

SAFETY DATA SHEET

Classified as hazardous in accordance with the criteria of EPA New Zealand

Section 1 - Identification

Product Identifier

Product Name <u>n-Heptane</u>

CAS No 142-82-5

Synonyms Normal heptane.; Heptane

Molecular FormulaC7 H16Molecular Weight100.20

Recommended Use Laboratory chemicals.
Uses advised against No Information available

Product Code 326690000; 326690010; 326690025

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Emergency Tel. CHEMTREC®

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Section 2 - Hazard(s) Identification

Classification under Work Safe New Zealand

Classified as hazardous in accordance with the criteria of EPA New Zealand

HSNO Approval Number HSR001164

GHS Classification

Physical hazards

Flammable liquids Category 2

Health hazards

Aspiration Toxicity

Skin Corrosion/Irritation

Specific target organ toxicity - (single exposure)

Category 2

Category 3

Category 3

Environmental hazards

Acute aquatic toxicity
Chronic aquatic toxicity
Category 1
Category 1

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Label Elements



Signal Word

Danger

Hazard Statements

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

H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P240 - Ground and bond container and receiving equipment

P241 - Use explosion-proof electrical/ ventilating/ lighting equipment

P242 - Use non-sparking tools

P243 - Take action to prevent static discharges

P264 - Wash face, hands and any exposed skin thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P273 - Avoid release to the environment

Response

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor

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

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 if you feel unwell

P331 - Do NOT induce vomiting

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

P362 + P364 - Take off contaminated clothing and wash it before reuse

P391 - Collect spillage

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

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

Other hazards which do not result in classification

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
n-Heptane	142-82-5	>95

Section 4 - First Aid Measures

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Description of first aid measures

New Zealand Emergency Tel. CHEMTREC®

09 980 6780 or +64 9 980 6780

Inhalation Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the

substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention. Risk of serious

damage to the lungs (by aspiration). If not breathing, give artificial respiration.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting

occurs naturally, have victim lean forward.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and

effects

Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like

headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically. Symptoms may be delayed.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO2).

Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6 - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Emergency procedures

Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.

Environmental Precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up

Remove all sources of ignition. Soak up with inert absorbent material. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

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Precautions to prevent secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling

Advice on safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Wash hands before breaks and immediately after handling the product. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

Incompatible Materials

Strong oxidizing agents.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals AS 1940-2004 - The storage and handling of flammable and combustible liquids

Section 8 - Exposure Controls and Personal Protection

Control parameters

Exposure limits

NZ - Workplace Exposure Standards and Biological Exposure Indices (6th edition). New Zealand Department of Labor AUS - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)] Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia

ACGIH - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

Component	New Zealand WEL	Australia	ACGIH TLV	The United Kingdom
n-Heptane	TWA: 400 ppm	STEL: 500 ppm	TWA: 400 ppm	STEL: 1500 ppm 15 min
	TWA: 1640 mg/m ³	STEL: 2050 mg/m ³	STEL: 500 ppm	STEL: 6255 mg/m ³ 15 min
	STEL: 500 ppm	TWA: 400 ppm		TWA: 500 ppm 8 hr
	STEL: 2050 mg/m ³	TWA: 1640 mg/m ³		TWA: 2085 mg/m ³ 8 hr

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Measures

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Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Individual protection measures, such as personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) (Australian/New Zealand Standard

AS/NZS 1337 - Eye protectors for Industrial applications)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Nitrile rubber, Neoprene	> 480 minutes	0.38 mm	AS/NZS 2161	(minimum requirement)
gloves.	> 480 minutes	0.45 mm		
Viton (R)	> 480 minutes	0.3 mm		

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Repiratory Protection Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or

other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use

and maintenance of repiratory protective devices

Organic gases and vapours filter Type A Brown conforming to EN14387 (or AUS/NZ Recommended Filter type:

equivalent)

Recommended half mask:-Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State Liquid

Colorless **Appearance**

Petroleum distillates Odor **Odor Threshold** No data available No information available Ha **Melting Point/Range** -91 °C / -131.8 °F **Softening Point** No data available **Boiling Point/Range** 98 °C / 208.4 °F Flammability (liquid) Highly flammable

On basis of test data Flammability (solid, gas) Not applicable Liquid

Lower 1 vol%

Explosion Limits Upper 7 vol%

-4 °C / 24.8 °F **Flash Point** Method - No information available

215 °C / 419 °F **Autoignition Temperature Decomposition Temperature** No data available

ACR32669 Version 2 10-Mar-2023 Page 5/11 Viscosity 0.4 mPa s at 20 °C

Water Solubility Insoluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog Pown-Heptane4.66

Vapor Pressure 48 mbar @ 20 °C

Density / Specific Gravity 0.683

Bulk DensityNot applicableLiquidVapor Density3.5(Air = 1.0)

Particle characteristics Not applicable (liquid)

Other information

Molecular FormulaC7 H16Molecular Weight100.20

Explosive Properties Vapors may form explosive mixtures with air

Evaporation Rate 2.8 (Butyl Acetate = 1.0)

Section 10 - Stability and Reactivity

Reactivity None known, based on information available

Stability Stable under normal conditions.

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

Conditions to Avoid Incompatible products, Heat, flames and sparks, Keep away from open flames, hot

surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO2).

Section 11 - Toxicological Information

Acute Effects

Information on likely routes of exposure

Product Information

Inhalation INHALATION MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. May cause

irritation of respiratory tract. May be harmful if inhaled.

Eyes Irritating to eyes.

Skin Irritating to skin. May be harmful in contact with skin.

Ingestion Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal

irritation, nausea, vomiting and diarrhea. Harmful if swallowed. Potential for aspiration if

swallowed.

Numerical measures of toxicity

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met

Dermal Based on available data, the classification criteria are not met

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Inhalation	Based on available data, the classification criteria are not met					
Component	LD50 Oral	LD50 Dermal	LC50 Inhalation			
n-Heptane	>2000 mg/kg (rat)	LD50 = 3000 mg/kg (Rabbit)	LC50 > 73.5 mg/L (Rat) 4 h			

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(d) respiratory or skin sensitization;

RespiratorySkin
Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS)

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Category 1

Symptoms / effects,both acute and delayed

Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Section 12 - Ecological Information

Ecotoxicity

Aquatic ecotoxicity

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

environment. The product contains following substances which are hazardous for the

environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
n-Heptane	LC50: = 375.0 mg/L, 96h (Cichlid fish)	EC50: >10 mg/L/24h		

Terrestrial ecotoxicity There is no data for this product

Persistence and Degradability

Persistence Persistence is unlikely.

Degradation in sewage treatment Contains substances known to be hazardous to the environment or not degradable in waste

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plant water treatment plants.

Bioaccumulative Potential Product has a high potential to bioconcentrate

Component	log Pow	Bioconcentration factor (BCF)
n-Heptane	4.66	No data available

Mobility The product is insoluble and floats on water. Spillage unlikely to penetrate soil. The product

is insoluble and floats on water. Is not likely mobile in the environment due its low water solubility. Is not likely mobile in the environment due its low water solubility and propensity

to bind to soil particles

Other adverse effects

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste treatment methods

Waste from Residues/Unused Products

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information

Disposal agencies or waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Regulations . Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

Section 14 - Transport Information

NZS 5433:2020

UN-No UN1206
Proper Shipping Name Heptanes

Hazard Class 3 Packing Group II

<u>IATA</u>

UN-No UN1206
Proper Shipping Name Heptanes
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1206
Proper Shipping Name Heptanes

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Hazard Class	3	
Packing Group	II	
	Component	IMDG Marine Pollutant
	n-Heptane	IMDG regulated marine pollutant (UN1206)
	142-82-5 (>95)	

Environmental hazards Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

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

Not applicable, packaged goods

Special Precautions

No special precautions required. Please refer to the applicable dangerous goods

regulations for additional information.

Additional information None known

Section 15 - Regulatory Information

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

HSNO Approval Number	HSR001164

National Regulations

There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

Certified handlers, tracking and controlled substance license requirements

Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information. Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information.

Prohibition or notification/licensing requirements

Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

International Regulations

This product does not contain any known or suspected substance **Ozone Depletion Potential**

Persistent Organic Pollutant This product does not contain any known or suspected substance

Not applicable **Rotterdam Convention (PIC)**

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	IMDG Marine Pollutant
n-Heptane			IMDG regulated marine pollutant (UN1206)

Authorisation/Restrictions according to EU REACH

Component		REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	
n-Heptane	-	Use restricted. See item 75. (see link for restriction details)	-

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https://echa.europa.eu/substances-restricted-under-reach

International Inventories

New Zealand (NZIoC), Australia (AICS), Europe (EINECS/ELINCS/NLP), Korea (KECL), China (IECSC), Taiwan (TCSI), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	NZIoC	AICS	EINECS	ELINCS	NLP	KECL	IECSC	TCSI
n-Heptane	142-82-5	X	Χ	205-563-8	-	-	KE-18271	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	PICCS	ISHL	ENCS
n-Heptane	142-82-5	Х	ACTIVE	X	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Section 16 - Other Information

This safety data sheet complies with the requirements of the EPA Hazardous Substances (Hazard Classification) Notice 2020 and WorkSafe New Zealand Regulations

Legend

NZIoC - New Zealand Inventory of Chemicals

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

IECSC - Chinese Inventory of Existing Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

NZS 5433:2020 - Transport of Dangerous Goods on Land

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

 \mathbf{MARPOL} - International Convention for the Prevention of Pollution from Ships

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

WEL - Workplace Exposure Limit

DNEL - Derived No Effect Level

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

VOC - (Volatile Organic Compound)

AICS - Australian Inventory of Chemical Substances

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

CAS - Chemical Abstracts Service

ACGIH - American Conference of Governmental Industrial Hygienists

PNEC - Predicted No Effect Concentration

OECD - Organisation for Economic Co-operation and Development

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

 $\ensuremath{\mathbf{ADG}}$ - Australian Code for the Transport of Dangerous Goods by Road and Rail

LC50 - Lethal Concentration 50%

ATE - Acute Toxicity Estimate

RPE - Respiratory Protective Equipment

NOEC - No Observed Effect Concentration

BCF - Bioconcentration factor

PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data

HSNO classifications provided in the New Zealand Chemical Classification Information Database (CCID).

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

EPA Guide to classifying hazardous substances in New Zealand

EPA - Assigning a product to an existing HSNO approval guide

Training Advice

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts. Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Chemical incident response training.

Revision Date 10-Mar-2023 Revision Summary Not applicable

Disclaimer

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

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