1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	C6 Raffinate
Product code	:	Q9110, Q9140

Manufacturer or supplier's details

Supplier	:	**Shell - See 'Shipper' section of the Bill of Lading** and/or 'Supplier' section of the Bunker Delivery Note for details
Telephone	:	See Bill of Lading and/or Bunker Delivery Note
Emergency telephone number	:	+1 703-527-3887
MARPOL Annex I Category	:	Naphthas and Condensates
Description on Bill of Lading (B/L)/Bunker delivery not/Shipping document	:	Naphtha (Annex 1, Appendix 1 Name)

Recommended use of the chemical and restrictions on use

Recommended use	:	Chemical feedstock and component of motor gasoline. For use only in industrial processes.
Restrictions on use	:	Restricted to professional users., This product must not be used in applications other than the above without first seeking the advice of the supplier.

Other information : See Section 14 for transportation information related to the Bill of Lading, other shipping documents.

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids	:	Category 2
Aspiration hazard	:	Category 1
Skin irritation	:	Category 2
Eye irritation	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3
Germ cell mutagenicity	:	Category 1B
Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2
Specific target organ toxicity - repeated exposure	:	Category 1
Short-term (acute) aquatic hazard	:	Category 2
Long-term (chronic) aquatic hazard	:	Category 2

GHS-Labelling

Hazard pictograms :

Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:
H225 Highly flammable liquid and vapour.
HEALTH HAZARDS:
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
ENVIRONMENTAL HAZARDS:
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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 action to prevent static discharges.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P264 Wash skin thoroughly after handling.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271 Use only outdoors or in a well-ventilated area.
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:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P370 + P378 In case of fire: Use appropriate media to extinguish.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P331 Do NOT induce vomiting.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it 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.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
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/ container to an approved waste disposal plant.

Other hazards which do not result in classification

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.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)

naphtha (petroleum), solvent-refined light	64741-84-0	<= 100 %

Further information

Contains:

Chemical name	Identification number	Concentration(% w/w)
n-Hexane	110-54-3	>= 10 <= 30
Cyclohexane	110-82-7	>= 5 <= 10
pentane	109-66-0	>= 0 <= 5
Benzene	71-43-2	< 1

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 : 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. 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.

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.

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.

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).

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.

Notes to physician : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Call a doctor or poison control center for guidance.
Potential for chemical pneumonitis.
Treat symptomatically.
Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.

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 firefighting : 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. 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 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).

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.

7. HANDLING AND STORAGE

General Precautions : 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.

Refer to guidance under Handling section.

Storage

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

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value (Form of exposure)	Control parameters / Permissible concentration	Basis
n-Hexane	110-54-3	TWA	50 ppm	ACGIH
Cyclohexane	110-82-7	TWA	100 ppm	ACGIH
pentane	109-66-0	TWA	1,000 ppm	ACGIH
Benzene	71-43-2	TWA	0.25 ppm 0.8 mg/m3	Shell Internal Standard (SIS) for 8-12 hour TWA.
		STEL	2.5 ppm 8 mg/m3	Shell Internal Standard (SIS) for 15 min (STEL)
		TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH

Biological occupational exposure limits

Component	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
n-Hexane	110-54-3	2,5-Hexanedione	Urine		0.5 mg/l	ACGIH - Biological Exposure Indices (BEI)
Remarks: Without hydrolysis						
Benzene	71-43-2	S-Phenylmercapturic acid	Urine	End of shift	25.µg/g creatinine	ACGIH - Biological Exposure Indices (BEI)
Remarks: Background						
		t,t-Muconic acid	Urine	End of shift	500.µg/g creatinine	ACGIH - Biological Exposure Indices (BEI)
Remarks: Background						

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 Securité, (INRS), France http://www.inrs.fr/accueil

Protective measures

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

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 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)].

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 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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Colour	:	colourless
Odour	:	aromatic
Odour Threshold	:	Data not available
pH	:	Data not available
Melting point/freezing point	:	Data not available
Boiling point/boiling range	:	ca. 55 - 105 °C / 131 - 221 °F
Flash point	:	< 0 °C / < 32 °F
Evaporation rate	:	Data not available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	7.5 %(V)
Lower explosion limit	:	1 %(V)
Vapour pressure	:	< 500 mbar (38 °C / 100 °F)
Relative vapour density	:	3.3
Relative density	:	Data not available
Density	:	Typical 700 kg/m3 (20 °C / 68 °F)
Solubility(ies)		
Water solubility	:	Data not available
Partition coefficient: n-octanol/water	:	Data not available

Auto-ignition temperature	:	> 225 °C / > 437 °F
Decomposition temperature	:	Data not available
Viscosity		
Viscosity, dynamic	:	ca. 0.5 mPa.s (20 °C / 68 °F)
Viscosity, kinematic	:	Data not available
Explosive properties	:	no data available
Oxidizing properties	:	Data not 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 semi-conductive, 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
Particle size	:	Data not available
Molecular weight	:	Data not available

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.

11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on data obtained from similar substances.

Information on likely routes of exposure : Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

Acute toxicity

Components:

naphtha (petroleum), solvent-refined light:

Acute oral toxicity : LD 50 Rat, male: > 2,000 mg/kg
Method: Test(s) equivalent or similar to OECD Test Guideline 401
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 Rat, male and female: 28.1 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: 8,260 mg/kg
Method: Test(s) equivalent or similar to OECD Test Guideline 402
Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Components:

naphtha (petroleum), solvent-refined light:
Species: Rabbit
Method: OECD Test Guideline 404
Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Components:

naphtha (petroleum), solvent-refined light:
Species: Rabbit
Method: OECD Test Guideline 405
Remarks: Causes serious eye irritation.

Respiratory or skin sensitisation

Components:

naphtha (petroleum), solvent-refined light:
Species: Guinea pig
Method: Directive 67/548/EEC, Annex V, B.6.
Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Components:

naphtha (petroleum), solvent-refined light:

Genotoxicity in vitro	:	Method: Test(s) equivalent or similar to OECD Guideline 471 Remarks: May cause genetic defects.
	:	Method: Test(s) equivalent or similar to OECD Test Guideline 473 Remarks: May cause genetic defects.
	:	Test species: MouseMethod: OECD Test Guideline 474 Remarks: May cause genetic defects., May cause heritable genetic damage, Contains Benzene, CAS # 71-43-2.
Germ cell mutagenicity-Assessment	:	May cause genetic defects.

Carcinogenicity

Components:

naphtha (petroleum), solvent-refined light:
Species: Rat, (male and female)
Application Route: Oral
Method: Other guideline method.
Remarks: May cause cancer., Known human carcinogen., May cause leukaemia (AML - acute myelogenous leukaemia)., Contains Benzene, CAS # 71-43-2.

Species: Rat, (male and female)
Application Route: Inhalation
Method: Test(s) equivalent or similar to OECD Test Guideline 453
Remarks: May cause cancer., Known human carcinogen., May cause leukaemia (AML - acute myelogenous leukaemia)., Contains Benzene, CAS # 71-43-2.

Carcinogenicity -	:	May cause cancer.

Assessment

Material	GHS/CLP Carcinogenicity Classification
naphtha (petroleum), solvent-refined light	Carcinogenicity Category 1B
n-Hexane	No carcinogenicity classification.
Cyclohexane	No carcinogenicity classification.
pentane	No carcinogenicity classification.
Benzene	Carcinogenicity Category 1A

Reproductive toxicity

Components:

naphtha (petroleum), solvent-refined light:

: Species: Rat
Sex: male and female
Application Route: Inhalation

Method: OECD Test Guideline 422
Remarks: Suspected of damaging fertility or the unborn child., May impair fertility at doses which produce other toxic effects., Contains n-Hexane, CAS # 110-54-3.

Effects on foetal development : Species: Rat, female
Application Route: Inhalation
Method: Literature data
Remarks: Suspected of damaging fertility or the unborn child.

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

STOT - single exposure

Components:

naphtha (petroleum), solvent-refined light:
Exposure routes: Inhalation
Target Organs: Central nervous system
Remarks: May cause drowsiness or dizziness., Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - repeated exposure

Components:

naphtha (petroleum), solvent-refined light:

Exposure routes: Oral
Target Organs: Peripheral nervous system, Immune system, Blood, Blood-forming organs
Remarks: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:
naphtha (petroleum), solvent-refined light:
Rat, male and female:
Application Route: Oral
Method: Test(s) equivalent or similar to OECD Test Guideline 408
Target Organs: hematopoietic system

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

Aspiration toxicity

Components:
naphtha (petroleum), solvent-refined light:
Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Further information

Components:
naphtha (petroleum), solvent-refined light:
Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Ecotoxicity

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.

Components:
naphtha (petroleum), solvent-refined light :

Toxicity to fish (Acute toxicity)	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 8.41 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 aquatic invertebrates (Acute toxicity)	:	EC50 (Daphnia magna (Water flea)): 4.7 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Toxic LL/EL/IL50 1-10 mg/l
Toxicity to algae (Acute toxicity)	:	NOEC (Pseudokirchneriella subcapitata (algae)): 6.47 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Toxic LL/EL/IL50 1-10 mg/l
Toxicity to bacteria	:	Remarks: Data not available
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available

Persistence and degradability

Components:
naphtha (petroleum), solvent-refined light :

Biodegradability	:	Biodegradation: 9 % Exposure time: 28 d Method: OECD Test Guideline 301D Remarks: Not readily biodegradable.

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	:	Remarks: Data not available

Components:
naphtha (petroleum), solvent-refined light :

Bioaccumulation	:	Species: Pimephales promelas (fathead minnow) Bioconcentration factor (BCF): 1.1 - 2.35 Method: Based on quantitative structure-activity relationship (QSAR) modelling Remarks: Does not bioaccumulate significantly.

Mobility in soil

Components:
naphtha (petroleum), solvent-refined light :

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

Other adverse effects

Components:

naphtha (petroleum), solvent-refined light :

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.

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

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1268
Proper shipping name	:	Petroleum distillates, n.o.s.
Class	:	3
Packing group	:	II
Labels	:	3

IMDG-Code

UN number	:	UN 1268
Proper shipping name	:	PETROLEUM DISTILLATES, N.O.S. (NAPHTHA)
Class	:	3
Packing group	:	II
Labels	:	3
Marine pollutant	:	yes

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 **:** This product is being carried under the scope of MARPOL Annex I.

15. REGULATORY INFORMATION

Other regulations	:	International Convention for the Safety of Life at Seas (SOLAS) Regulation VI/5-1.RESOLUTION MSC.286(86) ; RECOMMENDATIONS FOR MATERIAL SAFETY DATA SHEETS (MSDS) FOR MARPOL ANNEX I OIL CARGO AND OIL FUEL.

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

AICS	:	Listed
DSL	:	Listed
IECSC	:	Listed
KECI	:	Listed
NZIoC	:	Listed
PICCS	:	Listed
TSCA	:	Listed
TCSI	:	Listed

16. OTHER INFORMATION

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.

Further information

Training advice	:	Provide adequate information, instruction and training for operators.

Other information	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
		There has been a significant change in the required exposure controls/personal protection requirements in section 8.
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 date base, EC 1272 regulation, etc).

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.