



SWEET CRUDE OIL

ChemWatch Review SDS

Chemwatch Hazard Alert Code: 4

Chemwatch: 1267
Version No: 6.1.1.1
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

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S.GHS.USA.EN

SECTION 1 Identification

Product Identifier

Product name	SWEET CRUDE OIL
Chemical Name	petroleum crude oil
Synonyms	base oil; mineral oil; mineral coal liquid; rock oil; seneca oil
Proper shipping name	Petroleum crude oil
Chemical formula	Not Available
Other means of identification	Not Available
CAS number	8002-05-9

Recommended use of the chemical and restrictions on use

Relevant identified uses	Distillate base oils contain components whose boiling points typically range from 300 to 600 C .These materials are found in the majority of the lubricating products sold to the public. At ambient temperatures, all the materials in the category are liquids of varying viscosities with negligible vapor pressures and water solubility values. Because they are complex mixtures, the lubricating oil basestocks are typically not defined by detailed compositional information but instead by process history, physical properties, and product use specifications. Whereas detailed compositional information may be limited, general compositional information can be inferred from the base oil's physical properties - e.g. the higher the boiling temperature range of a fraction, the higher the molecular weight of the oil's components. Source of petrol, fuel and lubricating oils, petroleum jelly, petroleum ether, butane etc. [-Fragrance ~]
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	SGS North America
Address	900 Georgia Ave Suite 1000, Deer Park, Texas 77536 United States
Telephone	+1 281-479-7170
Fax	+1 281-479-2734
Website	http://www.sgs.com/
Email	usogc.saman@sgs.com

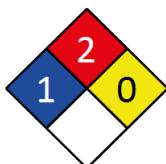
Emergency phone number

Association / Organisation	Chemtrec
Emergency telephone numbers	US: 800-424-9300 Account #20017
Other emergency telephone numbers	International: 170-352-73887 Account #20017

SECTION 2 Hazard(s) identification

Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification	Eye Irritation Category 2B, Acute Aquatic Hazard Category 1, Flammable Liquid Category 3, Chronic Aquatic Hazard Category 1, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Carcinogenicity Category 1A, Germ cell mutagenicity Category 1B
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Label elements

SWEET CRUDE OIL

Hazard pictogram(s)	
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Signal word	Danger
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Hazard statement(s)

H320	Causes eye irritation.
H226	Flammable liquid and vapour.
H410	Very toxic to aquatic life with long lasting effects.
H336	May cause drowsiness or dizziness.
H350	May cause cancer.
H340	May cause genetic defects.

Hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P271	Use only outdoors or in a well-ventilated area.
P281	Use personal protective equipment as required.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

CAS No	%[weight]	Name
8002-05-9		<u>petroleum crude oil</u>
Not Available		A complex mixture containing
Not Available	NotSpec.	paraffinic and cycloparaffinic hydrocarbons
Various	NotSpec.	<u>liquid hydrocarbons</u>
63231-51-6	NotSpec.	<u>aromatic hydrocarbons</u>
130498-29-2	<10	<u>polycyclic aromatic hydrocarbons</u>
Not Available	<10	sulfur compounds
Not Available	<1	heavy metals
71-43-2	<0.5	<u>benzene</u>
7440-62-2	<0.5	<u>vanadium</u>
Not Available	Trace	oxygen compounds
Not Available	Trace	nitrogen compounds
Not Available		May release toxic vapours of
7783-06-4		<u>hydrogen sulfide</u>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Mixtures

See section above for composition of Substances

SECTION 4 First-aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

For petroleum distillates

- In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption - decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precautions of an endotracheal tube should be considered prior to lavage, to prevent aspiration.
- Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function.
- Positive pressure ventilation may be necessary.
- Acute central nervous system signs and symptoms may result from large ingestions of aspiration-induced hypoxia.
- After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary oedema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.
- Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidneys are reported to be uncommon in acute intoxications.
- Chlorinated and non-chlorinated hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators.

Product Safety & Toxicology Department

- ▶ Heavy and persistent skin contamination over many years may lead to dysplastic changes. Pre-existing skin disorders may be aggravated by exposure to this product.
- ▶ In general, emesis induction is unnecessary with high viscosity, low volatility products, i.e. most oils and greases.
- ▶ High pressure accidental injection through the skin should be assessed for possible incision, irrigation and/or debridement.

NOTE: Injuries may not seem serious at first, but within a few hours tissue may become swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Product may be forced through considerable distances along tissue planes.

SECTION 5 Fire-fighting measures

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Liquid and vapour are flammable. ▶ Moderate fire hazard when exposed to heat or flame. ▶ Vapour forms an explosive mixture with air. ▶ Moderate explosion hazard when exposed to heat or flame. <p>Combustion products include: carbon dioxide (CO₂) carbon monoxide (CO) sulfur oxides (SO_x) hydrogen sulfide (H₂S) other pyrolysis products typical of burning organic material.</p> <p>CARE: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.</p>

SECTION 6 Accidental release measures

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Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive. ▶ Wear full body protective clothing with breathing apparatus.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<p>The conductivity of this material may make 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.</p> <ul style="list-style-type: none"> ▶ Containers, even those that have been emptied, may contain explosive vapours. ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of overexposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers in approved flammable liquid storage area. ▶ Store away from incompatible materials in a cool, dry, well-ventilated area. ▶ DO NOT store in pits, depressions, basements or areas where vapours may be trapped. ▶ No smoking, naked lights, heat or ignition sources.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Packing as supplied by manufacturer. ▶ Plastic containers may only be used if approved for flammable liquid. ▶ Check that containers are clearly labelled and free from leaks. ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. ▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C) ▶ For manufactured product having a viscosity of at least 250 cSt.
Storage incompatibility	<p>Hydrogen sulfide (H2S):</p> <ul style="list-style-type: none"> ▶ is a highly flammable and reactive gas ▶ reacts violently with strong oxidisers, metal oxides, metal dusts and powders, bromine pentafluoride, chlorine trifluoride, chromium trioxide, chromyl chloride, dichlorine oxide, nitrogen trichloride, nitril hypofluorite, oxygen difluoride, perchloryl fluoride, phospham, phosphorus persulfide, silver fulminate, soda-lime, sodium peroxide ▶ is incompatible with acetaldehyde, chlorine monoxide, chromic acid, chromic anhydride, copper, nitric acid, phenyldiazonium chloride, sodium ▶ forms explosive material with benzenediazonium salts ▶ attacks many metals <p>Flow or agitation of hydrogen sulfide may generate electrostatic charges due to low conductivity</p> <p>CARE: Water in contact with heated material may cause foaming or a steam explosion with possible severe burns from wide scattering of hot material. Resultant overflow of containers may result in fire.</p> <ul style="list-style-type: none"> ▶ Sulfides are incompatible with acids, diazo and azo compounds, halocarbons, isocyanates, aldehydes, alkali metals, nitrides, hydrides, and other strong reducing agents. ▶ Many reactions of sulfides with these materials generate heat and in many cases hydrogen gas. ▶ Many sulfide compounds may liberate hydrogen sulfide upon reaction with an acid. ▶ Avoid reaction with oxidising agents

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELs)	petroleum crude oil	Aliphatic petroleum naphtha, Petroleum naphtha, Rubber solvent	350 mg/m3	Not Available	1800 mg/m3	[15-minute]

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Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	petroleum crude oil	Oil mist, mineral	5 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	petroleum crude oil	Mineral oil, excluding metal working fluids - Pure, highly and severely refined (Inhalable particulate matter)	5 mg/m3	Not Available	Not Available	URT irr
US ACGIH Threshold Limit Values (TLV)	petroleum crude oil	Mineral oil, excluding metal working fluids - Poorly and mildly refined	Not Available	Not Available	Not Available	URT irr
US NIOSH Recommended Exposure Limits (RELs)	benzene	Benzol, Phenyl hydride	0.1 ppm	1 ppm	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	benzene	Benzene	Not Available	Not Available	Not Available	See Table Z-2 for the limits applicable in the operations or sectors excluded in 1910.1028; see 1910.1028; (d) The final benzene standard in 1910.1028 applies to all occupational exposures to benzene except in some circumstances the distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures; for the excepted subsegments, the benzene limits in Table Z-2 apply. See 1910.1028 for specific circumstances
US OSHA Permissible Exposure Levels (PELs) - Table Z2	benzene	Benzene	10 ppm	Not Available	25 ppm	This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at 1910.1028. (Z37.40-1969)
US ACGIH Threshold Limit Values (TLV)	benzene	Benzene	0.5 ppm	2.5 ppm	Not Available	Leukemia; BEI
US NIOSH Recommended Exposure Limits (RELs)	hydrogen sulfide	Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen	Not Available	Not Available	10 ppm / 15 mg/m3	[10-minute]
US OSHA Permissible Exposure Levels (PELs) - Table Z1	hydrogen sulfide	Hydrogen sulfide	Not Available	Not Available	Not Available	See Table Z-2
US OSHA Permissible Exposure Levels (PELs) - Table Z2	hydrogen sulfide	Hydrogen sulfide	Not Available	Not Available	20 ppm	(Z37.2-1966)
US ACGIH Threshold Limit Values (TLV)	hydrogen sulfide	Hydrogen sulfide	1 ppm	5 ppm	Not Available	URT irr; CNS impair

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
petroleum crude oil	Petroleum distillates; petroleum ether; includes clay-treated light naphthenic [64742-45-6]; low boiling [68477-31-6]; petroleum extracts [64742-06-9]; petroleum base oil [64742-46-7]; petroleum 50 thinner, petroleum spirits [64475-85-0], Soltrol, VM&P naphtha [8032-32-4]; Ligroine, and paint solvent; petroleum paraffins C5-C20 [64771-72-8]; hydrotreated light naphthenic [64742-53-6]; solvent refined light naphthenic [64741-97-5]; and machine coolant 1	1,100 mg/m3	1,800 mg/m3	40,000 mg/m3
benzene	Benzene	Not Available	Not Available	Not Available
vanadium	Vanadium	3 mg/m3	5,8 mg/m3	35 mg/m3
hydrogen sulfide	Hydrogen sulfide	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
petroleum crude oil	1,100 ppm	Not Available
liquid hydrocarbons	Not Available	Not Available
aromatic hydrocarbons	Not Available	Not Available
polycyclic aromatic hydrocarbons	Not Available	Not Available
benzene	500 ppm	Not Available
vanadium	Not Available	Not Available
hydrogen sulfide	100 ppm	Not Available

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p>
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Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ▶ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] ▶ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. ▶ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. ▶ Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. ▶ Overalls. ▶ PVC Apron. ▶ PVC protective suit may be required if exposure severe. ▶ Eyewash unit. ▶ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. ▶ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). ▶ Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:
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Material	CPI
PE/EVAL/PE	A
PVA	A
TEFLON	A
VITON	A
VITON/NEOPRENE	A
BUTYL	C
BUTYL/NEOPRENE	C
NATURAL RUBBER	C
NEOPRENE	C
NITRILE	C
NITRILE+PVC	C
PVC	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AB-AUS P2	-	AB-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AB-AUS / Class 1 P2	-
up to 100 x ES	-	AB-2 P2	AB-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

For concentrations exceeding 10 ppm hydrogen sulfide or for unknown concentrations:

- ▶ Respirators should be equipped with pressure demand regulators and operated in pressure demand mode only. If airline units are used, a 5-minute egress bottle must

- also be carried.
- ▶ Gas masks or other air-purifying respirators must never be used for H₂S, due to the poor warning properties of the gas.
 - ▶ When exposure concentrations are unknown and respiratory protection is not used, personal H₂S warning devices should be worn.
 - ▶ These devices should not be relied on to warn of life-threatening concentrations.
 - ▶ H₂S rapidly fatigues the sense of smell; the rotten egg odour disappears quickly even where high concentrations are present.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Viscous dark yellow to brown or greenish black oily liquid with unpleasant hydrocarbon/hydrogen sulfide odour; does not mix with water. Mixes with chloroform, ether and benzene. Crude oil consists of thousands of individual compounds. The major groups include the saturated alkanes, alkenes, benzene, alkylated and aryl benzenes, polynuclear aromatics, heterocyclic aromatics, and hetro-atom substituted alkanes, alkenes and aromatics. The different types of crude oil will show different ratios of these compound types		
Physical state	Liquid	Relative density (Water = 1)	<1
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not available.
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not available.	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Varies.	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	<61	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Flammable.	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not available.	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not available.	Volatile Component (%vol)	Varies.
Vapour pressure (kPa)	Not available.	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	>1	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	<p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> <p>There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhaling high concentrations of mixed hydrocarbons can cause narcosis, with nausea, vomiting and lightheadedness. Low molecular weight (C₂-C₁₂) hydrocarbons can irritate mucous membranes and cause incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and stupor.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>Inhalation of oil droplets or aerosols may cause discomfort and may produce chemical inflammation of the lungs.</p> <p>Hydrogen sulfide poisoning can cause increased secretion of saliva, nausea, vomiting, diarrhoea, giddiness, headache, vertigo, memory loss, palpitations, heartbeat irregularities, weakness, muscle cramps, confusion, sudden collapse, unconsciousness and death due to paralysis of breathing (at levels above 300 parts per million). The "rotten egg" odour is not a good indicator of exposure since odour fatigue occurs and odour is lost at over 200 ppm.</p> <p>Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache dizziness, excitation, euphoria, blurred vision, and increased reaction time, fatigue and loss of co-ordination. If exposure to highly concentrated atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and death.</p> <p>Inhalation of high concentrations of dense oil mists may result in oil pneumonia.</p>
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SWEET CRUDE OIL

Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Ingestion of petroleum hydrocarbons can irritate the pharynx, oesophagus, stomach and small intestine, and cause swellings and ulcers of the mucous. Symptoms include a burning mouth and throat; larger amounts can cause nausea and vomiting, narcosis, weakness, dizziness, slow and shallow breathing, abdominal swelling, unconsciousness and convulsions.
Skin Contact	Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. The liquid may be able to be mixed with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives. Open cuts, abraded or irritated skin should not be exposed to this material The material may accentuate any pre-existing dermatitis condition Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Aromatic hydrocarbons may produce sensitivity and redness of the skin. They are not likely to be absorbed into the body through the skin but branched species are more likely to.
Eye	Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn). Exposure to H2S may produce pain, blurred vision, and reaction to eyes which may be permanent in severe cases. There is usually redness of the eyes, discomfort on exposure to light, pain, and at higher concentrations blurred vision and injury to the eyes. Direct eye contact with petroleum hydrocarbons can be painful, and the corneal epithelium may be temporarily damaged. Aromatic species can cause irritation and excessive tear secretion.
Chronic	There is sufficient evidence to suggest that this material directly causes cancer in humans. Based on experiments and other information, there is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Oil may contact the skin or be inhaled. Extended exposure can lead to eczema, inflammation of hair follicles, pigmentation of the face and warts on the soles of the feet. Constant or exposure over long periods to mixed hydrocarbons may produce stupor with dizziness, weakness and visual disturbance, weight loss and anaemia, and reduced liver and kidney function. Skin exposure may result in drying and cracking and redness of the skin. Long term low level exposure to hydrogen sulfide may produce headache, fatigue, dizziness, irritability and loss of sexual desire. These symptoms may also result when exposed to hydrogen sulfide at high concentration for a short period of time. Chronic exposure to benzene may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anaemia and blood changes. Benzene is a myelotoxicant known to suppress bone- marrow cell proliferation and to induce haematologic disorders in humans and animals. Polycyclic aromatic hydrocarbons are found in a number of materials such as coal tar, tobacco smoke, petroleum and air pollution. Some substituted derivatives have been identified as extremely liable to cause cancer, especially that of the lung and genito-urinary tract. Crude oils contain polycyclic aromatic hydrocarbons which are carcinogenic after prolonged or repeated skin contact in laboratory animals. The presence of various heavy metals in crude oil may result in systemic poisoning.

petroleum crude oil	TOXICITY	IRRITATION
	Oral (rat) LD50: >4300 mg/kg ^[2]	Eye (rabbit): 100 mg mild Skin (rabbit): 500 mg/24H Mild
liquid hydrocarbons	TOXICITY	IRRITATION
	Not Available	Not Available
aromatic hydrocarbons	TOXICITY	IRRITATION
	Oral (bird) LD50: >2250 mg/kg ^[2]	Not Available
polycyclic aromatic hydrocarbons	TOXICITY	IRRITATION
	Not Available	Not Available
benzene	TOXICITY	IRRITATION
	=50 mg/kg ^[2]	Eye (rabbit): 2 mg/24h - SEVERE
	100 mg/kg ^[2]	Eye: adverse effect observed (irritating) ^[1]
	150 mg/kg ^[2]	SKIN (rabbit):20 mg/24h - moderate
	50 mg/kg ^[2]	Skin: adverse effect observed (irritating) ^[1]
	Inhalation (rat) LC50: 17480.0325 mg/l/7h ^[2]	
	Oral (rat) LD50: 690-1230 mg/kg ^[2]	
Oral (rat) LD50: 930 mg/kg ^[2]		
vanadium	TOXICITY	IRRITATION
	Not Available	Not Available
hydrogen sulfide	TOXICITY	IRRITATION
	600 mg/kg ^[2]	Not Available
	800 mg/kg ^[2]	
	Inhalation (rat) LC50: 0.7 mg/l/4H ^[2]	

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

SWEET CRUDE OIL

PETROLEUM CRUDE OIL	<p>The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since:</p> <ul style="list-style-type: none"> • The adverse effects of these materials are associated with undesirable components, and • The levels of the undesirable components are inversely related to the degree of processing; • Distillate base oils receiving the same degree or extent of processing will have similar toxicities; • The potential toxicity of residual base oils is independent of the degree of processing the oil receives. • The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. <p>Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential cancer-causing and mutation-causing activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components. In comparison to unrefined and mildly refined base oils, the highly and severely refined distillate base oils have a smaller range of hydrocarbon molecules and have demonstrated very low mammalian toxicity. Testing of residual oils for mutation-causing and cancer-causing potential has shown negative results, supporting the belief that these materials lack biologically active components or the components are largely non-bioavailable due to their molecular size. Toxicity testing has consistently shown that lubricating base oils have low acute toxicities.</p> <p>For unrefined and mildly refined distillate base oils: Acute toxicity: Animal testing showed high semilethal doses of >5000 mg/kg body weight and >2 g/kg body weight for exposure by swallowing or skin contact, respectively. The same material was also reported to be moderately irritating to skin, while not being sensitizing. Repeat dose toxicity: Animal testing showed that repeat dose toxicity was mild to moderate to the skin. Reproductive / developmental toxicity: No studies on developmental toxicity or reproduction are available. Animal testing shows that high doses may reduce the body weight of both the mother and the foetus, and increase the rate of soft tissue malformations. Genetic toxicity: These oils have been found to cause mutations. Cancer-causing potential: The general conclusion that can be drawn from animal testing is that these oils may potentially cause skin cancer; however, they have not been found to be associated with an increase in tumours elsewhere in the body. Animal studies indicate that normal, branched and cyclic paraffins are absorbed from the gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins. The major classes of hydrocarbons are well absorbed into the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with fats in the diet. Some hydrocarbons may appear unchanged as in the lipoprotein particles in the gut lymph, but most hydrocarbons partly separate from fats and undergo metabolism in the gut cell. For petroleum: This product contains benzene, which can cause acute myeloid leukaemia, and n-hexane, which can be metabolized to compounds which are toxic to the nervous system. This product contains toluene, and animal studies suggest high concentrations of toluene lead to hearing loss. This product contains ethyl benzene and naphthalene, from which animal testing shows evidence of tumour formation. Cancer-causing potential: Animal testing shows inhaling petroleum causes tumours of the liver and kidney; these are however not considered to be relevant in humans. Mutation-causing potential: Most studies involving gasoline have returned negative results regarding the potential to cause mutations, including all recent studies in living human subjects (such as in petrol service station attendants). The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. Tumorigenic - Carcinogenic by RTECS criteria.</p>
LIQUID HYDROCARBONS	<p>For olefins: Studies have shown that normal alpha olefins have little or no toxic effect on animals except if inhaled in high concentrations. They may produce minimal skin and eye irritation, but do not sensitise the skin. Exposure to very high levels of C6-C16 normal alpha olefin vapours caused central nervous system effects, including anaesthesia (loss of sensation). If C20+ products are heated, fumes may produce nausea and irritation of the upper airway.</p>
AROMATIC HYDROCARBONS	<p>NOTE: Insufficient information to identify possible hazards, including the chronic health effects, of this particular substance.</p>
BENZENE	<p>Inhalation (man) TClO: 150 ppm/1y - I Data demonstrate that during inhalation exposure, aromatic hydrocarbons undergo substantial partitioning into adipose tissues. Following cessation of exposure, the level of aromatic hydrocarbons in body fats rapidly declines. Thus, the aromatic hydrocarbons are unlikely to bioaccumulate in the body. Selective partitioning of the aromatic hydrocarbons into the non-adipose tissues is unlikely.</p> <p>WARNING: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.</p>
PETROLEUM CRUDE OIL & LIQUID HYDROCARBONS & POLYCYCLIC AROMATIC HYDROCARBONS	<p>No significant acute toxicological data identified in literature search.</p>
PETROLEUM CRUDE OIL & BENZENE	<p>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p>

Acute Toxicity	✗	Carcinogenicity	✓
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✓	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

	Endpoint	Test Duration (hr)	Species	Value	Source
	petroleum crude oil	NOEC	192	Crustacea	=5mg/L
	Endpoint	Test Duration (hr)	Species	Value	Source
	liquid hydrocarbons				

Continued...

	Not Available	Not Available	Not Available	Not Available	Not Available
aromatic hydrocarbons	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	48	Crustacea	1.1mg/L	2
	LC50	96	Fish	3mg/L	2
	EC50	72	Algae or other aquatic plants	3.8mg/L	2
	NOEL	504	Crustacea	0.179mg/L	2
polycyclic aromatic hydrocarbons	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
benzene	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	4.9mg/L	2
	EC50	48	Crustacea	10mg/L	2
	EC50	96	Algae or other aquatic plants	>1-360mg/L	2
	EC10	Not Available	Fish	0.0035mg/L	2
	NOEC	480	Crustacea	ca.0.17mg/L	1
vanadium	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.001-0.85mg/L	2
	EC50	48	Crustacea	0.002-0.387mg/L	2
	EC50	72	Algae or other aquatic plants	0.001-0.162mg/L	2
	NOEC	2352	Crustacea	0.001-mg/L	2
hydrogen sulfide	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.00143mg/L	2
	EC50	48	Crustacea	0.12mg/L	2
	NOEC	3960	Fish	0.0004mg/L	5
Legend:	<i>Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data</i>				

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the oxygen transfer between the air and the water

Oils of any kind can cause:

- drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility
- lethal effects on fish by coating gill surfaces, preventing respiration
- asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and
- adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation.

for lubricating oil base stocks:

Vapor Pressure Vapor pressures of lubricating base oils are reported to be negligible. In one study, the experimentally measured vapour pressure of a solvent-dewaxed heavy paraffinic distillate base oil was 1.7×10^{-4} Pa. Since base oils are mixtures of C15 to C50 paraffinic, naphthenic, and aromatic hydrocarbon isomers, representative components of those structures were selected to calculate a range of vapor pressures. The estimated vapor pressure values for these selected components of base oils ranged from 4.5×10^{-1} Pa to 2×10^{-13} Pa.

For petroleum distillates:

Environmental fate:

When petroleum substances are released into the environment, four major fate processes will take place: dissolution in water, volatilization, biodegradation and adsorption. These processes will cause changes in the composition of these UVCB substances. In the case of spills on land or water surfaces, photodegradation-another fate process-can also be significant.

As noted previously, the solubility and vapour pressure of components within a mixture will differ from those of the component alone.

for crude petroleum oil:

Environmental fate:

The processes determining the fate of oil in seawater are reasonably well understood.

Initially, the oil spreads out as a film on the sea surface as a result of wind and wave action. The more volatile, lower molecular weight hydrocarbons are lost by evaporation. Polar compounds and the mono-aromatic hydrocarbons have an appreciable water solubility and are taken into solution.

For Vanadium Compounds:

Environmental Fate: Vanadium is travels through the environment via long-range transportation in the atmosphere, water, and land by natural and man-made sources, wet and dry deposition, adsorption and complexing. From natural sources, vanadium is probably in the form of less soluble trivalent mineral particles.

Atmospheric Fate: Vanadium generally enters the atmosphere as an aerosol. Natural and man-made sources of vanadium tend to release large particles that are more likely to settle near the source.

Sulfide ion is very toxic to aquatic life, threshold concentration for fresh or saltwater fish is 0.5ppm. The product therefore is very toxic to aquatic life. The major decomposition product, hydrogen sulfide, is damaging to vegetation at 5ppm for 24 hours

For hydrogen sulfide:

Environmental Fate: Since hydrogen sulfide exists as a gas at atmospheric pressure, partitioning to the air is likely to occur after environmental release, where it may adhere to soil and plant foliage. The compound is also soluble in oil and water, and thus may also partition to surface water, groundwater, or moist soil. Hydrogen sulfide's solubility in pure water decreases as water temperature increases. Once hydrogen sulfide is dissolved in water, it will dissociate into bisulfide and sulfide ions; the ratio and concentrations of these ions will depend on the pH of the solution.

For Petroleum Derivatives:

Environmental Fate: Chemical analysis for all individual compounds in a petroleum bulk product released to the environment is generally unrealistic due to the complexity of these mixtures and the laboratory expense. This is further complicated by differences in behavior of the substances in water, and biological/non-biological processes.

Atmospheric Fate: Petroleum derivatives with high vapor pressures are expected to evaporate and become a vapor. The exact composition of these vapors depends on the composition of the original product.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
benzene	HIGH (Half-life = 720 days)	LOW (Half-life = 20.88 days)
hydrogen sulfide	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
benzene	HIGH (BCF = 4360)
hydrogen sulfide	LOW (LogKOW = 0.229)

Mobility in soil

Ingredient	Mobility
benzene	LOW (KOC = 165.5)
hydrogen sulfide	LOW (KOC = 14.3)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible. ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). ▶ Decontaminate empty containers.
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	

Land transport (DOT)

UN number	1267				
UN proper shipping name	Petroleum crude oil				
Transport hazard class(es)	<table border="1" style="width: 100%;"> <tbody> <tr> <td style="text-align: center;">Class</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">Subrisk</td> <td style="text-align: center;">Not Applicable</td> </tr> </tbody> </table>	Class	3	Subrisk	Not Applicable
Class	3				
Subrisk	Not Applicable				
Packing group	III				
Environmental hazard	Environmentally hazardous				

Special precautions for user	Hazard Label	3
	Special provisions	144, 357, B1, IB3, T2, TP1

Air transport (ICAO-IATA / DGR)

UN number	1267	
UN proper shipping name	Petroleum crude oil	
Transport hazard class(es)	ICAO/IATA Class	3
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	3L
Packing group	III	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A3 A177
	Cargo Only Packing Instructions	366
	Cargo Only Maximum Qty / Pack	220 L
	Passenger and Cargo Packing Instructions	355
	Passenger and Cargo Maximum Qty / Pack	60 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y344
	Passenger and Cargo Limited Maximum Qty / Pack	10 L

Sea transport (IMDG-Code / GGVSee)

UN number	1267	
UN proper shipping name	PETROLEUM CRUDE OIL	
Transport hazard class(es)	IMDG Class	3
	IMDG Subrisk	Not Applicable
Packing group	III	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-E , S-E
	Special provisions	223 357
	Limited Quantities	5 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 Regulatory information

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

petroleum crude oil is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1 : Carcinogenic to humans
- US - California Proposition 65 - Carcinogens
- US - California Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65 List
- US ACGIH Threshold Limit Values (TLV)
- US ACGIH Threshold Limit Values (TLV) - Carcinogens
- US AIHA Workplace Environmental Exposure Levels (WEELs)
- US DOE Temporary Emergency Exposure Limits (TEELs)
- US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
- US NIOSH Recommended Exposure Limits (RELs)
- US OSHA Permissible Exposure Levels (PELs) - Table Z1
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US TSCA Chemical Substance Inventory - Interim List of Active Substances

liquid hydrocarbons is found on the following regulatory lists

Not Applicable

aromatic hydrocarbons is found on the following regulatory lists

- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

polycyclic aromatic hydrocarbons is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- US Clean Air Act - Hazardous Air Pollutants
- US CWA (Clean Water Act) - Toxic Pollutants
- US EPA Integrated Risk Information System (IRIS)

US EPCRA Section 313 Chemical List

benzene is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1 : Carcinogenic to humans
- US - California Hazardous Air Pollutants Identified as Toxic Air Contaminants
- US - California Proposition 65 - Carcinogens
- US - California Proposition 65 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
- US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
- US - California Proposition 65 - Reproductive Toxicity
- US - California Safe Drinking Water and Toxic Enforcement Act of 1986 - Proposition 65 List
- US - California Substances Identified As Toxic Air Contaminants
- US ACGIH Threshold Limit Values (TLV)
- US ACGIH Threshold Limit Values (TLV) - Carcinogens
- US AIHA Workplace Environmental Exposure Levels (WEELs)
- US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
- US Clean Air Act - Hazardous Air Pollutants
- US CWA (Clean Water Act) - List of Hazardous Substances
- US CWA (Clean Water Act) - Priority Pollutants
- US CWA (Clean Water Act) - Toxic Pollutants
- US DOE Temporary Emergency Exposure Limits (TEELs)
- US EPA Carcinogens Listing
- US EPA Drinking Water Treatability Database
- US EPA Integrated Risk Information System (IRIS)
- US EPCRA Section 313 Chemical List
- US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
- US NIOSH Recommended Exposure Limits (RELs)
- US OSHA Carcinogens Listing
- US OSHA Permissible Exposure Levels (PELs) - Table Z1
- US OSHA Permissible Exposure Levels (PELs) - Table Z2
- US OSHA Permissible Exposure Limits - Annotated Table Z-1
- US OSHA Permissible Exposure Limits - Annotated Table Z-2
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US TSCA Chemical Substance Inventory - Interim List of Active Substances

vanadium is found on the following regulatory lists

- Chemical Footprint Project - Chemicals of High Concern List
- US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
- US DOE Temporary Emergency Exposure Limits (TEELs)
- US EPCRA Section 313 Chemical List
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US TSCA Chemical Substance Inventory - Interim List of Active Substances

hydrogen sulfide is found on the following regulatory lists

- US ACGIH Threshold Limit Values (TLV)
- US AIHA Workplace Environmental Exposure Levels (WEELs)
- US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
- US CWA (Clean Water Act) - List of Hazardous Substances
- US Department of Homeland Security (DHS) - Chemical Facility Anti-Terrorism Standards (CFATS) - Chemicals of Interest
- US DOE Temporary Emergency Exposure Limits (TEELs)
- US EPA Integrated Risk Information System (IRIS)
- US EPCRA Section 313 Chemical List
- US NIOSH Recommended Exposure Limits (RELs)
- US OSHA Permissible Exposure Levels (PELs) - Table Z1
- US OSHA Permissible Exposure Levels (PELs) - Table Z2
- US OSHA Permissible Exposure Limits - Annotated Table Z-1
- US OSHA Permissible Exposure Limits - Annotated Table Z-2
- US SARA Section 302 Extremely Hazardous Substances
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US TSCA Chemical Substance Inventory - Interim List of Active Substances

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

Flammable (Gases, Aerosols, Liquids, or Solids)	Yes
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No

Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	Yes
Acute toxicity (any route of exposure)	No
Reproductive toxicity	No
Skin Corrosion or Irritation	No
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	No
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	Yes
Simple Asphyxiant	No
Hazards Not Otherwise Classified	No

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
Benzene	10	4.54
Hydrogen sulfide H2S	100	45.4

State Regulations

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - California Proposition 65 - Carcinogens: Listed substance

Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils), Benzene Listed

US - California Proposition 65 - Reproductive Toxicity: Listed substance

Benzene Listed

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (polycyclic aromatic hydrocarbons)
Canada - DSL	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons)
Canada - NDSL	No (petroleum crude oil; aromatic hydrocarbons; polycyclic aromatic hydrocarbons; benzene; vanadium; hydrogen sulfide)
China - IECSC	No (petroleum crude oil; polycyclic aromatic hydrocarbons)
Europe - EINEC / ELINCS / NLP	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons)
Japan - ENCS	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons; vanadium)
Korea - KECI	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons)
New Zealand - NZIoC	No (polycyclic aromatic hydrocarbons)
Philippines - PICCS	No (polycyclic aromatic hydrocarbons)
USA - TSCA	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons)
Taiwan - TCSI	Yes
Mexico - INSQ	No (aromatic hydrocarbons)
Vietnam - NCI	No (polycyclic aromatic hydrocarbons)
Russia - ARIPS	No (aromatic hydrocarbons; polycyclic aromatic hydrocarbons)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	08/08/2018
Initial Date	12/06/2001

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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