AkzoNobel

SAFETY DATA SHEET

HB230 HARDENER

In accordance with the Standard for Classification and Labeling of Chemical Substance and Safety Data Sheet, Article 10 Paragraph 1

Section 1. Chemical product and company identification

A. Product name : HB230 HARDENER

SDS code : 21230000D

B. Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Paint. Professional use Industrial use

Uses advised against
All other uses

Product use : Solvent borne primer

C. Supplier's details

MAPAERO SAS
10, Avenue de la Rijole CS30098
09103 PAMIERS Cedex
France

e-mail address of person responsible for this SDS : PSRA_PAMIERS@akzonobel.com

Emergency telephone number (with hours of operation) : +33 (0)5 34 01 34 01
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Section 2. Hazards identification

A. Hazard classification : FLAMMABLE LIQUIDS - Category 3
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

B. GHS label elements, including precautionary statements

Symbol :

Section 2. Hazards identification

Signal word : Danger

Hazard statements : H226 - Flammable liquid and vapor.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.
H372 - Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, sparks and hot surfaces. No smoking.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe vapor.
P270 - Do not eat, drink or smoke when using this product.
P264 - Wash hands thoroughly after handling.

Response : P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Keep cool.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

C. Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Identifiers	%
Reaction mass of ethylbenzene and xylene	-	≥20 - <25
xylene	CAS: 1330-20-7	≥15 - <20
1-methoxy-2-propanol	CAS: 107-98-2	<10
butan-1-ol	-	≥1 - <5
butan-1-ol	CAS: 71-36-3	≥1 - <5
ethylbenzene	CAS: 100-41-4	≥0.1 - <5
4-methylpentan-2-one	CAS: 108-10-1	≥0.1 - <5
3,6-diazaoctanethylenediamin	CAS: 112-24-3	<10
toluene	CAS: 108-88-3	<0.3
2,2'-iminodiethylamine	CAS: 111-40-0	<1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

A. Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

B. Skin contact : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

C. Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

D. Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

E. Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

A. Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Section 5. Fire-fighting measures

B. Specific hazards arising from the chemical : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

C. Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Section 6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

B. Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

C. Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

A. Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools.

Section 7. Handling and storage

Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

B. Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

A. Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Reaction mass of ethylbenzene and xylene	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 150 ppm 15 minutes. TWA: 100 ppm 8 hours.
xylene	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 150 ppm 15 minutes. TWA: 100 ppm 8 hours.
1-methoxy-2-propanol	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 150 ppm 15 minutes. TWA: 100 ppm 8 hours.
butan-1-ol	**Ministry of Employment and Labor (Republic of Korea, 7/2018). Absorbed through skin.** TWA: 20 ppm 8 hours.
butan-1-ol	**Ministry of Employment and Labor (Republic of Korea, 1/2020). Absorbed through skin.** TWA: 20 ppm 8 hours.
ethylbenzene	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours.
4-methylpentan-2-one	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 75 ppm 15 minutes. TWA: 50 ppm 8 hours.
toluene	**Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 150 ppm 15 minutes. TWA: 50 ppm 8 hours.
2,2'-iminodiethylamine	**Ministry of Employment and Labor (Republic of Korea, 1/2020). Absorbed through skin.** TWA: 1 ppm 8 hours.

Section 8. Exposure controls/personal protection

B. Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

C. Personal protective equipment

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9. Physical and chemical properties

A. Appearance

Physical state : Liquid.

Color : Colorless.

B. Odor : Characteristic.

C. Odor threshold : Not available.

D. pH : Not available.

E. Melting/freezing point : Not available.

F. Boiling point/boiling range : Not available.

G. Flash point : Closed cup: 24°C (75.2°F)

Fire point : Not available.

H. Evaporation rate : Not available.

Section 9. Physical and chemical properties

I.	**Flammability (solid, gas)**	:	Not available.
J.	**Lower and upper explosive (flammable) limits**	:	Greatest known range: Lower: 1.48% Upper: 13.74% (1-methoxy-2-propanol)
K.	**Vapor pressure**	:	Not available.
L.	**Solubility**	:	Insoluble in the following materials: cold water.
	Solubility in water	:	Not available.
M.	**Vapor density**	:	Highest known value: 5.04 (Air = 1) (3,6-diazaoctanethylenediamin). Weighted average: 2.4 (Air = 1)
N.	**Relative density**	:	Not available.
O.	**Partition coefficient: n-octanol/water**	:	Not available.
P.	**Auto-ignition temperature**	:	Not available.
Q.	**Decomposition temperature**	:	Not available.
R.	**Viscosity**	:	Kinematic (room temperature): 0.11 cm^2/s (11 cSt) Kinematic (40°C (104°F)): 0.06 cm^2/s (6 cSt)
	Flow time (ISO 2431)	:	Not available.
S.	**Molecular weight**	:	Not applicable.

Section 10. Stability and reactivity

A.	**Chemical stability**	:	The product is stable.
	Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
B.	**Conditions to avoid**	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
C.	**Incompatible materials**	:	Reactive or incompatible with the following materials: oxidizing materials
D.	**Hazardous decomposition products**	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

A. Information on the likely routes of exposure : Not available.

Potential acute health effects

Inhalation	:	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Ingestion	:	Can cause central nervous system (CNS) depression.
Skin contact	:	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	:	Causes serious eye damage.

Over-exposure signs/symptoms

Section 11. Toxicological information

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Ingestion : Adverse symptoms may include the following:
stomach pains

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

B. Health hazards

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Reaction mass of ethylbenzene and xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
xylene	LC50 Inhalation Gas.	Rat	6700 ppm	4 hours
	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Gas.	Rat	6670 ppm	4 hours
	LD50 Intraperitoneal	Mouse	1548 mg/kg	-
	LD50 Intraperitoneal	Mouse	1548 mg/kg	-
	LD50 Intraperitoneal	Rat	2459 mg/kg	-
	LD50 Oral	Mouse	2119 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Subcutaneous	Rat	1700 mg/kg	-
1-methoxy-2-propanol	LC50 Inhalation Gas.	Rat	10000 ppm	5 hours
	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Intraperitoneal	Rat	3720 mg/kg	-
	LD50 Intravenous	Mouse	5300 mg/kg	-
	LD50 Intravenous	Rabbit	1200 mg/kg	-
	LD50 Intravenous	Rat	4200 mg/kg	-
	LD50 Oral	Mouse	11700 mg/kg	-
	LD50 Oral	Rabbit	5700 mg/kg	-
	LD50 Oral	Rat	6600 mg/kg	-
	LD50 Subcutaneous	Rabbit	5 g/kg	-
	LD50 Subcutaneous	Rat	7800 mg/kg	-
butan-1-ol	LC50 Inhalation Vapor	Rat	24000 mg/m³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Intraperitoneal	Mouse	254 mg/kg	-
	LD50 Intraperitoneal	Rat	200 mg/kg	-
	LD50 Intravenous	Mouse	377 mg/kg	-
	LD50 Intravenous	Rat	310 mg/kg	-
	LD50 Oral	Mouse	100 mg/kg	-
	LD50 Oral	Rabbit	3484 mg/kg	-
	LD50 Oral	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	0.79 g/kg	-
	LD50 Oral	Rat	4.36 g/kg	-
	LD50 Oral	Rat	790 mg/kg	-
	LD50 Subcutaneous	Mouse	3200 mg/kg	-
ethylbenzene	LC50 Inhalation Gas.	Rabbit	4000 ppm	4 hours
	LC50 Inhalation Vapor	Mouse	35500 mg/m³	2 hours
	LC50 Inhalation Vapor	Rat	55000 mg/m³	2 hours

Section 11. Toxicological information

	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Dermal	Rabbit	17800 uL/kg	-
	LD50 Intraperitoneal	Mouse	2624 uL/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
4-methylpentan-2-one	LD50 Intraperitoneal	Guinea pig	800 mg/kg	-
	LD50 Intraperitoneal	Mouse	268 mg/kg	-
	LD50 Intraperitoneal	Rat	400 mg/kg	-
	LD50 Oral	Guinea pig	1600 mg/kg	-
	LD50 Oral	Mouse	1900 mg/kg	-
	LD50 Oral	Mouse	2850 mg/kg	-
	LD50 Oral	Rat	2080 mg/kg	-
	LD50 Oral	Rat	4600 mg/kg	-
3,6-diazaoctanethylenediamin	LD50 Dermal	Rabbit	805 mg/kg	-
	LD50 Intraperitoneal	Mouse	468 mg/kg	-
	LD50 Intravenous	Mouse	350 mg/kg	-
	LD50 Oral	Mouse	38.5 mg/kg	-
	LD50 Oral	Rabbit	5500 mg/kg	-
	LD50 Oral	Rat	2500 mg/kg	-
toluene	LC50 Inhalation Gas.	Mouse	400 ppm	24 hours
	LC50 Inhalation Vapor	Mouse	30000 mg/m³	2 hours
	LC50 Inhalation Vapor	Mouse	19900 mg/m³	7 hours
	LC50 Inhalation Vapor	Rat	49 g/m³	4 hours
	LD50 Dermal	Rabbit	14100 uL/kg	-
	LD50 Intraperitoneal	Guinea pig	500 mg/kg	-
	LD50 Intraperitoneal	Mouse	59 mg/kg	-
	LD50 Intraperitoneal	Rat	1332 mg/kg	-
	LD50 Intravenous	Rat	1960 mg/kg	-
	LD50 Oral	Rat	636 mg/kg	-
	LD50 Route of exposure unreported	Mouse	2 g/kg	-
	LD50 Route of exposure unreported	Rat	6900 mg/kg	-
	LD50 Subcutaneous	Mouse	2250 mg/kg	-
2,2'-iminodiethylamine	LD50 Dermal	Guinea pig	170 uL/kg	-
	LD50 Dermal	Rabbit	1090 mg/kg	-
	LD50 Intraperitoneal	Mouse	71 mg/kg	-
	LD50 Intraperitoneal	Rat	74 mg/kg	-
	LD50 Oral	Rat	1080 mg/kg	-
	LD50 Route of exposure unreported	Guinea pig	600 mg/kg	-
	LD50 Route of exposure unreported	Mouse	970 mg/kg	-
	LD50 Route of exposure unreported	Rabbit	970 mg/kg	-
	LD50 Route of exposure unreported	Rat	970 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Reaction mass of ethylbenzene and xylene	Eyes - Mild irritant	Rabbit	-	87 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 Ul	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	100 %	-
xylene	Eyes - Mild irritant	Rabbit	-	87 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 mg	-

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	Skin - Mild irritant	Rat	-	8 hours 60 Ul	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	100 %	-
1-methoxy-2-propanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
butan-1-ol	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Eyes - Severe irritant	Rabbit	-	0.005 Ml	-
	Eyes - Severe irritant	Rabbit	-	1.62 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
4-methylpentan-2-one	Eyes - Moderate irritant	Rabbit	-	24 hours 100 Ul	-
	Eyes - Severe irritant	Rabbit	-	40 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
3,6-diazaoctanethylenediamin	Eyes - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Eyes - Severe irritant	Rabbit	-	49 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 5 mg	-
	Skin - Severe irritant	Rabbit	-	490 mg	-
toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 mg	-
	Eyes - Mild irritant	Rabbit	-	870 ug	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Rabbit	-	435 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Moderate irritant	Rabbit	-	500 mg	-
2,2'-iminodiethylamine	Skin - Moderate irritant	Rabbit	-	500 mg	-

Sensitization

Not available.

CMR - ISHA Article 42 Occupational Exposure Limits

Product/ingredient name	Identifiers	Classification
ethylbenzene	CAS: 100-41-4	CARCINOGENICITY - Category 2
4-methylpentan-2-one	CAS: 108-10-1	CARCINOGENICITY - Category 2
toluene	CAS: 108-88-3	TOXIC TO REPRODUCTION - Category 2

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP	ACGIH
Reaction mass of ethylbenzene and xylene	-	3	-	A4
xylene	-	3	-	A4
1-methoxy-2-propanol	-	-	-	A4
ethylbenzene	-	2B	-	A3
4-methylpentan-2-one	-	2B	-	A3
toluene	-	3	-	A4

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Reaction mass of ethylbenzene and xylene	Category 3	-	Respiratory tract irritation
xylene	Category 3	-	Narcotic effects
1-methoxy-2-propanol	Category 3	-	Narcotic effects
butan-1-ol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
4-methylpentan-2-one	Category 3	-	Narcotic effects
toluene	Category 3	-	Narcotic effects
2,2'-iminodiethylamine	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Reaction mass of ethylbenzene and xylene	Category 2	-	-
xylene	Category 1	-	-
ethylbenzene	Category 2	-	hearing organs
toluene	Category 2	-	-

Aspiration hazard

Name	Result
Reaction mass of ethylbenzene and xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1
toluene	ASPIRATION HAZARD - Category 1

Potential chronic health effects

Chronic toxicity

Not available.

General : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

A. Ecotoxicity

Product/ingredient name	Result	Species	Exposure
Reaction mass of ethylbenzene and xylene	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
xylene	Acute EC50 90 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute LC50 8.5 ppm Marine water	Crustaceans - Palaemonetes pugio - Adult	48 hours
	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 15700 µg/l Fresh water	Fish - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 20870 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 19000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 16940 µg/l Fresh water	Fish - Carassius auratus	96 hours
butan-1-ol	Acute EC50 1983 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2300000 µg/l Marine water	Fish - Alburnus alburnus	96 hours
	Acute LC50 1910000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 1940000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 1730000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
ethylbenzene	Acute EC50 4900 µg/l Marine water	Algae - Skeletonema costatum	72 hours
	Acute EC50 7700 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 5400 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6.53 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 13.3 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 2.97 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute EC50 2.93 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 8.78 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 13.3 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 40000 µg/l Marine water	Crustaceans - Cancer magister - Zoea	48 hours
	Acute LC50 18.4 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 13.9 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 75000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5100 µg/l Marine water	Fish - Menidia menidia	96 hours
	Acute LC50 9090 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 9100 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 4.3 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling,	96 hours

Section 12. Ecological information

		Weanling)	
4-methylpentan-2-one	Acute LC50 505000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 540000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 537000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 78 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 168 mg/l Fresh water	Fish - Pimephales promelas - Embryo	33 days
3,6-diazaoctanethylenediamin	Acute EC50 3700 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 33900 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 16500 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6.88 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute EC50 6.56 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute EC50 19600 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute EC50 6780 µg/l Fresh water	Fish - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 15.5 ppm Marine water	Crustaceans - Palaemonetes pugio - Adult	48 hours
	Acute LC50 15500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 56.3 ppm Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 86.3 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Acute LC50 6410 µg/l Marine water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Acute LC50 5800 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 6780 µg/l Fresh water	Fish - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 2 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
2,2'-iminodiethylamine	Acute EC50 345600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 53500 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1014000 µg/l Fresh water	Fish - Poecilia reticulata	96 hours

B. Persistence and degradability

Not available.

C. Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Reaction mass of ethylbenzene and xylene	3.12	8.1 to 25.9	low
xylene	3.12	8.1 to 25.9	low
1-methoxy-2-propanol	<1	-	low
butan-1-ol	1	-	low
butan-1-ol	1	-	low
ethylbenzene	3.6	-	low
4-methylpentan-2-one	1.9	-	low
3,6-diazaoctanethylenediamin	-1.66 to -1.4	-	low
toluene	2.73	90	low
2,2'-iminodiethylamine	-5.58	2.8 to 6.3	low

D. Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

E. Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

A. Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

B. Disposal precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
A. UN number	UN1263	UN1263	UN1263
B. UN proper shipping name	PAINT	PAINT	PAINT
C. Transport hazard class(es)	3 	3 	3 
D. Packing group	III	III	III
E. Environmental hazards	No.	No.	No.

Additional information

IMDG : **Emergency schedules** F-E, _S-E_

Section 14. Transport information

F. Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

A. Regulation according to ISHA

ISHA article 117 (Harmful substances prohibited from manufacture) : None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) : None of the components are listed.

Article 2 of Youth Protection Act on Substances Hazardous to Youth : Not applicable.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
Reaction mass of ethylbenzene and xylene
xylene
1-methoxy-2-propanol
butan-1-ol
butan-1-ol
ethylbenzene
4-methylpentan-2-one
toluene
2,2'-iminodiethylamine

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors) : The following components are listed: toluene

ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement) : The following components are listed: Xylene, o,m,p-isomers, n-Butyl alcohol, methyl isobutyl ketone

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up) : The following components are listed: Xylene, n-Butyl alcohol, Methyl isobutyl ketone

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) : The following components are listed: Xylene, n-Butyl alcohol, methyl isobutyl ketone

B. Regulation according to Chemicals Control Act

CCA Article 11 (TRI) : The following components are listed: Xylene

Section 15. Regulatory information

CCA Article 18 Prohibited (K-Reach Article 27)	:	None of the components are listed.
CCA Article 19 Subject to authorization (K-Reach Article 25)	:	None of the components are listed.
CCA Article 20 Toxic Chemicals (K-Reach Article 20)	:	Not applicable
CCA Article 20 Restricted (K-Reach Article 27)	:	None of the components are listed.
CCA Article 39 (Accident Precaution Chemicals)	:	None of the components are listed.
Existing Chemical Substances Subject to Registration	:	The following components are listed: Xylene; Dimethylbenzene

C. Dangerous Materials Safety Management Act : **Class:** Class 4 - Flammable Liquid
Item: 4. Class 2 petroleums - Water-insoluble liquid
Threshold: 1000 L
Danger category: III
Signal word: Contact with sources of ignition prohibited

D. Wastes regulation : Dispose of contents and container in accordance with all local, regional, national and international regulations.

E. Regulation according to other foreign laws

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

A. References : Not available.

B. Date of issue/Date of revision : 1 October 2022

C. Version : 1

Date of printing : **1 October 2022**

D. Other

Indicates information that has changed from previously issued version.

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Notice to reader

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