SAFETY DATA SHEET

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Light Straight Run Naphtha

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SECTION 1. IDENTIFICATION

Product name	:	Light Straight Run Naphtha
Product code	:	002D3497
CAS-No.	:	64741-46-4

Manufacturer or supplier's details

Manufacturer/Supplier	:	**Vertex Refining Alabama LLC** 400 Industrial Pkwy Ext. East Saraland, AL 36571
SDS Request	:	251-679-7180
Customer Service	:	251-679-7180

Emergency telephone number

Spill Information	:	1-800-424-9300
Health Information	:	1-800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use	:	Refinery stream.
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.

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
Aspiration hazard	:	Category 1
Reproductive toxicity	:	Category 2
Germ cell mutagenicity	:	Category 1B
Carcinogenicity	:	Category 1B
Specific target organ toxicity - single exposure (Inhalation)	:	Category 3 (Narcotic effects)

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:
H304 May be fatal if swallowed and enters airways.
H315 Causes skin 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.
ENVIRONMENTAL HAZARDS:
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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 non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P312 Call a POISON CENTER/doctor if you feel unwell.
P321 Specific treatment (see supplemental first aid instructions

on this label).
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use alcohol-resistant foam, carbon dioxide or water mist to extinguish.
P391 Collect spillage.

Storage:

P235 Keep cool.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

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

Other hazards which do not result in classification

Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space.
A component or components of this material may cause cancer.
This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia).
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 cause MDS (Myelodysplastic Syndrome).
The classification of this material is based on OSHA HCS 2012 criteria.
Hydrogen sulphide (H2S), an extremely flammable and toxic gas, and other hazardous vapours may evolve and collect in the headspace of storage tanks, transport vessels and other enclosed containers.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	Synonyms	CAS-No.	Concentration (% w/w)
naphtha (petroleum), light straight-run	Naphtha (petroleum), light straight-run (Containing <5% n-hexane)	64741-46-4	100

Hydrogen sulphide may be present both in the liquid and the vapour. Composition is complex and varies with the source of the crude oil and the contributing process plants at that time.

Further information

Contains:

Chemical name	Identification number	Concentration (% w/w)
n-Hexane	110-54-3	20 - 50
Cyclohexane	110-82-7	1 - 5
Benzene	71-43-2	1 - 5
Ethylbenzene	100-41-4	1 - 2
Toluene	108-88-3	0 - 5
Xylene, mixed isomers	1330-20-7	0 - 5
Cumene	98-82-8	0 - 1

SECTION 4. FIRST-AID MEASURES

General advice	: Not expected to be a health hazard when used under normal conditions. Vapourisation of H2S that has been trapped in clothing can be dangerous to rescuers. Maintain respiratory protection to avoid contamination from the victim to rescuer. Mechanical ventilation should be used to resuscitate if at all possible.
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	: Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain 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. 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. The onset of respiratory symptoms may be delayed for several hours after exposure. 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.
Carbon monoxide is an asphyxiant gas that binds competitively with hemoglobin to produce carboxyhaemoglobin. This may lead to significant reductions on oxygen carrying capacity and tissue hypoxia. Symptoms depend on inhaled concentration and duration of exposure. Exposures are cumulative, but reversal occurs in air free from carbon monoxide.
Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

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 : Treat symptomatically.
Call a doctor or poison control center for guidance.
Potential for chemical pneumonitis.

Hydrogen sulphide (H2S) - CNS asphyxiant. May cause rhinitis, bronchitis and occasionally pulmonary oedema after severe exposure. CONSIDER: Oxygen therapy. Consult a Poison Control Center for guidance.

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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 direct water jets on the burning product as they could cause a steam explosion and spread of the fire.
Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards during fire- : Hazardous combustion products may include:

fighting		A complex mixture of airborne solid and liquid particulates and gases (smoke). Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water. Hydrogen sulphide (H2S) and toxic sulphur oxides may be given off when this material is heated. Do not depend on sense of smell for warning.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Clear fire area of all non-emergency personnel. If the fire cannot be extinguished the only course of action is to evacuate immediately. Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.
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).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas 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 meter. Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths.
Environmental precautions	:	Take measures to minimise the effects on groundwater. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.
Methods and materials for containment and cleaning up	:	Take precautionary measures against static discharges. 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.

Observe all relevant local and international regulations.
Avoid contact with skin, eyes and clothing.
Evacuate the area of all non-essential personnel.
Ventilate contaminated area thoroughly.
If contamination of site occurs remediation may require specialist advice.
Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Additional advice : For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.
Local authorities should be advised if significant spillages cannot be contained.
Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

U.S. regulations may require reporting releases of this material 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.
Prevent spillages.
Do not use as a cleaning solvent or other non-motor fuel uses.

Turn off all battery operated portable electronic devices (examples include: cellular phones, pagers and CD players) before operating gasoline pump.
Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.
Air-dry contaminated clothing in a well-ventilated area before laundering.
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.
Avoid contact with skin, eyes and clothing.

Advice on safe handling : Ensure that all local regulations regarding handling and storage facilities are followed.
When using do not eat or drink.
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Never siphon by mouth.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Avoid exposure.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

The inherent toxic and olfactory (sense of smell) fatiguing properties of hydrogen sulphide require that air monitoring alarms be used if concentrations are expected to reach harmful levels such as in enclosed spaces, heated transport vessels and spill or leak situations. If the air concentration exceeds 10 ppm, the area should be evacuated unless respiratory protection is in use.
Sudden Release of Pressure Hazard

The inherent toxic and olfactory (sense of smell) fatiguing properties of hydrogen sulphide require that air monitoring alarms be used if concentrations are expected to reach harmful levels such as in enclosed spaces, heated transport vessels and spill or leak situations. If the air concentration exceeds 10 ppm, the area should be evacuated unless respiratory protection is in use.

Avoidance of contact : Strong oxidising agents.

Product Transfer : Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. 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.
Further information on storage stability	:	Tank storage: Tanks must be specifically designed for use with this product. 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. Keep in a cool place. 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. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
Packaging material	:	Suitable material: For containers, or container linings use mild steel, stainless steel., Aluminium may also be used for applications where it does not present an unnecessary fire hazard., Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product., For container linings, use amine-adduct cured epoxy paint., For seals and gaskets use: graphite, PTFE, Viton A, Viton B. Unsuitable material: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene., However, some may be suitable for glove materials.
Container Advice	:	Do not cut, drill, grind, weld or perform similar operations on or near containers. Containers, even those that have been emptied, can contain explosive vapours.
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 Igni-

tions 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 AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
naphtha (petroleum), light straight-run	64741-46-4	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
n-Hexane	110-54-3	TWA	500 ppm 1,800 mg/m3	OSHA Z-1
n-Hexane		TWA	50 ppm	ACGIH
Benzene		TWA	0.5 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
Cyclohexane	110-82-7	TWA	100 ppm	ACGIH
Cyclohexane		TWA	300 ppm 1,050 mg/m3	OSHA Z-1
Xylene	1330-20-7	TWA	100 ppm 435 mg/m3	OSHA Z-1
Xylene		TWA	100 ppm	ACGIH
Xylene		STEL	150 ppm	ACGIH
Xylene		STEL	150 ppm 655 mg/m3	OSHA P0
Xylene		TWA	100 ppm 435 mg/m3	OSHA P0
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
Ethylbenzene	100-41-4	TWA	20 ppm	ACGIH
Ethylbenzene		TWA	100 ppm	OSHA Z-1

			435 mg/m3	
Cumene	98-82-8	TWA	50 ppm 245 mg/m3	OSHA Z-1
Cumene		TWA	5 ppm	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		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
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI
Benzene	71-43-2	S-Phenylmercapturic 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	500 µg/g creatinine	ACGIH BEI

				ceases)		
n-Hexane	110-54-3	2,5-Hexanedione	Urine	End of shift	0.5 mg/l	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 Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : 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:
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.
Prevent unauthorised persons entering the zone.
Firewater monitors and deluge systems are recommended.

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 surveil-

lance.
Do not ingest. If swallowed, then seek immediate medical assistance.

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 suitable, select an appropriate combination of mask and filter.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
All respiratory protection equipment and use must be in accordance with local regulations.

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

Select a filter suitable for the combination of organic gases and vapours and particles [Type A/Type P boiling point >65°C (149°F)].

In areas where hydrogen sulphide vapours may accumulate, a positive-pressure air-supplied respirator is advised.

Hand protection
Remarks : 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. 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. 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.
Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protec-

		tion Neoprene, PVC gloves may be suitable.
Eye protection	:	Wear goggles for use against liquids and gas. If a local risk assessment deems it so then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
Skin and body protection	:	Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron.
Protective measures	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Hygiene measures	:	Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

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	:	Not applicable
Odour	:	Not applicable
Odour Threshold	:	Data not available
pH	:	Data not available
Melting point/freezing point	:	Data not available
Initial boiling point and boiling range	:	-20 - 180 °C / -4 - 356 °F Method: Unspecified
Flash point	:	<= -40 °C / -40 °F Method: Unspecified
Evaporation rate	:	Data not available
Flammability (solid, gas)	:	Not applicable

Upper explosion limit / upper flammability limit	:	7.60 %(V)
Lower explosion limit / Lower flammability limit	:	Data not available
Vapour pressure	:	15 - 100 kPa (38.0 °C / 100.4 °F) Method: Unspecified 20 - 180 kPa (50.0 °C / 122.0 °F) Method: Unspecified
Relative vapour density	:	Data not available
Relative density	:	Data not available
Density	:	640 - 760 kg/m3 (15.0 °C / 59.0 °F) Method: Unspecified
Solubility(ies)		
Water solubility	:	Data not available
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	log Pow: 2 - 7 log Pow: 2 - 7
Auto-ignition temperature	:	Data not available
Decomposition temperature	:	Data not available
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	0.25 - 0.75 mm2/s (40 °C / 104 °F) Method: Unspecified
Explosive properties	:	Classification Code: Not classified
Oxidizing properties	:	Not applicable
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 liq-

uid

SECTION 10. STABILITY AND REACTIVITY

Reactivity : May oxidise in the presence of air.

Chemical stability : Stable under normal conditions of use.

Possibility of hazardous reactions : No hazardous reaction is expected when handled and stored according to provisions

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.

Hydrogen sulphide.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product data, a knowledge of the components and the toxicology of similar products.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 Oral (Rat): > 5,000 mg/kg
Remarks: Low toxicity:

Acute inhalation toxicity : LC 50 (Rat): > 5 mg/l
Exposure time: 4 h
Remarks: Low toxicity:

Remarks: Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and lungs.

Acute dermal toxicity : LD 50 (Rabbit): > 2,000 mg/kg
Remarks: Low toxicity:

Acute toxicity (other routes of administration) :
Remarks: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Skin corrosion/irritation

Product:

Remarks: Irritating to skin.

Serious eye damage/eye irritation

Product:

Remarks: Slightly irritating to the eye., Based on available data, the classification criteria are not met.

Remarks: Irritating to eyes. (Hydrogen Sulfide)

Respiratory or skin sensitisation

Product:

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

Test Type: Skin sensitisation
Remarks: Not a skin sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

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

Remarks: Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative results.

Carcinogenicity

Product:

Remarks: Contains Benzene, CAS # 71-43-2., Known human carcinogen.

Remarks: Contains Benzene, CAS # 71-43-2., May cause leukaemia (AML - acute myelogenous leukaemia)., May cause MDS (Myelodysplastic Syndrome).

Remarks: Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.

Remarks: An epidemiology study of more than 18,000 petroleum marketing and distribution workers found no significantly increased risk of death from leukemia, multiple myeloma, or kidney cancer associated with gasoline exposure.

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
	Group 2B: Possibly carcinogenic to humans	
	naphtha (petroleum), light straight-run	64741-46-4
	Ethylbenzene	100-41-4
	Cumene	98-82-8
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	
	Cumene	98-82-8

Reproductive toxicity

Product:

:

Remarks: Contains Toluene, CAS # 108-88-3., Causes foetotoxicity at doses which are maternally toxic.

Remarks: Contains n-Hexane, CAS # 110-54-3., May impair fertility at doses which produce other toxic effects.

Remarks: Contains Toluene, CAS # 108-88-3., Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties.

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.

Remarks: Slightly irritating to respiratory system., Based on available data, the classification criteria are not met.

Remarks: Inhalation of vapours or mists may cause irritation to the respiratory system., Contains hydrogen sulphide.

Remarks: Inhalation of vapours or mists cause irritation to the respiratory system. (Hydrogen Sulfide)

STOT - repeated exposure

Product:

Remarks: Kidney: caused kidney effects in male rats which are not considered relevant to humans

Remarks: Contains Toluene, CAS # 108-88-3., 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., Abuse of vapours has been associated with organ damage and death.

Aspiration toxicity

Product:

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

Remarks: H2S has a broad range of effects dependent on the airborne concentration and length of exposure: 0.02 ppm odour threshold, smell of rotten eggs; 10 ppm eye and respiratory tract irritation; 100 ppm coughing, headache, dizziness, nausea, eye irritation, loss of sense of smell in minutes; 200 ppm potential for pulmonary oedema after >20-30 minutes; 500 ppm loss of consciousness after short exposures, potential for respiratory arrest; >1000ppm immediate loss of consciousness, may lead rapidly to death, prompt cardiopulmonary resuscitation may be required. Do not depend on sense of smell for warning. H2S causes rapid olfactory fatigue (deadens sense of smell). There is no evidence that H2S will accumulate in the body tissue after repeated exposure.

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.

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity) :
Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

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

Toxicity to algae (Acute toxicity) :
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: NOEC/NOEL > 1.0 - <= 10 mg/l

Toxicity to microorganisms (Acute toxicity) : Remarks: LL/EL/IL50 >10 <= 100 mg/l
Harmful

Persistence and degradability

Product:

Biodegradability : Remarks: Oxidises rapidly by photo-chemical reactions in air.
Inherently biodegradable.
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."

Bioaccumulative potential

Product:

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

Mobility in soil

Product:

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

Other adverse effects

no data available

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 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. Do not pollute the soil, water or environment with the waste container.

Local legislation

Remarks	:	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.

SECTION 14. TRANSPORT INFORMATION

National Regulations

US Department of Transportation Classification (49 CFR Parts 171-180)

UN/ID/NA number	:	UN 1268
Proper shipping name	:	PETROLEUM DISTILLATES, N.O.S.
Class	:	3
Packing group	:	I
Labels	:	3
ERG Code	:	128
Marine pollutant	:	no

International Regulations

IATA-DGR

UN/ID No.	:	UN 1268
Proper shipping name	:	PETROLEUM DISTILLATES, N.O.S.
Class	:	3
Packing group	:	I
Labels	:	3

IMDG-Code

UN number	:	UN 1268
Proper shipping name	:	PETROLEUM DISTILLATES, N.O.S. (Naphtha (petroleum), light straight-run)
Class	:	3
Packing group	:	I
Labels	:	3
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

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.

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**	**200**
Xylene	**1330-20-7**	**100**	**2000**
n-Hexane	**110-54-3**	**5000**	*****
Toluene	**108-88-3**	**1000**	*****
Cyclohexane	**110-82-7**	**1000**	*****
Ethylbenzene	**100-41-4**	**1000**	*****
Cumene	**98-82-8**	**5000**	*****

*: Vertex HSSE classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore re-leases to the environment are not reportable under CERCLA., The components with RQs are given for information.
Calculated RQ exceeds reasonably attainable upper limit.

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
Aspiration hazard
Reproductive toxicity
Germ cell mutagenicity
Carcinogenicity
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:

n-Hexane	110-54-3	>= 50 - < 70 %
Toluene	108-88-3	>= 5 - < 10 %
Xylene	1330-20-7	>= 5 - < 10 %
Cyclohexane	110-82-7	>= 5 - < 10 %
Benzene	71-43-2	>= 5 - < 10 %
Ethylbenzene	100-41-4	>= 1 - < 5 %
Cumene	98-82-8	>= 1 - < 5 %

Clean Water Act

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

Toluene	108-88-3	5 %
Xylene	1330-20-7	5 %
Ethylbenzene	100-41-4	2 %
Cyclohexane	110-82-7	5 %
Benzene	71-43-2	5 %

US State Regulations

Pennsylvania Right To Know

naphtha (petroleum), light straight-run	64741-46-4
n-Hexane	110-54-3
Cyclohexane	110-82-7
Toluene	108-88-3
Benzene	71-43-2
Xylene	1330-20-7
Ethylbenzene	100-41-4
Cumene	98-82-8

California Prop. 65

WARNING: This product can expose you to chemicals including Ethylbenzene, Benzene, Cumene, which is/are known to the State of California to cause cancer, and Toluene, Benzene, 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

n-Hexane	110-54-3

Cyclohexane	110-82-7
Toluene	108-88-3
Benzene	71-43-2
Xylene	1330-20-7
Ethylbenzene	100-41-4
Cumene	98-82-8

California Regulated Carcinogens

Benzene	71-43-2

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 : All components listed.

SECTION 16. OTHER INFORMATION

Further information

NFPA Rating (Health, Fire, Reactivity) 1, 3, 0

Full text of other abbreviations

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
OSHA CARC	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
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 P0 / TWA	8-hour time weighted average
OSHA P0 / STEL	Short-term exposure 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 fur 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
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 Observed Effect Level
OE_HPV = 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 Dangerous 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

This product is intended for use in closed systems only.
There has been a significant change in the required exposure controls/personal protection requirements in section 8.

Revision Date : 04/01/2022

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.

US / EN