


190021 - Hardener PU 021 High Solids**SECTION 1: IDENTIFICATION**

- 1.1 GHS Product identifier:** 190021 - Hardener PU 021 High Solids
- 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:**
Valresa Coatings, S.A.
Pol. Ind. Reva S-13 Avda. dels Gremis s/n
46190 Riba-roja de Turia - Valencia - Spain
Phone: +34 961669560 - Fax: +34 961668665
safety@valresa.com
www.valresa.com
- 1.4 Emergency phone number:**

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.
Eye Irrit. 2A: Eye irritation, Category 2A, H319
Flam. Liq. 2: Flammable liquids, Category 2, H225
Skin Irrit. 2: Skin irritation, Category 2, H315
Skin Sens. 1: Sensitisation, skin, Category 1, H317
STOT RE 2: Specific target organ toxicity — Repeated exposure, Hazard Category 2 (Oral), H373
STOT SE 3: Specific toxicity causing drowsiness and dizziness, single exposure, Category 3, H336
STOT SE 3: Respiratory tract toxicity, single exposure, Category 3, H335
- 2.2 Label elements:**
29 CFR 1910.1200:
Danger
- 
- Hazard statements:**
Causes serious eye irritation.
Highly flammable liquid and vapour.
Causes skin irritation.
May cause an allergic skin reaction.
May cause damage to organs through prolonged or repeated exposure (Oral).
May cause drowsiness or dizziness.
May cause respiratory irritation.
- Precautionary statements:**
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Wear protective gloves/protective clothing/respiratory protection/eye protection/protective footwear.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of fire: Use ABC powder extinguisher to put it out.
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**
N-butyl acetate; Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidene-trimethanol; Reaction mass of ethylbenzene and m-xylene and p-xylene; Ethyl acetate
- 2.3 Hazards not otherwise classified (HNOC):**
Non-applicable

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances:

Non-applicable

3.2 Mixtures:

Chemical description: polyisocyanate

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: 123-86-4	N-butyl acetate Flam. Liq. 3: H226; STOT SE 3: H336 - Warning	25 - <50 %
CAS: 53317-61-6	Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidenetriethanol Eye Irrit. 2A: H319; Skin Sens. 1: H317 - Warning	10 - <25 %
CAS: Non-applicable	Reaction mass of ethylbenzene and m-xylene and p-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	10 - <25 %
CAS: 141-78-6	Ethyl acetate Eye Irrit. 2A: H319; Flam. Liq. 2: H225; STOT SE 3: H336 - Danger	10 - <25 %
CAS: 9017-01-0	Toluene diisocyanate homopolymer Eye Irrit. 2A: H319; Skin Sens. 1: H317 - Warning	5 - <10 %

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:

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. 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

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).

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 5: FIRE-FIGHTING MEASURES (continued)

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:

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

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

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 7: HANDLING AND STORAGE (continued)

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

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		
	8-hour TWA PEL	400 ppm	1400 mg/m ³
Ethyl acetate CAS: 141-78-6	Ceiling Values - TWA PEL		
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	8-hour TWA PEL	100 ppm	435 mg/m ³
	Ceiling Values - TWA PEL		
N-butyl acetate CAS: 123-86-4	8-hour TWA PEL	150 ppm	710 mg/m ³
	Ceiling Values - TWA PEL		

US. ACGIH Threshold Limit Values (2022):

Identification	Occupational exposure limits		
	TLV-TWA	150 ppm	
Ethyl acetate CAS: 141-78-6	TLV-STEL		
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	TLV-TWA	100 ppm	
	TLV-STEL	150 ppm	
N-butyl acetate CAS: 123-86-4	TLV-TWA	20 ppm	
	TLV-STEL		

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

Identification	Occupational exposure limits		
	PEL	400 ppm	1400 mg/m ³
Ethyl acetate CAS: 141-78-6	STEL		
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	PEL	100 ppm	435 mg/m ³
	STEL	150 ppm	655 mg/m ³
N-butyl acetate CAS: 123-86-4	PEL	150 ppm	710 mg/m ³
	STEL	200 ppm	950 mg/m ³

Biological limit values:

Biological Exposure Indices (BEIs®) - ACGIH

Identification	BEIs®	Determinant	Sampling Time
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	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

190021 - Hardener PU 021 High Solids


SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

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 and vapours	Replace when there is a taste or smell of the contaminant inside the face mask. If the contaminant comes with warnings it is recommended to use isolation equipment. 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	Panoramic glasses against splash/projections.	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

Pictogram	PPE	Remarks
 Mandatory complete body protection	Antistatic and fireproof protective clothing	Limited protection against flames.
 Mandatory foot protection	Safety footwear with antistatic and heat resistant properties	Replace boots at any sign of deterioration. Use foot protection in accordance with manufacturer's use limitations and OSHA standard 1910.136 (29CFR)

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):	66.22 % weight
V.O.C. at 77 °F:	638.9 kg/m ³ (638.9 g/L)

- CONTINUED ON NEXT PAGE -

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:	Not available
Color:	Not available
Odor:	Not available
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	233 °F
Vapour pressure at 77 °F:	4713 Pa
Vapour pressure at 122 °F:	14816.21 Pa (14.82 kPa)
Evaporation rate at 77 °F:	Non-applicable *

Product description:

Density at 77 °F:	964.9 kg/m ³
Relative density at 77 °F:	0.965
Dynamic viscosity at 77 °F:	998.64 cP
Kinematic viscosity at 77 °F:	1035.01 mm ² /s
Kinematic viscosity at 104 °F:	Non-applicable *
Concentration:	Non-applicable *
pH:	Non-applicable *
Vapour density at 77 °F:	Non-applicable *
Partition coefficient n-octanol/water 77 °F:	Non-applicable *
Solubility in water at 77 °F:	Non-applicable *
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *

Flammability:

Flash Point:	61 °F
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	790 °F
Lower flammability limit:	Not available
Upper flammability limit:	Not available

Particle characteristics:

Median equivalent diameter:	Non-applicable
-----------------------------	----------------

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 77 °F:	Non-applicable *
---------------------------	------------------

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

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

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.

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, as it does not contain substances classified as hazardous for consumption. For more information see section 3
- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.
- 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: Produces skin inflammation.
- Contact with the eyes: Produces eye damage after contact.

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: Reaction mass of ethylbenzene and m-xylene and p-xylene (3); Toluene Diisocyanate (2B)
- Mutagenicity: 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.
- Reproductive toxicity: 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.

E- Sensitizing effects:

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- 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
Ethyl acetate CAS: 141-78-6	LD50 oral	4100 mg/kg	Rat
	LD50 dermal	20000 mg/kg	Rabbit
	LC50 inhalation	>20 mg/L	
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	LD50 oral	2100 mg/kg	Rat
	LD50 dermal	1100 mg/kg	Rat
	LC50 inhalation	11 mg/L (ATEi)	
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
Toluene diisocyanate homopolymer CAS: 9017-01-0	LD50 oral	>5000 mg/kg	
	LD50 dermal	>5000 mg/kg	
	LC50 inhalation	>20 mg/L	
Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidene-trimethanol CAS: 53317-61-6	LD50 oral	>5000 mg/kg	
	LD50 dermal	>5000 mg/kg	
	LC50 inhalation	>20 mg/L	

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

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
	LC50	Non-applicable		
N-butyl acetate CAS: 123-86-4	LC50	Non-applicable		
	EC50	Non-applicable		
	EC50	675 mg/L (72 h)	Scenedesmus subspicatus	Algae
Ethyl acetate CAS: 141-78-6	LC50	230 mg/L (96 h)	Pimephales promelas	Fish
	EC50	717 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	3300 mg/L (48 h)	Scenedesmus subspicatus	Algae

Chronic toxicity:

Identification	Concentration		Species	Genus
	NOEC	Non-applicable		
N-butyl acetate CAS: 123-86-4	NOEC	Non-applicable		
	NOEC	23.2 mg/L	Daphnia magna	Crustacean
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	NOEC	1.3 mg/L	Oncorhynchus mykiss	Fish
	NOEC	1.17 mg/L	Ceriodaphnia dubia	Crustacean
Ethyl acetate CAS: 141-78-6	NOEC	9.65 mg/L	Pimephales promelas	Fish
	NOEC	2.4 mg/L	Daphnia magna	Crustacean

12.2 Persistence and degradability:

Identification	Degradability		Biodegradability	
	BOD5	Non-applicable	Concentration	Non-applicable
N-butyl acetate CAS: 123-86-4	COD	Non-applicable	Period	5 days
	BOD5/COD	Non-applicable	% Biodegradable	84 %
	BOD5	Non-applicable	Concentration	Non-applicable
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	88 %
	BOD5	1.36 g O2/g	Concentration	100 mg/L
Ethyl acetate CAS: 141-78-6	COD	1.69 g O2/g	Period	14 days
	BOD5/COD	0.8	% Biodegradable	83 %

12.3 Bioaccumulative potential:

Identification	Bioaccumulation potential	
	BCF	4
N-butyl acetate CAS: 123-86-4	Pow Log	1.78
	Potential	Low

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Bioaccumulation potential	
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	BCF	9
	Pow Log	2.77
	Potential	Low
Ethyl acetate CAS: 141-78-6	BCF	30
	Pow Log	0.73
	Potential	Moderate

12.4 Mobility in soil:

Identification	Absorption/desorption		Volatility	
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
Reaction mass of ethylbenzene and m-xylene and p-xylene CAS: Non-applicable	Koc	202	Henry	524.86 Pa·m ³ /mol
	Conclusion	Moderate	Dry soil	Yes
	Surface tension	Non-applicable	Moist soil	Yes
Ethyl acetate CAS: 141-78-6	Koc	59	Henry	13.58 Pa·m ³ /mol
	Conclusion	Very High	Dry soil	Yes
	Surface tension	2.324E-2 N/m (77 °F)	Moist soil	Yes

12.5 Results of PBT and vPvB assessment:

Non-applicable

12.6 Other adverse effects:

Not described

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:

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids

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
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:



- 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:

- CONTINUED ON NEXT PAGE -

190021 - Hardener PU 021 High Solids**SECTION 15: REGULATORY INFORMATION (continued)**

Toxic chemical release reporting under EPCRA section 313 (40 CFR Part 372): Reaction mass of ethylbenzene and m-xylene and p-xylene

California Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986) - Cancer: Non-applicable

The Toxic Substances Control Act (TSCA) : N-butyl acetate ; Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidene-trimethanol ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate ; Toluene diisocyanate homopolymer

Massachusetts RTK - Substance List: N-butyl acetate ; Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidene-trimethanol ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate ; Toluene diisocyanate homopolymer

New Jersey Worker and Community Right-to-Know Act: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

New York RTK - Substance list: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

Pennsylvania Worker and Community Right-to-Know Law: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

CANADA-Domestic Substances List (DSL): N-butyl acetate ; Toluene diisocyanate, oligomeric reaction products with 2,2'-oxydiethanol and propylidene-trimethanol ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate ; Toluene diisocyanate homopolymer

CANADA-Non-Domestic Substances List (NDSL): Non-applicable

NTP (National Toxicology Program): Non-applicable

Minnesota - Hazardous substances ERTK: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

Rhode Island - Hazardous substances RTK: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096): Non-applicable

Hazardous Air Pollutants (Clean Air Act): Reaction mass of ethylbenzene and m-xylene and p-xylene

CALIFORNIA LABOR CODE - The Hazardous Substances List: N-butyl acetate ; Reaction mass of ethylbenzene and m-xylene and p-xylene ; Ethyl acetate

California Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986) - Birth defects or other reproductive harm: Non-applicable

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantities: N-butyl acetate (5000 pounds) ; Reaction mass of ethylbenzene and m-xylene and p-xylene (100 pounds) ; Ethyl acetate (5000 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:

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H335: May cause respiratory irritation.

H315: Causes skin irritation.

H373: May cause damage to organs through prolonged or repeated exposure (Oral).

H317: May cause an allergic skin reaction.

H225: Highly 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:

- CONTINUED ON NEXT PAGE -

SECTION 16: OTHER INFORMATION (continued)

Acute Tox. 4: H312+H332 - Harmful in contact with skin or if inhaled.
Asp. Tox. 1: H304 - May be fatal if swallowed and enters airways.
Eye Irrit. 2A: H319 - Causes serious eye irritation.
Flam. Liq. 2: H225 - Highly flammable liquid and vapour.
Flam. Liq. 3: H226 - Flammable liquid and vapour.
Skin Irrit. 2: H315 - Causes skin irritation.
Skin Sens. 1: 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.
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: 2/22/2017

Revised: 7/1/2022

Manufacturer Disclaimer: The information contained in this safety data sheet ("SDS") is based on sources, technical knowledge and current legislation. Furthermore, is based on data believed to be accurate; thus, the company does not assume any liability for its accuracy. The information provided herein cannot be considered a guarantee of the properties of this product and the same is simply a description of the security requirements. The use, occupational methodology and/or conditions for users of this product are not within our awareness or control. It is ultimately the responsibility of the user(s) to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information of this SDS only refers to this product, which should not be used for purposes other than those specified. Finally, the manner in which this product is used and whether there is any infringement of patents is the sole responsibility of the user(s).

END OF SAFETY DATA SHEET