

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Pyrolysis Gasoline Blend

Version	Revision Date:	SDS Number:	Print Date: 03/25/2025
24.0	03/18/2025	800001013067	Date of last issue: 12/10/2024

SECTION 1. IDENTIFICATION

Product name : Pyrolysis Gasoline Blend

Product code : Q9198

CAS-No. : 68606-10-0

Manufacturer or supplier's details

Company : **Shell Chemical LP**
PO Box 576
HOUSTON TX 77001
USA

SDS Request : 1-800-240-6737

Customer Service : 1-855-697-4355

Emergency telephone number

Chemtrec Domestic (24 hr) : 1-800-424-9300

Chemtrec International (24 hr) : 1-703-527-3887

Recommended use of the chemical and restrictions on use

Recommended use :
Raw material for use in the chemical industry., Chemical intermediate.

Restrictions on use : This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.
This product must not be used in applications other than the above without first seeking the advice of the supplier.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 1

Skin irritation : Category 2

Eye irritation : Category 2

Germ cell mutagenicity : Category 1B

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Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Narcotic effects)
Specific target organ toxicity - repeated exposure	:	Category 1 (Blood, Blood-forming organs, Immune system)
Specific target organ toxicity - repeated exposure	:	Category 2 (Central nervous system, Auditory system, Respiratory system, Visual system, Peripheral nervous system)
Aspiration hazard	:	Category 1
Long-term (chronic) aquatic hazard	:	Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : **PHYSICAL HAZARDS:**
H224 Extremely flammable liquid and vapour.
HEALTH HAZARDS:
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.
ENVIRONMENTAL HAZARDS:
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P210 Keep away from heat/ sparks/ open flames/ hot surfaces.
No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/ protective clothing/ eye protection/

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face protection.

P264 Wash hands thoroughly after handling.

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

Response:

P370+P378 In case of fire: Use appropriate media for extinction.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P331 Do NOT induce vomiting.

P312 Call a POISON CENTER/ doctor if you feel unwell.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P235 Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other hazards which do not result in classification

In use, may form flammable/explosive vapour-air mixture.

This material is a static accumulator.

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.

Slightly irritating to respiratory system.

The classification of this material is based on OSHA HCS 2012 criteria.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance / Mixture : Substance

Hazardous components

Chemical name	Synonyms	CAS-No.	Concentration (% w/w)
Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified	Gasoline, pyrolysis, debutanizer bottoms	68606-10-0	<= 100

Further information

Contains:

Chemical name	Identification number	Concentration (% w/w)
Benzene	71-43-2	>=30 - <=55
Isoprene	78-79-5	>=10 - <=20
Toluene	108-88-3	>=5 - <=10
Dicyclopentadiene	77-73-6	>=2 - <=8

SECTION 4. FIRST-AID MEASURES

- General advice : Not expected to be a health hazard when used under normal conditions.
- If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- In case of skin contact : Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
- 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.
- If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
- Most important symptoms and effects, both acute and delayed : 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. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. No specific hazards under normal use conditions. Ingestion may result in nausea, vomiting and/or diarrhoea.

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Damage to blood-forming organs may be evidenced by: a) fatigue and anaemia (RBC), b) decreased resistance to infection, and/or excessive bruising and bleeding (platelet effect). Immunotoxicity may be evidenced by decreased resistance to infection.

Peripheral nerve damage may be evidenced by impairment of motor function (incoordination, unsteady walk, or muscle weakness in the extremities, and/or loss of sensation in the arms and legs).

Auditory system effects may include temporary hearing loss and/or ringing in the ears.

Visual system disturbances may be evidenced by decreases in the ability to discriminate between colours.

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.

Indication of any immediate medical attention and special treatment needed : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Call a doctor or poison control center for guidance.
Treat symptomatically.
Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.
Consider: oxygen therapy.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : 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.

Specific hazards during fire-fighting : Clear fire area of all non-emergency personnel.
Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide.
Unidentified organic and inorganic compounds.
Flammable vapours may be present even at temperatures below the flash point.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Will float and can be reignited on surface water.

Specific extinguishing methods : Standard procedure for chemical fires.

Further information : Keep adjacent containers cool by spraying with water.

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if

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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).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Observe all relevant local and international regulations.
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.
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.

Environmental precautions

: Shut off leaks, if possible without personal risks. 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.
Monitor area with combustible gas indicator.

Methods and materials for containment and cleaning up

: 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.
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.

Ventilate contaminated area thoroughly.
If contamination of site occurs remediation may require specialist advice.

Additional advice

: 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.

U.S. regulations may require reporting releases of this materi-

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al to the environment which exceed the reportable quantity (refer to Section 15) to the National Response Center at (800) 424-8802.

Under Section 311 of the Clean Water Act (CWA) this material is considered an oil. As such, spills into surface waters must be reported to the National Response Center at (800) 424-8802.

This material is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

SECTION 7. HANDLING AND STORAGE

- 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 inhaling vapour and/or mists.
Avoid contact with skin, eyes and clothing.
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Bulk storage tanks should be diked (bunded).
When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and distant ignition is possible.
- Avoidance of contact : Strong oxidising agents.
- Product Transfer : 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. 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.

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Refer to guidance under Handling section.

Conditions for safe storage : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Further information on storage stability : Storage Temperature:
Ambient.

Bulk storage tanks should be diked (bunded).
Locate tanks away from heat and other sources of ignition.
Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat.
Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment.
Electrostatic charges will be generated during pumping.
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.

Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel., For container paints, use epoxy paint, zinc silicate paint.
Unsuitable material: Avoid prolonged contact with natural, butyl or nitrile rubbers.

Container Advice : Do not cut, drill, grind, weld or perform similar operations on or near containers.

Specific use(s) : Not applicable

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

Components with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parameters / Permissible	Basis
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		exposure)	concentration	
	Not Assigned	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
Benzene	71-43-2	TWA	0.25 ppm 0.8 mg/m3	Shell Internal Standard (SIS) for 8-12 hour TWA.
Benzene		STEL	2.5 ppm 8 mg/m3	Shell Internal Standard (SIS) for 15 min (STEL)
Benzene		TWA	0.02 ppm	ACGIH
Benzene		STEL	2.5 ppm	ACGIH
Benzene		PEL	1 ppm	OSHA CARC
Benzene		STEL	5 ppm	OSHA CARC
Benzene		TWA	10 ppm	OSHA Z-2
Benzene		CEIL	25 ppm	OSHA Z-2
Benzene		Peak	50 ppm (10 minutes)	OSHA Z-2
Isoprene	78-79-5	TWA	3 ppm 8.4 mg/m3	Shell Internal Standard (SIS) for 8 hour TWA.
Toluene	108-88-3	TWA	20 ppm	ACGIH
Toluene		TWA	200 ppm	OSHA Z-2
Toluene		CEIL	300 ppm	OSHA Z-2
Toluene		Peak	500 ppm (10 minutes)	OSHA Z-2
Dicyclopentadiene	77-73-6	TWA	0.5 ppm	ACGIH
Dicyclopentadiene		STEL	1 ppm	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Benzene	71-43-2	S-Phenylmer-capturic acid	Urine	End of shift (As soon as possible after exposure ceases)	25 µg/g creatinine	ACGIH BEI
		t,t-Muconic acid	Urine	End of shift (As soon as possible after exposure ceases)	500 µg/g creatinine	ACGIH BEI
Toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI

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		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g creatinine	ACGIH BEI

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/>

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/>

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <http://www.hse.gov.uk/>

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany <http://www.dguv.de/inhalt/index.jsp>

L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

Engineering measures

- : 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.
- Firewater monitors and deluge systems are recommended.
- Eye washes and showers for emergency use.
- Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- 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:

General Information

Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to

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maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when there is potential for inhalation; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Personal protective equipment

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)].

Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Hand protection
Remarks

: 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. Incidental contact/Splash protection: Nitrile rubber. For continuous contact we recommend gloves with breakthrough 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. 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. Personal hygiene is a key

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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.

- Eye protection : Wear goggles for use against liquids and gas.
Wear full face shield if splashes are likely to occur.
- Skin and body protection : Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron.
Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.
- Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- 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.
- Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet.
Launder contaminated clothing before re-use.
Do not ingest. If swallowed, then seek immediate medical assistance.

Environmental exposure controls

- General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.
Information on accidental release measures are to be found in section 6.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid.
- Colour : Yellowish tinted
- Odour : aromatic
- Odour Threshold : Data not available
- pH : Data not available
- Melting point/freezing point : Data not available
- Boiling point/boiling range : 26 - 179 °C / 79 - 354 °F

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Flash point	: < -7 °C / < 19 °F
Evaporation rate	: Data not available
Flammability	
Flammability (liquids)	: Static-accumulating flammable liquid.
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit / Upper flammability limit	: 12.0 %(V)
Lower explosion limit / Lower flammability limit	: 5.0 %(V)
Vapour pressure	: 0.64 bar
Relative vapour density	: 2.7
Relative density	: 0.76 - 0.77 Method: ASTM D4052
Density	: Data not available
Solubility(ies)	
Water solubility	: 0.05 g/l negligible
Partition coefficient: n-octanol/water	: Data not available
Auto-ignition temperature	: Data not available
Decomposition temperature	: No data available
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: Data not available
Explosive properties	: Not applicable
Oxidizing properties	: No data available
Surface tension	: Data not available
Conductivity	: Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid

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Molecular weight : Data not available

Particle size : Data not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

Chemical stability : No hazardous reaction is expected when handled and stored according to provisions
Stable under normal conditions of use.

Possibility of hazardous reactions : Reacts with strong oxidising agents.

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.

In certain circumstances product can ignite due to static electricity.

Incompatible materials : Strong oxidising agents.

Hazardous decomposition products : Hazardous decomposition products are not expected to form during normal storage.
Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on data from components.
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure

Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD50 : > 5,000 mg/kg
Remarks: Low toxicity
Based on available data, the classification criteria are not met.

Acute inhalation toxicity : Remarks: Low toxicity if inhaled.
Based on available data, the classification criteria are not met.

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Acute dermal toxicity : LD50 : > 5,000 mg/kg
Remarks: Low toxicity
Based on available data, the classification criteria are not met.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Acute oral toxicity : LD 50 (Rat, male and female): > 5,000 mg/kg
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 (Rat, male and female): > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Test(s) equivalent or similar to OECD Test Guideline 403
Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male and female): > 2,000 mg/kg
Method: Other guideline method.
Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Species: Rabbit
Method: OECD Test Guideline 404
Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks: Causes serious eye irritation.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Species: Rabbit
Method: Other guideline method.
Remarks: Causes serious eye irritation.

Respiratory or skin sensitisation

Product:

Remarks: Not a skin sensitiser.

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

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Species: Guinea pig

Method: Other guideline method.

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

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Contains Benzene, CAS # 71-43-2., May cause heritable genetic damage

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Genotoxicity in vitro : Method: Test(s) equivalent or similar to OECD Guideline 471
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 473
Remarks: Based on available data, the classification criteria are not met.

Genotoxicity in vivo : Test species: Mouse
Method: OECD Test Guideline 474
Remarks: May cause heritable genetic damage, Contains benzene.

Germ cell mutagenicity- Assessment : May cause genetic defects.

Carcinogenicity

Product:

Remarks: Contains Benzene, CAS # 71-43-2., Known human carcinogen., May cause leukaemia (AML - acute myelogenous leukaemia).

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Species: Rat, (male and female)

Application Route: Oral

Method: Other guideline method.

Remarks: Known human carcinogen., May cause leukaemia (AML - acute myelogenous leukaemia)., Causes cancer in laboratory animals., Contains benzene.

Species: Rat, (male and female)

Application Route: Inhalation

Method: Test(s) equivalent or similar to OECD Test Guideline 453

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Remarks: Known human carcinogen., May cause leukaemia (AML - acute myelogenous leukaemia)., Causes cancer in laboratory animals., Contains benzene.

Carcinogenicity - Assessment : May cause cancer.

IARC

Group 1: Carcinogenic to humans

Benzene 71-43-2

Group 2B: Possibly carcinogenic to humans

Gasoline, Pyrolysis, Debutanizer Bottoms 68606-10-0

Isoprene 78-79-5

OSHA

OSHA specifically regulated carcinogen

Benzene 71-43-2

NTP

Known to be human carcinogen

Benzene 71-43-2

Reasonably anticipated to be a human carcinogen

Isoprene 78-79-5

Reproductive toxicity

Product:

Effects on fertility

: Remarks: Suspected of damaging fertility or the unborn child., Contains n-Hexane, CAS # 110-54-3., Affects reproductive system in animals at doses which produce other toxic effects., Contains Toluene, CAS # 108-88-3., Causes foetotoxicity in animals at doses which are maternally toxic.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Effects on fertility

: Remarks: Suspected of damaging fertility or the unborn child. Affects reproductive system in animals at doses which produce other toxic effects. Contains n-Hexane, CAS # 110-54-3. Causes foetotoxicity in animals at doses which are maternally toxic. Contains Toluene, CAS # 108-88-3.

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Effects on foetal development	: Species: Rat, female Application Route: Inhalation Remarks: Suspected of damaging fertility or the unborn child., Affects reproductive system in animals at doses which produce other toxic effects., Contains n-Hexane, CAS # 110-54-3., Causes foetotoxicity in animals at doses which are maternally toxic., Contains Toluene, CAS # 108-88-3.
Reproductive toxicity - Assessment	: This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Exposure routes: Inhalation
Target Organs: Narcotic effects.
Remarks: May cause drowsiness and dizziness., Inhalation of vapours or mists may cause irritation to the respiratory system.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Exposure routes: Inhalation
Target Organs: Central nervous system
Remarks: May cause drowsiness and dizziness., Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - repeated exposure

Product:

Target Organs: Blood, Blood-forming organs, Immune system
Assessment: Causes damage to organs through prolonged or repeated exposure.
Remarks: Contains Benzene, CAS # 71-43-2., Blood: may cause haemolysis of red blood cells and/or anaemia., Blood-forming organs: repeated exposure affects the bone marrow., Immune System: animal studies on this material or its components have demonstrated immunotoxicity.

Target Organs: Central nervous system, Peripheral nervous system, Respiratory system, Visual system, Auditory system
Assessment: May cause damage to organs through prolonged or repeated exposure.
Remarks: Contains Toluene, CAS # 108-88-3., Central nervous system: repeated exposure affects the nervous system., Effects were seen at high doses only., 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., Not applicable, Respiratory system: repeated exposure affects the respiratory system. Effects were seen at high doses only., Contains n-Hexane, CAS # 110-54-3., Peripheral nervous system: repeated exposure causes peripheral neuropathy in animals., Visual system: may cause decreased color perception. , These subtle changes have not been found to lead to functional colour vision deficits.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Exposure routes: Oral
Target Organs: Blood-forming organs, Immune system, Central nervous system, Auditory sys-

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tem, Respiratory system, Visual system, Peripheral nervous system
Remarks: Causes damage to blood, blood-forming organs and immune system., Blood: may cause haemolysis of red blood cells and/or anaemia., Blood-forming organs: repeated exposure affects the bone marrow., Immune System: animal studies on this material or its components have demonstrated immunotoxicity., Contains benzene., May cause damage to central nervous system, respiratory system, visual system, and auditory system through prolonged or repeated exposure., Central nervous system: repeated exposure affects the nervous system., Effects were seen at high doses only., Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. , Visual system: may cause decreased color perception. , These subtle changes have not been found to lead to functional colour vision deficits., Respiratory system: repeated exposure affects the respiratory system. Effects were seen at high doses only., Contains Toluene, CAS # 108-88-3., Peripheral nervous system: repeated exposure causes peripheral neuropathy in animals., Contains n-Hexane, CAS # 110-54-3.

Repeated dose toxicity

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Species: Rat, male and female

Application Route: Oral

Method: Test(s) equivalent or similar to OECD Test Guideline 408

Target Organs: hematopoietic system

Species: Rat, male and female

Application Route: Inhalation

Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs: No specific target organs noted

Species: Rabbit, female

Application Route: Dermal

Method: Test(s) equivalent or similar to OECD Test Guideline 410

Target Organs: No specific target organs noted

Aspiration toxicity

Product:

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

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

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

Further information

Product:

Remarks: Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

Remarks: Myelodysplastic syndrome (MDS) was observed in individuals exposed to very high

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levels (50 ppm to 300 ppm range) of benzene over a long period of time in the workplace. The relevance of these results to lower levels of exposure is not known.

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

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

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

SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity)	: LL50: > 1 - 10 mg/l Remarks: Toxic
Toxicity to daphnia and other aquatic invertebrates (Acute toxicity)	: EL50: > 1 - 10 mg/l Remarks: Toxic
Toxicity to algae (Acute toxicity)	: EL50: > 1 - 10 mg/l Remarks: Toxic
Toxicity to fish (Chronic toxicity)	: Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: Remarks: Data not available
Toxicity to microorganisms (Acute toxicity)	: Remarks: LL/EL/IL50 >10 <= 100 mg/l Harmful

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Toxicity to fish (Acute toxicity)	: LC50 (Oncorhynchus mykiss (rainbow trout)): 1 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Toxic LL/EL/IL50 > 1 <= 10 mg/l
Toxicity to daphnia and other	: EC50 (Daphnia magna (Water flea)): 1.2 mg/l

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aquatic invertebrates (Acute toxicity)	:	Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Toxic LL/EL/IL50 > 1 <= 10 mg/l
Toxicity to algae (Acute toxicity)	:	EC50 (Pseudokirchneriella subcapitata (algae)): 1.3 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 Remarks: Toxic LL/EL/IL50 > 1 <= 10 mg/l
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available
Toxicity to microorganisms (Acute toxicity)	:	(Tetrahymena pyriformis): 76.7 mg/l Exposure time: 72 h Method: Based on quantitative structure-activity relationship (QSAR) modelling Remarks: Harmful LL/EL/IL50 >10 <= 100 mg/l

Persistence and degradability

Product:

Biodegradability	:	Remarks: Not readily biodegradable. Remarks: Oxidises rapidly by photo-chemical reactions in air.
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Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Biodegradability	:	Biodegradation: 7.3 % Exposure time: 28 d Method: OECD Test Guideline 301F Remarks: Not readily biodegradable.
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Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: Contains components with the potential to bioaccumulate.
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Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

Bioaccumulation	:	Species: Pimephales promelas (fathead minnow) Bioconcentration factor (BCF): 0.73 - 4.15 Method: Based on quantitative structure-activity relationship
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(QSAR) modelling

Remarks: Contains components with the potential to bioaccumulate.

Mobility in soil

Product:

Mobility : Remarks: Floats on water.

Remarks: If product enters soil, one or more constituents will be mobile and may contaminate groundwater.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

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

Other adverse effects

Product:

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.

Components:

Gasoline, pyrolysis, debutanizer bottoms; Low boiling point naphtha -unspecified:

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

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

Disposal methods

Waste from residues : 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.
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Do not dispose into the environment, in drains or in water courses.
Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Waste arising from a spillage or tank cleaning should be dis-

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posed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Waste, spills or used product is dangerous waste.

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.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums.
Send to drum recoverer or metal reclaimer.
Comply with any local recovery or waste disposal regulations.

SECTION 14. TRANSPORT INFORMATION

National Regulations

49 CFR

UN/ID/NA number : UN 3295
Proper shipping name : HYDROCARBONS, LIQUID, N.O.S.
Class : 3
Packing group : I
Labels : 3
ERG Code : 128
Marine pollutant : no

International Regulations

IATA-DGR

UN/ID No. : UN 3295
Proper shipping name : HYDROCARBONS, LIQUID, N.O.S.
Class : 3
Packing group : I
Labels : 3

IMDG-Code

UN number : UN 3295
Proper shipping name : HYDROCARBONS, LIQUID, N.O.S.
(Gasoline, pyrolysis, debutanizer bottoms)
Class : 3
Packing group : I
Labels : 3
Marine pollutant : yes

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Maritime transport in bulk according to IMO instruments

Pollution category : Y
Ship type : 2
Product name : Pyrolysis gasoline (contains benzene)

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.

Additional Information : Transport in bulk according to Annex II of Marpol and the IBC Code

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Benzene	71-43-2	10	18
Benzene	71-43-2	10	10 (D018)
Toluene	108-88-3	100	100 (F005)

*: The components with RQs are given for information., Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation
Aspiration hazard
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Benzene	71-43-2	>= 50 - < 70 %
Isoprene	78-79-5	>= 20 - < 30 %
Toluene	108-88-3	>= 10 - < 20 %

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Dicyclopentadiene	77-73-6	>= 5 - < 10 %
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Clean Water Act

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Benzene	71-43-2	55 %
Isoprene	78-79-5	20 %
Toluene	108-88-3	10 %

US State Regulations

Pennsylvania Right To Know

Gasoline, Pyrolysis, Debutanizer Bottoms	68606-10-0
Benzene	71-43-2
Isoprene	78-79-5
Toluene	108-88-3
Dicyclopentadiene	77-73-6

California Prop. 65

WARNING: This product can expose you to chemicals including Benzene, Isoprene, which is/are known to the State of California to cause cancer, and Benzene, Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Benzene	71-43-2
Isoprene	78-79-5
Toluene	108-88-3
Dicyclopentadiene	77-73-6

California Regulated Carcinogens

Benzene	71-43-2
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Other regulations:

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

The components of this product are reported in the following inventories:

TSCA : Listed

SECTION 16. OTHER INFORMATION

Further information

NFPA Rating (Health, Fire, Reactivity) 2, 4, 1

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	: ACGIH - Biological Exposure Indices (BEI)

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OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2	:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA CARC / STEL	:	Excursion limit
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-2 / TWA	:	8-hour time weighted average
OSHA Z-2 / CEIL	:	Acceptable ceiling concentration
OSHA Z-2 / Peak	:	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
Abbreviations and Acronyms	:	The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council
CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut für Normung
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals
ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory

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LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of
Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Ob-
served Effect Level
OE_HP V = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical
Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of
Chemicals
RID = Regulations Relating to International Carriage of Dan-
gerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

A vertical bar (|) in the left margin indicates an amendment from the previous version.

Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID data base, EC 1272 regulation, etc).

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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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