, static) Nominal concentration.

EC10 (72 h) 10 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201, static) Nominal concentration.

EC50 (72 h) 1.68 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 201, static) The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

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Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 0.78 mg/l, *Daphnia magna* (OECD Guideline 202, part 2, semistatic)
The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. Nominal concentration.

Soil living organisms

Toxicity to soil dwelling organisms:

LC0 (14 d) > 1,000 mg/kg, *Eisenia foetida* (OECD Guideline 207, artificial soil) No effects at the highest test concentration.

No observed effect concentration (56 d) 100 mg/kg, *Eisenia foetida* (OECD Guideline 222, artificial soil)

No effects at the highest test concentration. Toxicity to terrestrial plants

Study scientifically not justified.

Other terrestrial non-mammals Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms OECD Guideline 209 static
activated sludge, domestic/EC50 (3 h): > 1,000 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Not readily biodegradable (by OECD criteria). Moderately/partially biodegradable. Elimination information
24 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic, non-adapted)

1 % C-14 labelling (100 d) (OECD 308) (aerobic, sediment)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

0.2 % C-14 labelling (100 d) (OECD 308) (anaerobic, sediment)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of stability in water Study scientifically not justified.

Information on Stability in Water (Hydrolysis) Study technically not feasible.

Bioaccumulative potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Bioaccumulation potential

Bioconcentration factor: 34 (502 h), *Oncorhynchus mykiss* (OECD-Guideline 305)

Mobility in soil

Assessment transport between environmental compartments Adsorption to solid soil phase is expected.

Additional information

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Other ecotoxicological advice:
Do not discharge product into the environment without control

Resin:
Biodegradation
60 %, Exposure time: 28 d, i.e. not readily degradable

Acute and Prolonged Toxicity to Fish
LC50: > 100 mg/l (Danio rerio (zebra fish), 96 h) Ecotoxicological reports on a comparable product

Acute Toxicity to Aquatic Invertebrates
EC50: 70.7 mg/l (Daphnia magna (Water flea), 48 h) Studies of a comparable product.

Toxicity to Microorganisms
EC50: > 10,000 mg/l, (activated sludge)
Ecotoxicological reports on a comparable product

13. Disposal Considerations

Dispose of in a licensed facility. Do not discharge into waterways or sewer systems without proper authorization.

Container disposal:
Dispose of in a licensed facility. Do not reuse container.

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

15. Regulatory Information

Federal Regulations:

Chemical: AICS, DSL, IECSC, EINECS, ENCS, KECL, TSCA, US - Released/Listed

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

>=1%	Water	7732-18-5
>=1%	Polyacrylate Resin	CAS# is a trade secret
>=1%	Polyether Polyol	25723-16-4
>=1%	Dipropylene Glycol	25265-71-8

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New Jersey RTK Special Hazardous Substances Lists:

Weight Percent	Components	CAS-No.
<0.5 %	Ammonia	7664-41-7

Massachusetts Right to Know Extraordinarily Hazardous Substance List:

Weight percent	Components	CAS-No.
<0.5%	Ammonia	7664-41-7
15 - 20 ppm	Distillates (petroleum), hydrotreated light naphthenic	64742-53-6

CA Prop 65: To the best of our knowledge, this product does not contain any of the listed chemical(s) known to the state of California to cause cancer, birth defects, or other reproductive harm.

16. Other Information

NFPA Hazard Codes:

Health	:	1
Fire	:	0
Reactivity	:	0
Special	:	0

SDS Prepared by:

TSC Coatings LLC

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication as part of TSC Coatings LLC. Product Safety Program. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information obtained herein. Data sheets are available for all TSC Coatings products. You are urged to obtain data sheets for all TSC Coatings products you buy, process, use, or distribute and you are encouraged and requested to advise those who may come in contact with such products of the information contained therein.

To determine applicability or effects of any law or regulation with respect to the product, user should consult his legal advisor or the appropriate government agency. TSC Coatings does not undertake to furnish advice on such matters.

Safety Data Sheet

ReMARKable Water Based Dry-Erase –Hardener Part A

Revision date: 2018/06/14

1. Identification

Product identifier used on the label

Water Based Dry-Erase –Hardener Part A

Recommended use of the chemical and restriction on use:

DRY-ERASE COATING

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Details of the supplier of the safety data sheet

Company:
TSC Coatings
Bakersfield, CA 93314

800-936-2159

Emergency telephone number

CHEMTREC: 1-800-424-9300

Other means of identification

Chemical family: Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate

2. Hazards Identification

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

Classification of the product

Acute Toxicity	4	(Inhalation - mist)
Skin Sensitization	1	
Specific Target Organ Toxicity – Single Exposure	3	(irritating to respiratory system)
Specific target organ toxicity – repeated exposure (Inhalation)	2	(lungs)
Aquatic Acute	3	

Label Elements

Pictogram:



Signal Word: Danger

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ReMARKable Water Based Dry-Erase –Hardener Part A

Revision date: 2018/06/14

Hazard Statement:

May cause an allergic skin reaction.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
May cause damage to organs (Lungs) through prolonged or repeated exposure if inhaled.

Precautionary Statements (Prevention):

Wear eye/face protection.
Wear protective gloves.
Use only outdoors or in a well-ventilated area.
Do not breathe dust/gas/mist/vapors.
In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see section 8 of the SDS.
Avoid release to the environment.
Contaminated work clothing should not be allowed out of the workplace.
Wash with plenty of water and soap thoroughly after handling

Precautionary Statements (Response):

If eye or skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN (or hair): Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Take off contaminated clothing and wash before reuse.

Precautionary Statements (Storage):

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Precautionary Statements (Disposal):

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

Hazards not otherwise classified

No specific dangers known

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

Emergency overview

WARNING:

May cause sensitization by skin contact. HARMFUL IF INHALED.
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.
Use with local exhaust ventilation. Wear protective clothing.
Wear full face shield if splashing hazard exists.

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ReMARKable Water Based Dry-Erase –Hardener Part A

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3. Composition / Information on Ingredients

Components	CAS Number	Concentration (Weight)
Poly(hexamethylene diisocyanate)	28182-81-2	> 60 %
Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	666723-27-9	< 30 %
Proprietary	Proprietary	< 25 %

4. First-Aid Measures

Description of first aid measures

General advice:

Immediately 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. Seek medical attention.

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

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote, administer corticosteroid dose aerosol to prevent pulmonary edema.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: dry powder, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting: harmful vapors

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Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Protection against fire and explosion:

Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

Storage stability:

If moisture enters isocyanate containers, CO₂ forms and pressure builds up.

8. Exposure Controls/Personal Protection

Engineering Measures

Provide readily accessible eye wash stations and safety showers.

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator. Do not exceed the maximum use concentration for the respirator face piece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full face piece pressure demand self-contained breathing apparatus (SCBA) or a full face piece pressure

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demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves

Eye protection:

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

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid inhalation of mists. Contact with eyes and skin must be avoided.

Occupational Exposure limit(s)

1, 6 – hexamethylene diisocyanate	Time Weighted Average (TWA): ACGIH TLV	0.005 ppm
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9. Physical and Chemical Properties

Form:	liquid
Odor:	Slight, fruity
Color:	Clear, Colorless to slight yellow
pH value:	N/A
Melting point:	No data available
Boiling point:	Decomposition
Flash point:	> 185 °C
Flammability:	Not flammable
Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Auto ignition:	445 °C
Vapor pressure:	< 0.03 hPa at 20 °C
Density:	1.15 g/cm ³ at 20 °C
Viscosity, Dynamic	500-1000 CPS
Solubility in Water	Insoluble - Reacts slowly with water to liberate CO ₂ gas
Evaporation rate:	Not determined

10. Stability and Reactivity

Corrosion to metals:

Corrosion effect on metals are not anticipated

Chemical Stability:

Stable under normal conditions.

Conditions to avoid:

Heat, flames and sparks. Protect from freezing.

Materials to avoid:

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Water, Amines, Strong bases, Alcohols, Copper alloys

Hazardous decomposition products:

By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

Possibility of hazardous Reactions/Reactivity:

Reacts with alcohols. Reacts with amines. Reacts with substances which contain active hydrogen. Reacts with water, with formation of carbon dioxide. The formation of gaseous decomposition products builds up pressure in tightly closed containers.

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: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Of moderate toxicity after short-term inhalation.

Oral

Type of value: LD₅₀

Species: rat

Value: > 5,000 mg/kg

Inhalation

Type of value: LC₅₀ Species: rat

Value: (OECD Guideline 403) Exposure time: 4 h

The test result applies only to the substance transferred into respirable aerosol (particles < 20 µm).

Dermal

Type of value: LD₅₀ Species: rat

No data available.

Irritation / corrosion

Assessment of irritating effects: Not irritating to eyes and skin. Irritating to respiratory system.

Skin

Species: rabbit Result: non-irritant

Method: OECD Guideline 404

Eye

Species: rabbit Result: non-irritant

Sensitization

Assessment of sensitization: Caused skin sensitization in animal studies.

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Guinea pig maximization test Species: guinea pig

Result: sensitizing

Sensitizing effect in animal tests

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Based on available Data, the classification criteria are not met.

Symptoms of Exposure

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

Toxicity Data for Homopolymer of Hexamethylene Diisocyanate

Toxicity Note

Data is based on a similar product, including residual monomer.

Acute Oral Toxicity

LD50: > 5000 mg/kg (rat, female) (OECD Test Guideline 423) Toxicological studies at the product

Acute Inhalation Toxicity

LC50: 0.39 mg/l, 4 h (rat, female) (OECD Test Guideline 403)

Toxicological studies of a comparable product. The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity

LD50: > 2000 mg/kg (rat, male/female) (OECD Test Guideline 402) Studies of a comparable product.

LD50: > 2000 mg/kg (rabbit, male/female) Studies of a comparable product.

Skin Irritation

rabbit, OECD Test Guideline 404, slight irritant Toxicological studies at the product

Eye Irritation

rabbit, OECD Test Guideline 405, slight irritant Toxicological studies at the product

Sensitization

Skin sensitization (local lymph node assay (LLNA)) : Causes sensitization. (mouse, OECD Test Guideline 429)

Toxicological studies at the product

Respiratory sensitization: sensitizer Studies of a comparable product.

Repeated Dose Toxicity

90 d, Inhalant: NOAEL: 3,3, (rat, male/female, 6 hours a day, 5 days a week)

Toxicological studies of a comparable product. Evidence of damage to organs other than the organs of respiration was not found.

Mutagenicity

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Genetic Toxicity in Vitro:

Salmonellal microsome test (Ames test): No indication of mutagenic effects. (Metabolic Activation: with/without)

Toxicological studies at the product

Chromosome aberration test in vitro: negative (Chinese hamster V79 cell line, Metabolic Activation: with/without)

Toxicological studies of a comparable product.

Point mutation in mammalian cells (HPRT test): negative (Metabolic Activation: with/without) Toxicological studies of a comparable product.

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.

Toxicity to fish

LC0 (96 h) \geq 100 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static)

The product may hydrolyse. The test result may be partially due to degradation products. The product has low solubility in the test medium. An eluate has been tested. Limit concentration test only (LIMIT test). The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates

EC0 (48 h) \geq 100 mg/l, Daphnia magna (Directive 92/69/EEC, C.2, static)

The product may hydrolyse. The test result may be partially due to degradation products. The product has low solubility in the test medium. An eluate has been tested. Limit concentration test only (LIMIT test). The details of the toxic effect relate to the nominal concentration.

Aquatic plants

EL50 (72 h) $>$ 100 mg/l (growth rate), Desmodemus subspicatus (OECD Guideline 201, static)

The product may hydrolyse. The test result may be partially due to degradation products. The product has low solubility in the test medium. An eluate has been tested. The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish

Study does not need to be conducted.

Chronic toxicity to aquatic invertebrates

Study does not need to be conducted.

Assessment of terrestrial toxicity

Study does not need to be conducted.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 static

Activated sludge, domestic/EC20 (3 h): 134.5 mg/l

The product may hydrolyse. The test result may be partially due to degradation products. The details of the

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toxic effect relate to the nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Not readily biodegradable (by OECD criteria). The product is unstable in water. The elimination data also refer to products of hydrolysis.

Elimination information

1 % BOD of the ThOD (28 d) (OECD 301D; EEC 92/69, C.4-E) (aerobic, activated sludge, domestic, non-adapted)

Assessment of stability in water

In contact with water the substance will hydrolyze rapidly.

Information on Stability in Water (Hydrolysis)

Study does not need to be conducted.

Bioaccumulative Potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Bioaccumulation potential

Study scientifically not justified.

Mobility in soil

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.

Additional information

Additional Remarks Environment Fate & Pathway:

Treatment in biological waste water treatment plants has to be performed according to local and administrative regulations.

Other Ecotoxicological advice:

Do not release untreated into natural waters. The local regulations on waste-water treatment must be followed.

13. Disposal Considerations

Dispose of in a licensed facility. Do not discharge into waterways or sewer systems without proper authorization.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport

USDOT

Not Classified as a Dangerous Good under Transport Regulations

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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

15. Regulatory Information

Federal Regulations:

Chemical: TSCA, US - Released/Listed

CAS Number	Chemical Name
28182-81-2	Poly(hexamethylene diisocyanate)
666723-27-9	Hydrophilic Aliphatic Polyisocyanate based on hexamethylene diisocyanate
98-94-2	N,N- dimethylcyclohexylamine
822-06-0	1, 6-hexamethylene diisocyanate

CA Prop 65: TO THE BEST OF OUR KNOWLEDGE, THIS PRODUCT DOES NOT CONTAIN ANY OF THE LISTED CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM

16. Other Information

NFPA Hazard Codes:

Health : 2
Fire : 1
Reactivity : 0
Special :

HMIS Rating

Health : 2
Flammability : 1
Physical hazard : 1

SDS Prepared by:

TSC Coatings LLC

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication as part of TSC Coatings LLC. Product Safety Program. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information obtained herein. Data sheets are available for all TSC Coatings products. You are urged to obtain data sheets for all TSC Coatings products you buy, process, use or distribute and you are encouraged and requested to advise those who may come in contact with such products of the information contained therein.

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To determine applicability or effects of any law or regulation with respect to the product, user should consult his legal advisor or the appropriate government agency. TSC Coatings does not undertake to furnish advice on such matters.