SAFETY DATA SHEET

KEARL DILBIT/ KEARL BLEND / DILBIT KEARL / DILUTED KEARL BITUMEN

Section 1. Identification

Product name : KEARL DILBIT/ KEARL BLEND / DILBIT KEARL / DILUTED KEARL BITUMEN

Product description : petroleum hydrocarbons

SDS # : 21254

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

Identified uses : Crude oil, Feedstock

Uses advised against : This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

Supplier : Imperial Oil - Crude Oil Supply & Marketing
P.O. Box 2480, Station M
Calgary, ALBERTA T2P 3M9 Canada

24-Hour emergency telephone number : 1-866-232-9563 / (800)424-9300 CHEMTREC

Supplier General Contact : 1-800-567-3776

SDS Internet Address : www.sds.exxonmobil.com

Section 2. Hazard identification

This material is considered to be hazardous according to regulatory guidelines.

This product has been classified in accordance with hazard criteria of the Hazardous Products Regulations (HPR) SOR/2015-17 and the SDS contains all the information required by the HPR SOR/2015-17.

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 1
SKIN IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 1
CARCINOGENICITY - Category 1
TOXIC TO REPRODUCTION - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H224 - Extremely flammable liquid and vapor.
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.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Section 2. Hazard identification

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.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe vapor.
P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves, protective clothing and eye or face protection.

Response : P302 + P352 - IF ON SKIN: Wash with plenty of water.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
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 water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish.

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

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Contains : bitumen, oil sand; natural gas condensate c2-8 and benzene

Note : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% (w/w)	CAS number
bitumen, oil sand	≥60 - ≤80	128683-24-9
natural gas condensate c2-8	≥10 - ≤30	68919-39-1
n-hexane	≥5 - ≤10	110-54-3
sulfur	≥1 - ≤5	7704-34-9
benzene	≥0.1 - ≤1	71-43-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. For hot product: Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
Numbness, muscle cramps, weakness and paralysis that may be delayed.

Section 4. First-aid measures

Skin contact : Adverse symptoms may include the following:
irritation
redness
Local necrosis as evidenced by delayed onset of pain and tissue damage a few hours after injection.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Extremely flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : hydrogen sulfide, Incomplete combustion products, Oxides of carbon, Smoke, Fume, sulfur oxides

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Personal precautions, protective equipment and emergency procedures

Section 6. Accidental release measures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Do not confine in area of spill. Allow liquid to evaporate from the surface. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants. If permitted by regulatory authorities the use of suitable dispersants should be considered where indicated in local oil spill contingency plans. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Thermal burn hazard - contact with hot material may cause thermal burns. Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 7. Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Static Accumulator : This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator 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, anti-static additives and filtration can greatly influence the conductivity of a liquid.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
n-hexane	**CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.** STEL: 62.5 ppm 15 minutes. TWA: 50 ppm 8 hours. **CA British Columbia Provincial (Canada, 6/2023). Absorbed through skin.** TWA: 20 ppm 8 hours. **CA Ontario Provincial (Canada, 6/2019). Absorbed through skin.** TWA: 50 ppm 8 hours. **CA Quebec Provincial (Canada, 6/2022). Absorbed through skin.** TWAEV: 50 ppm 8 hours. TWAEV: 176 mg/m³ 8 hours. **CA Alberta Provincial (Canada, 6/2018). Absorbed through skin.** OEL: 50 ppm 8 hours. OEL: 176 mg/m³ 8 hours. **ACGIH TLV (United States, 1/2023). Absorbed through skin.** TWA: 50 ppm 8 hours.
sulfur	**CA Alberta Provincial (Canada, 6/2018).** OEL: 10 mg/m³ 8 hours.
benzene	**CA British Columbia Provincial (Canada, 6/2023). Absorbed through skin.** TWA: 0.5 ppm 8 hours. STEL: 2.5 ppm 15 minutes. **CA Ontario Provincial (Canada, 6/2019). Absorbed through skin.** TWA: 0.5 ppm 8 hours. STEL: 2.5 ppm 15 minutes. **CA Quebec Provincial (Canada, 6/2022). Absorbed through skin.** TWAEV: 0.5 ppm 8 hours. STEV: 2.5 ppm 15 minutes. **CA Alberta Provincial (Canada, 6/2018). Absorbed through skin.** OEL: 1.6 mg/m³ 8 hours.

Section 8. Exposure controls/personal protection

	OEL: 2.5 ppm 15 minutes. OEL: 8 mg/m³ 15 minutes. OEL: 0.5 ppm 8 hours. **ACGIH TLV (United States, 1/2023). Absorbed through skin.** TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m³ 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m³ 15 minutes. **ExxonMobil (Company). Absorbed through skin.** STEL: 1 ppm 15 minutes. TWA: 0.5 ppm 8 hours.
hydrogen sulfide	***[Air contaminant - Decomposition product(s)]*** **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 15 ppm 15 minutes. TWA: 10 ppm 8 hours. **CA British Columbia Provincial (Canada, 6/2023).** C: 10 ppm **CA Ontario Provincial (Canada, 6/2019).** TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. **CA Quebec Provincial (Canada, 6/2022).** TWAEV: 8 ppm 8 hours. STEV: 10 ppm 15 minutes. **CA Alberta Provincial (Canada, 6/2018).** C: 21 mg/m³ C: 15 ppm OEL: 10 ppm 8 hours. OEL: 14 mg/m³ 8 hours. ***[Air contaminant - Decomposition product(s)]*** **ACGIH TLV (United States, 1/2023).** TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. ***[Air contaminant - Decomposition product(s)]*** **ExxonMobil (Company).** STEL: 10 ppm 15 minutes. STEL: 14 mg/m³ 15 minutes. TWA: 5 ppm 8 hours. TWA: 7 mg/m³ 8 hours.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid.

Color : Black

Odor : Petroleum/Solvent

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : Not available.

Boiling point, initial boiling point, and boiling range : 27 to 565°C (80.6 to 1049°F)

Flash point : Open cup: <-18°C (<-0.4°F) [ASTM D-92]

Evaporation rate : Not available.

Flammability : Flammable liquids - Category 1

Lower and upper explosion limit/flammability limit : Not available.

Vapor pressure : 0.1 mm Hg [24 °C]

Relative vapor density : Not available.

Relative density : 0.94

Density : 0.92 to 0.925 g/cm³ [15.6°C (60.1°F)]

Solubility in water : Negligible

Section 9. Physical and chemical properties and safety characteristics

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : 82 to 111 cSt [40 °C]

Particle characteristics

Median particle size : Not applicable.

Pour point : -43 to -37°C

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Reactive or incompatible with the following materials:,oxidizing materials,Strong oxidizers

Hazardous decomposition products : hydrogen sulfide, Oxides of carbon

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary

Inhalation : Minimally Toxic. No end point data for material. Based on assessment of the components.

Dermal : Minimally Toxic. No end point data for material. Based on assessment of the components.

Oral : Minimally Toxic. No end point data for material. Based on assessment of the components.

Irritation/Corrosion

Conclusion/Summary

Skin : Irritating to the skin. No end point data for material. Based on assessment of the components.

Eyes : May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.

Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material. Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.

Sensitization

Conclusion/Summary

Skin : Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.

Respiratory : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Section 11. Toxicological information

Conclusion/Summary : May cause genetic defects. No end point data for material. Based on assessment of the components.

Carcinogenicity

Conclusion/Summary : May cause cancer. No end point data for material. Based on assessment of the components.

Classification

Product/ingredient name	IARC	NTP	ACGIH
benzene	1	Known to be a human carcinogen.	A1

Reproductive toxicity

Conclusion/Summary : May damage the unborn child. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Conclusion/Summary : May cause drowsiness or dizziness. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
KEARL DILBIT/ KEARL BLEND / DILBIT KEARL / DILUTED KEARL BITUMEN	Category 2	-

Conclusion/Summary : May cause damage to organs through prolonged or repeated exposure. No end point data for material. Based on assessment of the components.

Aspiration hazard

Conclusion/Summary : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. Data available.

Other information

Contains : BENZENE: Caused cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders in human studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus and cancer in laboratory animal studies. N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown. Contains hexane; individuals with pre-existing neurological disease should avoid exposure. HYDROGEN SULFIDE : Chronic health effects due to repeated exposures to low levels of H2S have not been established. High level (700 ppm) acute exposure can result in sudden death. High concentrations will lead to cardiopulmonary arrest due to nervous system toxicity and pulmonary edema. Lower levels (150 ppm) may overwhelm sense of smell, eliminating warning of exposure. Symptoms of overexposure to H2S include headache, fatigue, insomnia, irritability, and gastrointestinal problems. Repeated exposures to approximately 25 ppm will irritate mucous membranes and the respiratory system and have been implicated in some eye damage.

Product : Crude oil: Contains polycyclic aromatic compounds (PACs). Prolonged and / or repeated exposure by skin or inhalation of certain PACs may cause cancer of the skin, lung, and of other sites of the body. In animal studies, some crudes produced skin tumors in mice, while other crudes produced no tumors. Developmental studies of crude oil in lab animals showed reduced fetal weight and increased fetal resorptions at maternally toxic levels. Repeated dermal exposure to crude oils in rats resulted in toxicity to the blood, liver, thymus, and bone marrow. Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating

Section 11. Toxicological information

substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

Toxicity

Conclusion/Summary

Acute toxicity : Toxic to aquatic life.

Chronic toxicity : Toxic to aquatic life with long lasting effects.

Persistence and degradability

Biodegradability : High molecular wt. component -- Expected to be persistent. Low molecular wt. component -- Expected to be inherently biodegradable

Atmospheric Oxidation : More volatile component -- Expected to degrade rapidly in air

Bioaccumulative potential

Conclusion/Summary : Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

Mobility in soil

Mobility : High molecular wt. component -- Low potential to migrate through soil. Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids. Low molecular wt. component -- Moderate potential to migrate through soil. More volatile component -- Highly volatile, will partition rapidly to air. Moderate potential to migrate through soil. Not expected to partition to sediment and wastewater solids.

Other ecological information

VOC (EPA Method 24) : 2.353 lbs/gal

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport information

	TDG Classification	DOT Classification	IMDG	IATA
UN number	UN1267	UN1267	UN1267	UN1267
UN proper shipping name	PETROLEUM CRUDE OIL	Petroleum crude oil	PETROLEUM CRUDE OIL	Petroleum crude oil
Transport hazard class(es)	3	3	3	3
Label(s) / Mark(s)				
Packing group	I	I	I	I
Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.
Explosive Limit and Limited Quantity Index 0.5
Passenger Carrying Vessel Index Forbidden
Passenger Carrying Road or Rail Index 1
Special provisions 92, 106, 150

DOT Classification : This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.
Reportable quantity 5555.6 lbs / 2522.2 kg [722.28 gal / 2734.1 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Limited quantity Yes.
Packaging instruction Exceptions: 150. Non-bulk: 201. Bulk: 243.
Quantity limitation Passenger aircraft/rail: 1 L. Cargo aircraft: 30 L.
Special provisions 144, 357, T11, TP1, TP8

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-E, S-E
Special provisions 357

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 1 L. Packaging instructions: 351. Cargo Aircraft Only: 30 L. Packaging instructions: 361. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A3, A177

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: n-hexane

CEPA Toxic substances : The following components are listed: natural gas condensates (a complex combination of hydrocarbons primarily in the carbon range of C5 to C15 that are condensed during production at a well head, in a natural gas processing plant, natural gas pipeline or straddle plant), including any of their liquid distillates that are primarily in the carbon range of C5 to C15

Inventory list

Australia inventory (AIIC) : All components are listed or exempted.

Canada inventory (DSL-NDSL) : All components are listed or exempted.

China inventory (IECSC) : At least one component is not listed.

Japan inventory (CSCL) : At least one component is not listed.

Japan inventory (Industrial Safety and Health Act) : Not determined.

New Zealand Inventory of Chemicals (NZIoC) : Not determined.

Philippines inventory (PICCS) : At least one component is not listed.

Korea inventory (KECI) : All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) : Not determined.

United States inventory (TSCA 8b) : All components are active or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 24 June 2024

Date of previous issue : 24 June 2024

Version : 1.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 1	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
GERM CELL MUTAGENICITY - Category 1	Calculation method
CARCINOGENICITY - Category 1	Calculation method
TOXIC TO REPRODUCTION - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Section 16. Other information

Product code : 1150982_13422282

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