


E-247
Solvent based Hardeners

SECTION 1: IDENTIFICATION

- 1.1 GHS Product identifier:** E-247
Solvent based Hardeners
- Other means of identification:**
Non-applicable
- 1.2 Recommended use of the chemical and restrictions on use:**
Relevant uses: Hardener for coatings. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3
- 1.3 Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:**
BERNARDO ECENARRO, S.A.
Ugarte Industrialdea, 147
20720 Azkoitia - Gipuzkoa - Spain
Phone: +34 943 74 28 00 - Fax: +34 943 74 06 03
msds@besa.es
<http://www.besa.es>
- 1.4 Emergency phone number:** +34 943742800 (8:00-13:00) (14:30-17:30)

SECTION 2: HAZARD(S) IDENTIFICATION

- 2.1 Classification of the substance or mixture:**
29 CFR 1910.1200:
Classification of this product has been carried out in accordance with paragraph (d) of § 1910.1200.
Acute Tox. 4: Acute inhalation toxicity, Category 4, H332
Flam. Liq. 3: Flammable liquids, Category 3, H226
Repr. 1B: Reproductive toxicity, Category 1B, H360
Skin Sens. 1A: Sensitisation, skin, Category 1A, H317
STOT RE 2: Specific target organ toxicity — Repeated exposure, Hazard Category 2 (Oral), H373
STOT SE 3: Respiratory tract toxicity, single exposure, Category 3, H335
- 2.2 Label elements:**
29 CFR 1910.1200:
Danger
- 
- Hazard statements:**
Acute Tox. 4: H332 - Harmful if inhaled.
Flam. Liq. 3: H226 - Flammable liquid and vapour.
Repr. 1B: H360 - May damage fertility or the unborn child.
Skin Sens. 1A: H317 - May cause an allergic skin reaction.
STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure (Oral).
STOT SE 3: H335 - May cause respiratory irritation.
- Precautionary statements:**
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280: Wear protective gloves/face protection/protective clothing/respiratory protection/protective footwear.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P370+P378: In case of fire: Use ABC powder extinguisher to put it out.
P501: Dispose of contents and / or containers in accordance with regulations on hazardous waste or packaging and packaging waste respectively.
- Substances that contribute to the classification**
Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O); heptan-2-one; Xylene; Dibutyltin Dilaurate
- 2.3 Hazards not otherwise classified (HNOC):**
Non-applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

3.1 Substances:








Non-applicable

3.2 Mixtures:

Chemical description: Mixture composed of additives and resins in solvents

Components:

Remaining components are non-hazardous and/or present at amounts below reportable limits. The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200. Therefore, in accordance with Appendix D to § 1910.1200, the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 28182-81-2	Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) Acute Tox. 4: H332; Skin Sens. 1: H317; STOT SE 3: H335 - Warning	 50 - <100 %
CAS: 110-43-0	heptan-2-one Acute Tox. 4: H302+H332; Flam. Liq. 3: H226 - Warning	 10 - <25 %
CAS: 123-86-4	N-butyl acetate Flam. Liq. 3: H226; STOT SE 3: H336 - Warning	 10 - <25 %
CAS: 64742-95-6	Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 Asp. Tox. 1: H304; Flam. Liq. 3: H226; Skin Irrit. 2: H315; STOT SE 3: H336 - Danger	 2,5 - <5 %
CAS: 1330-20-7	Xylene Acute Tox. 4: H312+H332; Asp. Tox. 1: H304; Eye Irrit. 2A: H319; Flam. Liq. 3: H226; Skin Irrit. 2: H315; STOT RE 2: H373; STOT SE 3: H335 - Danger	 2,5 - <5 %
CAS: 77-58-7	Dibutyltin Dilaurate Eye Irrit. 2A: H319; Muta. 2: H341; Repr. 1B: H360; Skin Sens. 1: H317; STOT RE 1: H372; STOT SE 1: H370 - Danger	 0,2 - <0,25 %
CAS: 22504-50-3	Ethylene bis(3-mercaptopropionate) Acute Tox. 4: H302+H312; Eye Irrit. 2A: H319; Skin Sens. 1A: H317 - Warning	 <0,2 %

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

SECTION 4: FIRST-AID MEASURES

4.1 Description of necessary measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure, provide with fresh air and keep at rest. In serious cases such as cardiorespiratory failure, artificial resuscitation techniques will be necessary (mouth to mouth resuscitation, cardiac massage, oxygen supply, etc.) requiring immediate medical assistance.

By skin contact:

May cause an allergic skin reaction. In case of contact it is recommended to clean the affected area thoroughly with water and neutral soap. In case of changes on the skin (stinging, redness, rashes, blisters,...), seek medical advice with this Safety Data Sheet

By eye contact:

Rinse eyes thoroughly with water for at least 15 minutes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, as this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Non-applicable

SECTION 5: FIRE-FIGHTING MEASURES

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SECTION 5: FIRE-FIGHTING MEASURES (continued)

5.1 Suitable (and unsuitable) extinguishing media:

Suitable extinguishing media:

If possible use polyvalent powder fire extinguishers (ABC powder), alternatively use foam or carbon dioxide extinguishers (CO₂).

Unsuitable extinguishing media:

IT IS RECOMMENDED NOT to use full jet water as an extinguishing agent.

5.2 Specific hazards arising from the chemical:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Special protective equipment and precautions for fire-fighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and individual respiratory equipment. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...)

Additional provisions:

As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Only properly trained personnel should be involved in firefighting. Evacuate nonessential personnel from the fire area. Destroy any source of ignition. In case of fire, refrigerate the storage containers and tanks for products susceptible to inflammation. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inert medium. Remove any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

6.2 Environmental precautions:

The characteristic of Ignitability per RCRA could apply to the unused product if it becomes a waste material. The EPA hazardous waste number D001 could apply. It is the responsibility of the waste generator to evaluate whether his wastes are hazardous by characteristics or listing.

6.3 Methods and materials for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- General precautions for safe use

Comply with the current standards 29 CFR 1910 Occupational Safety and Health Standards. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions

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SECTION 7: HANDLING AND STORAGE (continued)

Because the product is a flammable liquid, storage should meet the requirement of 29 CFR 1910.106, Flammable and Combustible Liquids Code. Transfer in well ventilated areas, preferably through localized extraction. Fully control sources of ignition (mobile phones, sparks,...) and ventilate during cleaning operations. Avoid the existence of dangerous atmospheres inside containers, applying inertization systems where possible. Transfer at a slow speed to avoid the creation of electrostatic charges. Against the possibility of electrostatic charges: ensure a perfect equipotential connection, always use groundings, do not wear work clothes made of acrylic fibres, preferably wearing cotton clothing and conductive footwear. Comply with the essential security requirements for equipment and systems and with the minimum requirements for protecting the security and health of workers. Consult section 10 for conditions and materials that should be avoided.

C.- Technical recommendations on general occupational hygiene

PREGNANT WOMEN SHOULD NOT BE EXPOSED TO THIS PRODUCT. Transfer in fixed places that comply with the necessary security conditions (emergency showers and eyewash stations in close proximity), using personal protection equipment, especially on the hands and face (See section 8). Limit manual transfers to containers of small amounts. Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Minimum Temp.: 41 °F
Maximum Temp.: 86 °F
Maximum time: 12 Months

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the workplace:

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000):

Identification		Occupational exposure limits	
N-butyl acetate CAS: 123-86-4	8-hour TWA PEL	150 ppm	710 mg/m ³
	Ceiling Values - TWA PEL		
heptan-2-one CAS: 110-43-0	8-hour TWA PEL	100 ppm	465 mg/m ³
	Ceiling Values - TWA PEL		
Xylene CAS: 1330-20-7	8-hour TWA PEL	100 ppm	435 mg/m ³
	Ceiling Values - TWA PEL		
Dibutyltin Dilaurate CAS: 77-58-7	8-hour TWA PEL		0.1 mg/m ³
	Ceiling Values - TWA PEL		

US. ACGIH Threshold Limit Values (2022):

Identification		Occupational exposure limits	
N-butyl acetate CAS: 123-86-4	TLV-TWA	20 ppm	
	TLV-STEL		
Hexamethylene-di-isocyanate CAS: 822-06-0	TLV-TWA	0.005 ppm	
	TLV-STEL		
heptan-2-one CAS: 110-43-0	TLV-TWA	50 ppm	
	TLV-STEL		
Xylene CAS: 1330-20-7	TLV-TWA	100 ppm	
	TLV-STEL	150 ppm	
Dibutyltin Dilaurate CAS: 77-58-7	TLV-TWA		0.1 mg/m ³
	TLV-STEL		0.2 mg/m ³

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

CALIFORNIA- TABLE AC-1 PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS:

Identification		Occupational exposure limits	
N-butyl acetate CAS: 123-86-4	PEL	150 ppm	710 mg/m ³
	STEL	200 ppm	950 mg/m ³
Hexamethylene-di-isocyanate CAS: 822-06-0	PEL	0.005 ppm	0.034 mg/m ³
	STEL		
heptan-2-one CAS: 110-43-0	PEL	50 ppm	235 mg/m ³
	STEL		
Xylene CAS: 1330-20-7	PEL	100 ppm	435 mg/m ³
	STEL	150 ppm	655 mg/m ³
Dibutyltin Dilaurate CAS: 77-58-7	PEL		0.1 mg/m ³
	STEL		

Biological limit values:

Biological Exposure Indices (BEIs®) - ACGIH


Identification	BEIs®	Determinant	Sampling Time
Hexamethylene-di-isocyanate CAS: 822-06-0	0.015 mg/g (NULL)	1,6-Hexamethylene diamine in urine	End of shift
Xylene CAS: 1330-20-7	1500 mg/g (NULL)	Methylhippuric acids in urine	End of shift

8.2 Appropriate engineering controls:


A.- Individual protection measures, such as personal protective equipment

As a preventative measure it is recommended to use basic Personal Protection Equipment. For more information on Personal Protection Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation, the information on clothing performance must be combined with professional judgment, and a clear understanding of the clothing application, to provide the best protection to the worker. All chemical protective clothing use must be based on a hazard assessment to determine the risks for exposure to chemicals and other hazards. Conduct hazard assessments in accordance with 29 CFR 1910.132.

B.- Respiratory protection


Pictogram	PPE	Remarks
 Mandatory respiratory tract protection	Filter mask for gases, vapours and particles	Replace when an increase in resistance to breathing is observed and/or a smell or taste of the contaminant is detected. Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

C.- Specific protection for the hands

Pictogram	PPE	Remarks
 Mandatory hand protection	Chemical protective gloves (Material: Linear low-density polyethylene (LLDPE), Breakthrough time: > 480 min, Thickness: 0.062 mm)	The Breakthrough Time indicated by the manufacturer must exceed the period during which the product is being used. Do not use protective creams after the product has come into contact with skin. Use gloves in accordance with manufacturer's use limitations and OSHA standard 1910.138 (29CFR)

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.

D.- Eye and face protection



Pictogram	PPE	Remarks
 Mandatory face protection	Face shield	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing. Use this PPE in accordance with manufacturer's use limitations and OSHA standard 1910.133 (29CFR)

E.- Bodily protection



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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Pictogram	PPE	Remarks
 Mandatory complete body protection	Disposable clothing for protection against chemical risks, with antistatic and fireproof properties	For professional use only. Clean periodically according to the manufacturer's instructions.
 Mandatory foot protection	Safety footwear for protection against chemical risk, with antistatic and heat resistant properties	Replace boots at any sign of deterioration.

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

Environmental exposure controls:

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

40 CFR Part 59 (VOC):

V.O.C.(weight-percent):	36.58 % weight
V.O.C. at 68 °F:	376.74 kg/m ³ (376.74 g/L)

California Air Resources Board (CARB) - VOC Regulatory:

V.O.C.(weight-percent):	36.58 % weight
V.O.C. at 68 °F:	376.74 kg/m ³ (376.74 g/L)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 68 °F:	Liquid
Appearance:	Fluid
Color:	Colorless
Odor:	Solvent
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	272 °F
Vapour pressure at 68 °F:	746 Pa
Vapour pressure at 122 °F:	3884.31 Pa (3.88 kPa)
Evaporation rate at 68 °F:	Non-applicable *

Product description:

Density at 68 °F:	1010 - 1050 kg/m ³
Relative density at 68 °F:	1.01 - 1.05
Dynamic viscosity at 68 °F:	59 - 39 cP
Kinematic viscosity at 68 °F:	48 mm ² /s
Kinematic viscosity at 104 °F:	Non-applicable *
Concentration:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

pH:	Non-applicable *
Vapour density at 68 °F:	Non-applicable *
Partition coefficient n-octanol/water 68 °F:	Non-applicable *
Solubility in water at 68 °F:	Non-applicable *
Solubility properties:	Immiscible
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *

Flammability:

Flash Point:	89 °F
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	590 °F
Lower flammability limit:	Not available
Upper flammability limit:	Not available

Particle characteristics:

Median equivalent diameter:	Non-applicable
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9.2 Other information:

Information with regard to physical hazard classes:

Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *

Other safety characteristics:

Surface tension at 68 °F:	Non-applicable *
Refraction index:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Risk of combustion	Avoid direct impact	Not applicable

10.5 Incompatible materials:

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Avoid direct impact	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than recommended by the occupational exposure limits, it may result in adverse effects on health depending on the means of exposure:

A- Ingestion (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

B- Inhalation (acute effect):

- Acute toxicity : Exposure in high concentration can cause a breakdown in the central nervous system causing headache, dizziness, vertigo, nausea, vomiting, confusion, and in serious cases, loss of consciousness.
- Corrosivity/Irritability: Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for skin contact. For more information see section 3.
- Contact with the eyes: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for the effects mentioned. For more information see section 3.
IARC: Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (3); Xylene (3)
- Mutagenicity: Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous with mutagenic effects. For more information see section 3.
- Reproductive toxicity: May damage fertility or the unborn child

E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous with sensitising effects. For more information see section 3.
- Skin: Prolonged contact with the skin can result in episodes of allergic contact dermatitis.

F- Specific target organ toxicity (STOT) - single exposure:

Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

G- Specific target organ toxicity (STOT)-repeated exposure:

- Specific target organ toxicity (STOT)-repeated exposure: Exposure in high concentration can cause a breakdown in the central nervous system causing headache, dizziness, vertigo, nausea, vomiting, confusion, and in serious cases, loss of consciousness.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

Other information:

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
N-butyl acetate CAS: 123-86-4	LD50 oral	12789 mg/kg	Rat
	LD50 dermal	14112 mg/kg	Rabbit
	LC50 inhalation	23.4 mg/L (4 h)	Rat
Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) CAS: 28182-81-2	LD50 oral	2660 mg/kg	Rat
	LD50 dermal	>5000 mg/kg	
	LC50 inhalation	11 mg/L (ATEi)	

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SECTION 11: TOXICOLOGICAL INFORMATION (continued)

Identification	Acute toxicity		Genus
Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 CAS: 64742-95-6	LD50 oral	2100 mg/kg	Rat
	LD50 dermal	2000 mg/kg	Rabbit
	LC50 inhalation	>20 mg/L	
heptan-2-one CAS: 110-43-0	LD50 oral	1600 mg/kg	Rat
	LD50 dermal	>5000 mg/kg	
	LC50 inhalation	11 mg/L (4 h)	Rat
Xylene CAS: 1330-20-7	LD50 oral	2100 mg/kg	Rat
	LD50 dermal	1100 mg/kg	Rat
	LC50 inhalation	11 mg/L (ATEi)	
Dibutyltin Dilaurate CAS: 77-58-7	LD50 oral	2071 mg/kg	Rat
	LD50 dermal	>5000 mg/kg	
	LC50 inhalation	>20 mg/L	
Ethylene bis(3-mercaptopropionate) CAS: 22504-50-3	LD50 oral	303 mg/kg	Rat
	LD50 dermal	1892 mg/kg	Rabbit
	LC50 inhalation	>20 mg/L	

Acute Toxicity Estimate (ATE mix):

	ATE mix	Ingredient(s) of unknown toxicity
Oral	10666.67 mg/kg (Calculation method)	0 %
Dermal	20276.5 mg/kg (Calculation method)	0 %
Inhalation	13.5 mg/L (4 h) (Calculation method)	0 %

SECTION 12: ECOLOGICAL INFORMATION

The experimental information related to the eco-toxicological properties of the product itself is not available

12.1 Ecotoxicity (aquatic and terrestrial, where available):

Acute toxicity:

Identification	Concentration	Species	Genus	
Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) CAS: 28182-81-2	LC50	Non-applicable		
	EC50	Non-applicable		
	EC50	1000 mg/L (72 h)	Scenedesmus subspicatus	Algae
heptan-2-one CAS: 110-43-0	LC50	131 mg/L (96 h)	Pimephales promelas	Fish
	EC50	Non-applicable		
	EC50	Non-applicable		
N-butyl acetate CAS: 123-86-4	LC50	Non-applicable		
	EC50	Non-applicable		
	EC50	675 mg/L (72 h)	Scenedesmus subspicatus	Algae
Ethylene bis(3-mercaptopropionate) CAS: 22504-50-3	LC50	0.0594 mg/L (96 h)	Danio rerio	Fish
	EC50	0.35 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	0.046 mg/L (72 h)	Desmodesmus subspicatus	Algae

Chronic toxicity:

Identification	Concentration	Species	Genus	
N-butyl acetate CAS: 123-86-4	NOEC	Non-applicable		
	NOEC	23.2 mg/L	Daphnia magna	Crustacean
Xylene CAS: 1330-20-7	NOEC	1.3 mg/L	Oncorhynchus mykiss	Fish
	NOEC	1.17 mg/L	Ceriodaphnia dubia	Crustacean

12.2 Persistence and degradability:

Substance-specific information:

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SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Degradability		Biodegradability	
N-butyl acetate CAS: 123-86-4	BOD5	Non-applicable	Concentration	Non-applicable
	COD	Non-applicable	Period	5 days
	BOD5/COD	Non-applicable	% Biodegradable	84 %
Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 CAS: 64742-95-6	BOD5	0.19 g O2/g	Concentration	Non-applicable
	COD	0.44 g O2/g	Period	Non-applicable
	BOD5/COD	0.43	% Biodegradable	Non-applicable
Xylene CAS: 1330-20-7	BOD5	Non-applicable	Concentration	Non-applicable
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	88 %
Dibutyltin Dilaurate CAS: 77-58-7	BOD5	0 g O2/g	Concentration	100 mg/L
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	50 %
Ethylene bis(3-mercaptopropionate) CAS: 22504-50-3	BOD5	Non-applicable	Concentration	31 mg/L
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	53.8 %

12.3 Bioaccumulative potential:

Substance-specific information:

Identification	Bioaccumulation potential	
heptan-2-one CAS: 110-43-0	BCF	7
	Pow Log	1.98
	Potential	Low
N-butyl acetate CAS: 123-86-4	BCF	4
	Pow Log	1.78
	Potential	Low
Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 CAS: 64742-95-6	BCF	
	Pow Log	4
	Potential	
Xylene CAS: 1330-20-7	BCF	9
	Pow Log	2.77
	Potential	Low
Dibutyltin Dilaurate CAS: 77-58-7	BCF	31
	Pow Log	3.12
	Potential	Moderate
Ethylene bis(3-mercaptopropionate) CAS: 22504-50-3	BCF	
	Pow Log	1.94
	Potential	

12.4 Mobility in soil:

Identification	Absorption/desorption		Volatility	
heptan-2-one CAS: 110-43-0	Koc	280	Henry	17.12 Pa·m ³ /mol
	Conclusion	Moderate	Dry soil	Yes
	Surface tension	2.612E-2 N/m (77 °F)	Moist soil	Yes
N-butyl acetate CAS: 123-86-4	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	2.478E-2 N/m (77 °F)	Moist soil	Non-applicable
Xylene CAS: 1330-20-7	Koc	202	Henry	524.86 Pa·m ³ /mol
	Conclusion	Moderate	Dry soil	Yes
	Surface tension	Non-applicable	Moist soil	Yes

12.5 Results of PBT and vPvB assessment:

Non-applicable

12.6 Other adverse effects:

Not described

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations. In case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. Waste should not be disposed of to drains. See epigraph 6.2.

Regulations related to waste management:

Legislation related to waste management:

40 CFR Part 261- IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:

With regard to 49 CFR on the Transport of Dangerous Goods:



- 14.1 UN number:** UN1263
- 14.2 UN proper shipping name:** PAINT RELATED MATERIAL
- 14.3 Transport hazard class(es):** 3
Labels: 3
- 14.4 Packing group, if applicable:** III
- 14.5 Marine pollutant:** No
- 14.6 Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises**
Physico-Chemical properties: see section 9
Limited quantities: 5 L
- 14.7 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Non-applicable

Transport of dangerous goods by sea:

With regard to IMDG 40-20:



- 14.1 UN number:** UN1263
- 14.2 UN proper shipping name:** PAINT RELATED MATERIAL
- 14.3 Transport hazard class(es):** 3
Labels: 3
- 14.4 Packing group, if applicable:** III
- 14.5 Marine pollutant:** No
- 14.6 Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises**
Special regulations: 163, 223, 955, 367
EmS Codes: F-E, S-E
Physico-Chemical properties: see section 9
Limited quantities: 5 L
Segregation group: Non-applicable
- 14.7 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Non-applicable

Transport of dangerous goods by air:

With regard to IATA/ICAO 2022:

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SECTION 14: TRANSPORT INFORMATION (continued)



14.1 UN number:	UN1263
14.2 UN proper shipping name:	PAINT RELATED MATERIAL
14.3 Transport hazard class(es):	3
Labels:	3
14.4 Packing group, if applicable:	III
14.5 Marine pollutant:	No
14.6 Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	
Physico-Chemical properties:	see section 9
14.7 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):	Non-applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

- CALIFORNIA LABOR CODE - The Hazardous Substances List: *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Xylene (1330-20-7)*; *Dibutyltin Dilaurate (77-58-7)*
 - California Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986) - Birth defects or other reproductive harm: Non-applicable
 - California Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986) - Cancer: Non-applicable
 - CANADA-Domestic Substances List (DSL): *Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) (28182-81-2)*; *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*; *Dibutyltin Dilaurate (77-58-7)*
 - CANADA-Non-Domestic Substances List (NDSL): *Ethylene bis(3-mercaptopropionate) (22504-50-3)*
 - Hazardous Air Pollutants (Clean Air Act): *Xylene (1330-20-7)*
 - Massachusetts RTK - Substance List: *Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) (28182-81-2)*; *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*
 - Minnesota - Hazardous substances ERTK: *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*; *Dibutyltin Dilaurate (77-58-7)*
 - New Jersey Worker and Community Right-to-Know Act: *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*
 - New York RTK - Substance list: *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Xylene (1330-20-7)*
 - NTP (National Toxicology Program): *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*
 - OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096): Non-applicable
 - Pennsylvania Worker and Community Right-to-Know Law: *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*
 - Rhode Island - Hazardous substances RTK: *N-butyl acetate (123-86-4)*; *Xylene (1330-20-7)*
 - The Toxic Substances Control Act (TSCA) : *Hexamethylene diisocyanate, oligomers (<0.1 % O=C=N-R-N=C=O) (28182-81-2)*; *heptan-2-one (110-43-0)*; *N-butyl acetate (123-86-4)*; *Solvent naphtha (petroleum), light arom., < 0.1 % EC 200-753-7 (64742-95-6)*; *Xylene (1330-20-7)*; *Dibutyltin Dilaurate (77-58-7)*; *Ethylene bis(3-mercaptopropionate) (22504-50-3)*
 - Toxic chemical release reporting under EPCRA section 313 (40 CFR Part 372): *Xylene (1330-20-7)*
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantities: N-butyl acetate (5000 pounds); Xylene (100 pounds)

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of the local circumstances in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Take into consideration other applicable federal, state, and local laws and local regulations.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Appendix d to §1910.1200 - Safety data sheets

Texts of the legislative phrases mentioned in section 2:

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SECTION 16: OTHER INFORMATION (continued)

H317: May cause an allergic skin reaction.
H335: May cause respiratory irritation.
H373: May cause damage to organs through prolonged or repeated exposure (Oral).
H360: May damage fertility or the unborn child.
H332: Harmful if inhaled.
H226: Flammable liquid and vapour.

Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

29 CFR 1910.1200:

Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin.
Acute Tox. 4: H302+H332 - Harmful if swallowed or if inhaled.
Acute Tox. 4: H312+H332 - Harmful in contact with skin or if inhaled.
Acute Tox. 4: H332 - Harmful if inhaled.
Asp. Tox. 1: H304 - May be fatal if swallowed and enters airways.
Eye Irrit. 2A: H319 - Causes serious eye irritation.
Flam. Liq. 3: H226 - Flammable liquid and vapour.
Muta. 2: H341 - Suspected of causing genetic defects.
Repr. 1B: H360 - May damage fertility or the unborn child.
Skin Irrit. 2: H315 - Causes skin irritation.
Skin Sens. 1: H317 - May cause an allergic skin reaction.
Skin Sens. 1A: H317 - May cause an allergic skin reaction.
STOT RE 1: H372 - Causes damage to organs through prolonged or repeated exposure (oral).
STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure (Oral).
STOT SE 1: H370 - Causes damage to organs.
STOT SE 3: H335 - May cause respiratory irritation.
STOT SE 3: H336 - May cause drowsiness or dizziness.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Occupational Safety & Health Administration (OSHA).

Abbreviations and acronyms:

IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
COD: Chemical Oxygen Demand
BOD5: 5-day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
CL50: Lethal Concentration 50
EC50: Effective concentration 50
Log-POW: Octanol-water partition coefficient
Koc: Partition coefficient of organic carbon
IARC: International Agency for Research on Cancer

Date of compilation: 11/1/2012

Revised: 12/7/2022

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END OF SAFETY DATA SHEET