SAFETY DATA SHEET
According to EC No 1907/2006 as amended as at the date of this SDS

EBHP in Ethylbenzene

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	25.04.2024	800010064155	Print Date 02.05.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : EBHP in Ethylbenzene

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Research and development product.
Please refer to section 16 and/or the annexes for the registered uses under REACH.

Uses advised against :
This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier : **Shell Chemicals Europe B.V.**
PO Box 2334
3000 CH Rotterdam
Netherlands

Telephone :
Telefax :
Contact for Safety Data Sheet :

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Organic peroxides, Category 1	H242: Heating may cause a fire.
Acute toxicity, Category 3, Oral	H301: Toxic if swallowed.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Acute toxicity, Category 3, Dermal	H311: Toxic in contact with skin.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.

Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Acute toxicity, Category 3, Inhalation	H331: Toxic if inhaled.
Specific target organ toxicity - single exposure, Category 3	H335: May cause respiratory irritation.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Specific target organ toxicity - repeated exposure, Category 2, Auditory system	H373: May cause damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

PHYSICAL HAZARDS:
H225 Highly flammable liquid and vapour.
H242 Heating may cause a fire.
HEALTH HAZARDS:
H301 Toxic if swallowed.
H304 May be fatal if swallowed and enters airways.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H373 May cause damage to organs through prolonged or repeated exposure.
ENVIRONMENTAL HAZARDS:
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P302 + P352 IF ON SKIN: Wash with plenty of water and soap.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P361 Remove/ Take off immediately all contaminated clothing.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.
This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Risk of explosion if heated under confinement.
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Product is not a mixture according to regulation 1907/2006/EC.

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)

Ethylbenzene	100-41-4 202-849-4 601-023-00-4 01-2119489370-35	Flam. Liq. 2; H225 Asp. Tox. 1; H304 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT SE 3; H335 STOT RE 2; H373 (Auditory system) Aquatic Chronic 3; H412	64
1-phenylethyl hydroperoxide	3071-32-7 221-341-3	Self-react. 1; H242 Asp. Tox. 1; H304 Skin Corr. 1; H314 Eye Dam. 1; H318 Muta. 2; H341 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 3; H335 Skin Sens. 1; H317 Aquatic Chronic 2; H411	36

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : DO NOT DELAY.
Keep victim calm. Obtain medical treatment immediately.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : Call emergency number for your location / facility.
Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

In case of skin contact : Call emergency number for your location / facility.
Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes. Transport to the nearest medical facility for additional treatment.

All burns should receive medical attention.
Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment.
All burns should receive medical attention.

If swallowed : Call emergency number for your location / facility.
If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
Rinse mouth.
Do not induce vomiting. If victim is alert, rinse mouth and drink 1/2 to 1 glass of water to help dilute the material. Do not give liquids to a drowsy, convulsing, or unconscious person.
Transport to nearest medical facility for additional treatment.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.
Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.
Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.
May lead to respiratory depression and or central nervous system (CNS) depression resulting difficulty breathing, dizziness, light-headedness, headache, nausea and loss of coordination. Continued exposure may result in unconsciousness and death.
Corrosive to skin.
Contact with the skin can cause chemical burns, redness, swelling, and tissue damage.
Skin sensitisation (allergic skin reaction) signs and symptoms may include itching and/or a rash.
Corrosive to eyes.
Contact can cause severe eye damage including chemical burns, pain, clouding of the eye surface, inflammation of the eye, and may result in permanent loss of vision.

If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
Swallowing of corrosive chemicals may cause immediate pain and burning in the mouth, throat, and stomach followed by vomiting and diarrhea.

Burns and tearing of the esophagus and stomach are possible.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Artificial respiration and/or oxygen may be necessary.
Call a doctor or poison control center for guidance.
Treat symptomatically.
If skin sensitisation has developed and a causal relationship has been confirmed, further exposure should not be allowed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Clear fire area of all non-emergency personnel.
Hazardous combustion products may include: A complex mixture of airborne solids, liquid particulates and gases (smoke), including unidentified organic and inorganic compounds as well as nitrogen oxides and oxides of sulfur. Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, can spread along the ground and distant ignition is possible. Hydrogen cyanide (HCN), ammonia (NH3), and hydrogen sulfide (H2S) may be given off when this material is heated. Do not depend on sense of smell for warning.
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide.
Unidentified organic and inorganic compounds.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Will float and can be reignited on surface water.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).
Specific extinguishing methods	:	Standard procedure for chemical fires.
Further information	:	Clear fire area of all non-emergency personnel. Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions :

Observe all relevant local and international regulations.
Avoid inhaling vapour and/or mists.
Avoid contact with skin, eyes and clothing.
Stay upwind and keep out of low areas.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
Local authorities should be advised if significant spillages cannot be contained.
6.1.1 For non emergency personnel:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Do not breathe fumes, vapour.
Do not operate electrical equipment.
6.1.2 For emergency responders:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Use personal protective equipment.
Do not breathe fumes, vapour.
Do not operate electrical equipment.

6.2 Environmental precautions

Environmental precautions	:	Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or

rivers by using sand, earth, or other appropriate barriers.
Attempt to disperse the vapour or to direct its flow to a safe location, for example by using fog sprays.
Take precautionary measures against static discharge.
Ensure electrical continuity by bonding and grounding (earthing) all equipment.
Ventilate contaminated area thoroughly.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Attempt to disperse the vapour or to direct its flow to a safe location, for example by using fog sprays.
Do not use water in a jet.
For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely
For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.
Proper disposal should be evaluated based on regulatory status of this material (refer to Section 13), potential contamination from subsequent use and spillage, and regulations governing disposal in the local area.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Ensure that all local regulations regarding handling and storage facilities are followed.

Advice on safe handling : Avoid exposure. Obtain special instructions before use.
Avoid inhaling vapour and/or mists.
Ventilate workplace in such a way that the Occupational Exposure Limit (OEL) is not exceeded.
Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.
Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.
The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.
Do not empty into drains.

Avoid contact with skin, eyes and respiratory system.
Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges.
These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements.
These activities may lead to static discharge e.g. spark formation.
Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling.
Do NOT use compressed air for filling, discharging, or handling operations.
Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Product Transfer : Lines should be purged with nitrogen before and after product transfer. Steam coils may be used as a heating medium. Refer to guidance under Handling section.

Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Further information on storage stability : A reliable fixed sprinkler/deluge system should be installed.
Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat.
Tanks must be specifically designed for use with this product.
Tanks should be fitted with a vapour recovery system.
Nitrogen blanket recommended.
Tanks should be fitted with heating coils in areas where ambient conditions can result in handling temperatures below the freezing point/pour point of the product.
Cleaning, inspection and maintenance of storage tanks is a

specialist operation, which requires the implementation of strict procedures and precautions.
These include issuing of work permits, gas-freeing of tanks, using a manned harness and lifelines and wearing air-supplied breathing apparatus.

Packaging material : Suitable material: Stainless steel.
Unsuitable material: Aluminium alloys., Copper., Zinc., For containers, or container linings avoid copper, copper alloys, zinc., For lines and fittings, avoid copper, copper alloys, zinc., Natural and synthetic rubbers., Plastics

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to section 16 and/or the annexes for the registered uses under REACH.

Ensure that all local regulations regarding handling and storage facilities are followed.
See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethylbenzene	100-41-4	TLV-8hr	48,6 ppm 215 mg/m3	NL WG
	Further information: Skin notation			
Ethylbenzene		TLV-15 min	97,3 ppm 430 mg/m3	NL WG
	Further information: Skin notation			

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value

Ethylbenzene	Workers	Inhalation	Acute local effects	293 mg/m3
Ethylbenzene	Workers	Inhalation	Long-term systemic effects	77 mg/m3
Ethylbenzene	Workers	Dermal	Long-term systemic effects	180 mg/kg bw/day
Ethylbenzene	Consumers	Inhalation	Long-term systemic effects	15 mg/m3
Ethylbenzene	Consumers	Oral	Long-term systemic effects	1,6 mg/kg bw/day

8.2 Exposure controls

Engineering measures

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Eye washes and showers for emergency use.
Firewater monitors and deluge systems are recommended.
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection : Wear goggles for use against liquids and gas, combined with face shield.

Approved to EU Standard EN166.

Hand protection

Remarks : Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Viton. Butyl rubber. Incidental contact/Splash protection: Nitrile rubber gloves.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

		For continuous contact we recommend gloves with break-through time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. When handling heated product, wear heat resistant gloves, safety hat with chin strap, face shield (preferably with a chin guard), safety glasses, heat resistant coveralls (with cuffs over gloves and legs over boots), neck protection and heavy duty boots, e.g. leather for heat resistance.
Skin and body protection	:	Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood, chemical resistant knee length boots and chemical resistant gloves. Otherwise use chemical resistant apron and gauntlets. When handling heated product, wear heat resistant gloves, safety hat with chin strap, face shield (preferably with a chin guard), safety glasses, heat resistant coveralls (with cuffs over gloves and legs over boots), neck protection and heavy duty boots, e.g. leather for heat resistance.
Respiratory protection	:	Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.
Thermal hazards	:	When handling heated product, wear heat resistant gloves, safety hat with chin strap, face shield (preferably with a chin guard), safety glasses, heat resistant coveralls (with cuffs over gloves and legs over boots), neck protection and heavy duty boots, e.g. leather for heat resistance.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	clear
Odour	:	aromatic
Odour Threshold	:	Data not available
Melting point/freezing point	:	Data not available

Initial boiling point and boiling range	:	136,2 °C
Flammability		
Flammability (solid, gas)	:	Not applicable
Lower explosion limit and upper explosion limit / flammability limit		
Upper explosion limit / upper flammability limit	:	8 %(V)
Lower explosion limit / Lower flammability limit	:	1,2 %(V)
Flash point	:	23 °C
Auto-ignition temperature	:	430 °C
Decomposition temperature		
Decomposition temperature	:	Data not available
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	0,87 - 0,95 mm2/s (20 °C)
Solubility(ies)		
Water solubility	:	200 mg/l
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	Pow: 3,6
Vapour pressure	:	952 Pa (20 °C)
Relative density	:	0,955 - 1,05
Density	:	868 kg/m3 (20 °C)
Particle characteristics		
Particle size	:	Data not available

9.2 Other information

Explosive properties	:	Classification Code: Not classified.
Evaporation rate	:	Data not available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with strong oxidising agents.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions
Decomposes on heating.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Exposure to air.
Exposure to sunlight.
Prevent vapour accumulation.
Avoid heat, sparks, open flames and other ignition sources.
In certain circumstances product can ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Aluminum
Zinc.
Avoid contact with strong oxidizing agents, copper and copper alloys.
Avoid contact with calcium hypochlorite.
Strong acids and strong bases

rubber, various plastics

10.6 Hazardous decomposition products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Skin and eye contact are the primary routes of exposure although exposure may occur through inhalation or following accidental ingestion.
This material penetrates the intact skin and eye rapidly as a liquid or mist, producing severe burns.

Acute toxicity

Product:

Acute oral toxicity : LD 50 (rat): >50 - <=300 mg/kg
Remarks: Toxic if swallowed.

Acute inhalation toxicity : LC50 (rat): >2 - <=10 mg/l
Exposure time: 4 h
Remarks: Toxic if inhaled.

Acute dermal toxicity : LD 50 (Rabbit): >200 - <=1000 mg/kg
Remarks: Toxic in contact with skin.

Components:

Ethylbenzene:

Acute oral toxicity : LD50 (Rat): > 2000 - 5000 mg/kg
Remarks: May be harmful if swallowed.

Acute inhalation toxicity : LC50: > 10 - 20 mg/l
Remarks: Harmful if inhaled.

Acute dermal toxicity : LD50 (Rabbit): > 5000 mg/kg
Remarks: Low toxicity

Skin corrosion/irritation

Product:

Remarks : Causes severe skin burns and eye damage.

Components:

Ethylbenzene:

Remarks : Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks : Causes serious eye damage.

Components:

Ethylbenzene:

Remarks : Causes serious eye irritation.

Respiratory or skin sensitisation

Product:

Remarks : May cause sensitisation by skin contact.

Components:

Ethylbenzene:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Mutagenic; positive in in-vivo and in-vitro assays.

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Components:

Ethylbenzene:

Genotoxicity in vivo : Remarks: Not mutagenic.

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Product:

Remarks : Not expected to be carcinogenic.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Components:

Ethylbenzene:

Remarks : Limited evidence of carcinogenic effect
Causes cancer in laboratory animals.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Ethylbenzene	No carcinogenicity classification.
1-phenylethyl hydroperoxide	No carcinogenicity classification.

Material	Other Carcinogenicity Classification
Ethylbenzene	IARC: Group 2B: Possibly carcinogenic to humans

Reproductive toxicity

Product:

Effects on fertility : Remarks: Does not impair fertility., Not classified as a developmental toxicant., Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Components:

Ethylbenzene:

Effects on fertility : Remarks: Not a developmental toxicant., Based on available data, the classification criteria are not met., Does not impair fertility.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Remarks : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death. Inhalation of vapours or mists may cause irritation to the respiratory system.

Components:

Ethylbenzene:

Remarks : Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - repeated exposure

Product:

Remarks : Based on available data, the classification criteria are not met.

Components:

Ethylbenzene:

Remarks : Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Auditory system: prolonged and repeated exposures to high

concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss.
Kidney: can cause kidney damage.
Liver: can cause liver damage.
Central nervous system: repeated exposure affects the nervous system.

Aspiration toxicity

Product:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Components:

Ethylbenzene:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

Components:

Ethylbenzene:

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: Toxic

LL/EL/IL50 > 1 <= 10 mg/l

Toxicity to daphnia and other aquatic invertebrates : Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

Toxicity to algae/aquatic plants : Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Toxic with long lasting effects:
NOEC/NOEL > 0.1 - <=1.0 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: Toxic with long lasting effects:
NOEC/NOEL > 0.1 - <=1.0 mg/l

Toxicity to microorganisms :
Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

Components:

Ethylbenzene:

Toxicity to fish : Remarks: Toxic
LC/EC/IC50 >1 - <=10 mg/l

Toxicity to daphnia and other aquatic invertebrates : Remarks: Toxic
LC/EC/IC50 >1 - <=10 mg/l

Toxicity to algae/aquatic plants : EC50 : Remarks: Toxic
LC/EC/IC50 >1 - <=10 mg/l

Toxicity to microorganisms :
Remarks: Harmful
LC/EC/IC50 >10 - <=100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: NOEC/NOEL > 0.1 - <=1.0 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: NOEC/NOEL > 0.1 - <=1.0 mg/l

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Inherently biodegradable.

Components:

Ethylbenzene:

Biodegradability : Remarks: Readily biodegradable.

Oxidises rapidly by photo-chemical reactions in air.
Not Persistent per IMO criteria.
International Oil Pollution Compensation (IOPC) Fund definition: "A non-persistent oil is oil, which, at the time of shipment, consists of hydrocarbon fractions, (a) at least 50% of which, by volume, distills at a temperature of 340ºC (645ºF) and (b) at least 95% of which, by volume, distils at a temperature of 370ºC (700ºF) when tested by the ASTM Method D-86/78 or any subsequent revision thereof."

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Contains constituents with the potential to bioaccumulate.

Components:

Ethylbenzene:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Product:

Mobility : Remarks: Evaporates within a day from water or soil surfaces., Large volumes may penetrate soil and could contaminate groundwater., Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment., Contains volatile components., Floats on water.

Components:

Ethylbenzene:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater., Floats on water.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

: This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB..

Components:

Ethylbenzene:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : Not applicable

Components:

Ethylbenzene:

Additional ecological information : In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

Do not dispose into the environment, in drains or in water courses.
Waste product should not be allowed to contaminate soil or water.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : 3109

RID : 3109

IMDG : 3109

IATA : 3109

14.2 UN proper shipping name

ADR : ORGANIC PEROXIDE TYPE F, LIQUID

RID : ORGANIC PEROXIDE TYPE F, LIQUID

IMDG : ORGANIC PEROXIDE TYPE F, LIQUID

IATA : ORGANIC PEROXIDE TYPE F, LIQUID

14.3 Transport hazard class(es)

ADR : 5.2

RID : 5.2

IMDG : 5.2

IATA : 5.2

14.4 Packing group

ADR

Packing group : Not assigned by regulation
Classification Code : P1
Hazard Identification Number : 539
Labels : 5.2

RID

Packing group : Not assigned by regulation
Classification Code : P1
Hazard Identification Number : 539
Labels : 5.2

IMDG

Packing group : Not assigned by regulation
Labels : 5.2

IATA

Packing group : Not Assigned
Labels : 5.2

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

Pollution category : Data not available
Ship type : Data not available
Product name : Data not available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H2	ACUTE TOXIC
P5a-c	FLAMMABLE LIQUIDS
E2	ENVIRONMENTAL HAZARDS

Other regulations:
The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Product is subject to Major accident risk decision 2015 (BRZO+) based on Seveso III directive (2012/18/EU).

15.2 Chemical safety assessment

A Chemical Safety Assessment was performed for this substance.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H242	:	Heating may cause a fire.
H301	:	Toxic if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H311	:	Toxic in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H331	:	Toxic if inhaled.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H341	:	Suspected of causing genetic defects.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Muta.	:	Germ cell mutagenicity
Self-react.	:	Self-reactive substances and mixtures
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
NL WG	:	Netherlands. Law on Labour conditions - Occupational Exposure Limits
NL WG / TLV-8hr	:	Time Weighted Average
NL WG / TLV-15 min	:	Short Term Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good La-

boratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 2	H225	On basis of test data.
Org. Perox. 1	H242	Expert judgement and weight of evidence determination.
Acute Tox. 3	H301	Expert judgement and weight of evidence determination.
Asp. Tox. 1	H304	Expert judgement and weight of evidence determination.
Acute Tox. 3	H311	Expert judgement and weight of evidence determination.
Skin Corr. 1B	H314	Expert judgement and weight of evidence determination.
Skin Sens. 1	H317	Expert judgement and weight of evidence determination.
Eye Dam. 1	H318	Expert judgement and weight of evidence determination.
Acute Tox. 3	H331	Expert judgement and weight of evidence determination.
STOT SE 3	H335	Expert judgement and weight of evidence determination.
Muta. 2	H341	Expert judgement and weight of evi-

		dence determination.
STOT RE 2	H373	Expert judgement and weight of evidence determination.
Aquatic Chronic 2	H411	Expert judgement and weight of evidence determination.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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