

Safety Data Sheet n-OCTANE

SDS no. LU2X9RRS • Version 1.0 • Date of issue: 2023-07-08

SECTION 1: Identification

GHS Product identifier

Product name n-OCTANE

Recommended use of the chemical and restrictions on use

Solvent; organic synthesis; calibration; azeotropic distillations; manufacture of benzene; toluene and xylene aromatics; component of high-octane motor and aviation fuels; petroleum solvents and laboratory reagent.

Supplier's details

Name ChemSupply Australia Pty Ltd
Address 38-50 Bedford Street
5013 Gillman South Australia
Australia

Telephone 08 8440 2000
email www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1
- Aspiration hazard, Cat. 1
- Flammable liquids, Cat. 2
- Skin corrosion/irritation, Cat. 2
- Specific target organ toxicity following single exposure, Cat. 3

GHS label elements, including precautionary statements

Pictograms



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor
 H304 May be fatal if swallowed and enters airways
 H315 Causes skin irritation
 H336 May cause drowsiness or dizziness
 H400 Very toxic to aquatic life
 H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233 Keep container tightly closed.
 P240 Ground and bond container and receiving equipment.
 P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 Call a POISON CENTER/doctor/physician if you feel unwell.
 P331 Do NOT induce vomiting.
 P332+P313 If skin irritation occurs: Get medical advice/attention.
 P370+P378 In case of fire: Use agents recommended in Section 5 of SDS for extinction
 P391 Collect spillage.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 114.22

Components

Component	CAS no.	Concentration
OCTANE (EC no.: 203-892-1; Index no.: 601-009-00-8)	111-65-9	100 % (volume)
CLASSIFICATIONS: Flammable liquids, Cat. 2; Aspiration hazard, Cat. 1; Skin corrosion/irritation, Cat. 2; Specific target organ toxicity following single exposure, Cat. 3; Hazardous to the aquatic environment, short-term (acute), Cat. 1; Hazardous to the aquatic environment, long-term (chronic), Cat. 1. HAZARDS: H225 - Highly flammable liquid and vapor; H304 - May be fatal if swallowed and enters airways; H315 - Causes skin irritation; H336 - May cause drowsiness or dizziness; H400 - Very toxic to aquatic life; H410 - Very toxic to aquatic life with long lasting effects.		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice

[2Y] First Aid Facilities: Maintain eyewash fountain and drench facilities in work area.

If inhaled	If inhaled, remove from contaminated area to fresh air immediately. If breathing is difficult, give oxygen. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.
In case of skin contact	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If irritation occurs seek medical advice.
In case of eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
Personal protective equipment for first-aid responders	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.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Caution: Use of water spray when fighting fire may be inefficient.

Small fire: Use foam, dry chemical, CO₂ or water spray.

Large fire: Use foam, fog or water spray - Do not use water jets.

If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out.

Avoid getting water inside containers.

Specific hazards arising from the chemical

Acrid smoke and toxic and/or irritating gases, vapours and fumes including carbon monoxide and carbon dioxide.

HIGHLY FLAMMABLE: These products have a low flash point - Will be easily ignited by heat, sparks or flames at ambient temperatures.

Vapours will form explosive mixtures with air. Vapours will travel to source of ignition and flash back. Fire may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Many liquids are lighter than water. Many vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks). Vapours from run-off may create an explosion hazard.

Special protective actions for fire-fighters

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate the area of all non-essential personnel. Avoid inhalation, contact with skin, eyes and clothing.

Methods and materials for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used in handling the product must be earthed. Do not touch or walk through spilled material.

Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours. Absorb spill with earth, sand or other non-combustible material - Use clean, non-sparking tools to collect material and place it in loosely-covered metal or plastic containers for later disposal. Water spray may be used to knock down or divert vapour clouds.

SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling

Avoid ingestion and inhalation of gas/fumes/vapour/spray mist. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Fumes can combine with air to form an explosive mixture. Avoid generation and accumulation of vapours/aerosols/mists in the atmosphere. Keep container closed. Keep tank covered and containers sealed when not in use. Open containers cautiously as contents may be under pressure. DO NOT store or use in confined spaces. Ensure good ventilation at the workplace. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Wear suitable protective clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. It is essential that all who come into contact with this material maintain high standards of personal hygiene i.e. Washing hands prior to eating, drinking, smoking or using toilet facilities.

Keep away from heat, sparks, flame and welding or other ignition sources. Take precautions against static discharge. Ground all equipment containing material. Ground and bond containers when transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment and spark-proof tools. Do not smoke. Empty containers retain product residue, (liquid and/or vapour), and can be hazardous, or dangerous; observe all warnings and precautions listed for the product. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Conditions for safe storage, including any incompatibilities

Store in a segregated and approved Flammables area. Outside or detached storage is preferred. Store small containers in suitable flammable liquid storage cabinets when not in use. Store in tightly closed, original containers, in a cool, dry, well-ventilated area way from incompatible substances. Store away from oxidising agents, foodstuffs, and clothing. Hygroscopic. Protect against physical damage, direct sunlight and moisture. Store away from any area where the fire hazard may be acute. Keep away from heat and all possible sources of ignition (spark or flame). Take precautions against static electricity discharges. Ground all equipment containing material. Containers should be bonded and grounded for transfers to avoid static sparks. Use non-sparking type tools and equipment, including explosion proof ventilation. Storage and use areas should be No Smoking areas. Have appropriate fire extinguishers available in and near the storage area. Inspect regularly for deficiencies such as damage or leaks.

Not corrosive to metals. Will attack some forms of plastics, rubber, and coatings.

Storage Temperatures: Store at room temperature (15 to 25 °C recommended).

SECTION 8: Exposure controls/personal protection

Control parameters

CAS: (not specified)

n-OCTANE

AU/SWA (Australia): 300 ppm TWA inhalation

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

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The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection

Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Ensure hand protection complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

Respiratory protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear, colourless liquid.
Color	No data available.
Odor	Characteristic, mild, gasoline-like odour.
Odor threshold	200 ppm (100% recognition).
Melting point/freezing point	-56.7 °C.
Boiling point or initial boiling point and boiling range	126 °C.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	Flammable Limits - Lower: 0.8 vol%. Flammable Limits - Upper: 6.5 vol%.
Flash point	13 °C (CC).
Explosive properties	Product is not explosive. However, above flash point, vapour-air mixtures are explosive within flammable limits noted above. Vapour is heavier than air and may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. Highly explosive in the presence of open flames, sparks, static discharge and heat. Slightly explosive to explosive in presence of oxidizing materials. Container explosion may occur under fire conditions.
Auto-ignition temperature	206 °C.
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	No data available.
Kinematic viscosity	Viscosity: 0.5151 cP @ 25 °C.
Solubility	Solubility in Water: Immiscible or insoluble (0.66 mg/l @ 25 °C). Solubility in Organic Solvents: Completely miscible with most organic solvents. Miscible with benzene, petroleum ether, and gasoline; soluble in ether; slightly soluble in alcohol.
Partition coefficient n-octanol/water (log value)	Log P(oct) = 5.18.
Vapor pressure	10.45 mm Hg @ 20 °C.

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Evaporation rate
Density and/or relative density
Relative vapor density
Particle characteristics

No data available.
Specific Gravity: 0.70 @ 20 °C (water=1).
3.94 (air=1)
No data available.

Supplemental information regarding physical hazard classes

Surface Tension: 21.14 mN/m @ 25 °C.

Further safety characteristics (supplemental)

Saturated Vapour Concentration: 1.44% (14,400 ppm) at 25 °C.

[3U] Other Information: Refractive index: 1.39764 @ 20 °C/D.
Conversion factor: 1 ppm = 4.67 mg/m³; 1 mg/m³ = 0.214 ppm @ 25 °C.
Critical temperature: 295.5 °C.
Critical pressure: 2487 kPa.

SECTION 10: Stability and reactivity

Reactivity

Stable under normal conditions of storage and handling.

Risk of ignition. Vapours may form explosive mixtures with air

Chemical stability

Stable under normal temperatures, pressures and conditions of use and storage. Heat will contribute to instability.

Possibility of hazardous reactions

Reaction with strong oxidizing agents (e.g. peroxides, nitrates and perchlorates) can increase risk of fire and explosion. Attacks some forms of plastics, rubber and coatings.

Conditions to avoid

Heat, direct sunlight, sources of ignition (static discharge, sparks, open flames), oxidizers, moisture and incompatible materials.

Incompatible materials

Strong oxidizing agents (e.g. peroxides, nitrates and perchlorates), strong acids, some forms of plastics, rubber and coatings.

Hazardous decomposition products

Acrid smoke and toxic and/or irritating gases, vapours and fumes including carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Inhalation: LC50 (rat): 118 g/m³/4 h (RTECS)

Ingestion: Harmful: may cause lung damage if swallowed. Ingestion may irritate the gastric tract, causing abdominal pain, nausea, vomiting and diarrhoea. Other symptoms expected to parallel inhalation. Ingestion and absorption of large quantities may cause narcosis and depression of the central nervous system (CNS), characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. However, oral toxicity is relatively low unless liquid n-octane is aspirated into the lungs. Aspiration of material into the lungs, upon ingestion or vomiting, may cause cardiac arrest, respiratory paralysis, asphyxia, severe lung irritation (chemical pneumonitis), lung tissue damage (pulmonary oedema), or death. Ingestion is not a typical route of occupational exposure.

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Inhalation: May be harmful if inhaled. Inhalation of vapours may cause irritation of the nose, throat and respiratory system, sore throat, cough and laboured breathing. Vapours may have a mild narcotic effect and may cause headaches, drowsiness and dizziness. n-Octane very readily forms high vapour concentrations. Exposure to high concentrations of vapour may cause narcotic effects (headache, drowsiness, dizziness, nausea, confusion and lowering of consciousness). Severe exposures may cause unconsciousness and death. It is estimated that approximately 10000 ppm would cause unconsciousness and 13500 ppm (almost the saturated vapour concentration) may be fatal. It generally applies for aliphatic hydrocarbons with 6 - 18 carbon atoms that direct inhalation (nebulizations, spraying, inhalation of aerosols and similar) may cause pneumonia, in some cases also pulmonary oedema.

Skin corrosion/irritation

Causes moderate to severe skin irritation. Symptoms may include redness, itchiness, inflammation and blisters. May be absorbed through the skin in harmful amounts. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.

Skin corrosion/irritation: Skin irritation test, humans, application (under cover) of 1.5 mL of undiluted n-octane for 1 hour on the forearm and on the thigh for 5 hours, Results: moderate to severe skin irritant, Remarks: redness and inflammation. The 5-hour exposure also caused blisters.

Serious eye damage/irritation

Contact of liquid with eyes may cause irritation, redness, tearing, stinging, blurred vision and pain. Very high vapour concentrations are irritating to the eyes.

Respiratory or skin sensitization

No data

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

Summary of evaluation of the CMR properties

No data available.

Specific target organ toxicity (STOT) - single exposure

Causes damage to organs.

Specific target organ toxicity (STOT) - repeated exposure

No data available.

Aspiration hazard

H304 May be fatal if swallowed and enters airways.

Additional information

Chronic Effects: Prolonged or repeated skin contact may cause irritation and dermatitis (dry cracked skin, inflammation, reddening and swelling). May cause cardiac arrhythmia, central nervous system toxicity, respiratory arrest and liver and kidney effects. n-Octane has not been shown to cause the type of peripheral neuropathy associated with n-hexane.

SECTION 12: Ecological information

Toxicity

Acute Toxicity - Daphnia: Daphnia magna EC50: 0.38 mg/l /48 h.

Persistence and degradability

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Degradability: TOD: 3.50 mg/g.

Bioaccumulative potential

An appreciable bioaccumulation potential is to be expected (log P(o/w) >3).

Mobility in soil

Distribution: log P(o/w): 5.15.

SECTION 13: Disposal considerations

Disposal methods

Product disposal

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Sewage disposal

An appreciable bioaccumulation potential is to be expected (log P(o/w) >3).

Other disposal recommendations

Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)

UN Number: 1262

Class: 3

Packing Group: II

Proper Shipping Name: OCTANES

Environmental Hazards: Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.

Hazchem emergency action code (EAC)

3YE

IMDG

UN Number: 1262

Class: 3

Packing Group: II

EMS Number:

Proper Shipping Name: OCTANES

IATA

UN Number: 1262

Class: 3

Packing Group: II

Proper Shipping Name: OCTANES

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP

Poison Schedule: S5

SECTION 16: Other information

Further information/disclaimer

ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

Preparation information

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia

National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'

Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.

Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.

Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019

Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au

IATA, Dangerous Goods Regulations (DGR)

IMO, International Maritime Dangerous Goods Code (IMDG)