

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
Product Identifier

Perihalan Produk: **n-Pentane, extra dry**
 Product Description: **n-Pentane, extra dry**
 Cat No. : C39723
 Synonyms: normal pentane; n-Pentane; Amyl hydride
 CAS No 109-66-0
 Molecular Formula C5 H12

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

Recommended Use Laboratory chemicals.
 Uses advised against No Information available

Company

Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd
 Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,
 No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,
 Selangor Darul Ehsan, Malaysia.
 Main line: +60 3-5525 7888

Supplier

E-mail address Enquiry.my@thermofisher.com

Emergency Telephone Number

Tel: +03-5525 7888
 CHEMTREC Malaysia **1-800-815-308** (Malay)
 CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

SECTION 2: HAZARDS IDENTIFICATION
Classification of the substance or mixture

Flammable liquids	Category 2 (H225)
Aspiration Toxicity	Category 1 (H304)
Specific target organ toxicity - (single exposure)	Category 3 (H336)
Chronic aquatic toxicity	Category 2 (H411)

Label Elements


Signal Word

Danger

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

Hazard Statements

H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H336 - May cause drowsiness or dizziness
H411 - 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
P280 - Wear protective gloves/protective clothing/eye protection/face protection
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
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area

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
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

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

EUH066 - Repeated exposure may cause skin dryness or cracking

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
n-Pentane	109-66-0	>95

SECTION 4: FIRST AID MEASURES

Description of first aid measures

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 if symptoms occur.

Ingestion

Aspiration hazard. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

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 immediately if symptoms occur. Risk of serious damage to the lungs (by aspiration). If not breathing, give

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

artificial respiration.

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.

Most important symptoms and effects, both acute and delayed

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

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Dry chemical. Powder. 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.

Special hazards arising from the substance or mixture

Extremely flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

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

Advice 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

Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental precautions

Do not flush into surface water or sanitary sewer system.

Methods and Material for Containment and Cleaning Up

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

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

Precautions for Safe Handling

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

Conditions for Safe Storage, Including any Incompatibilities

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

Specific End Uses

Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
n-Pentane		TWA: 1000 ppm	(Vacated) TWA: 600 ppm (Vacated) TWA: 1800 mg/m ³ (Vacated) STEL: 750 ppm (Vacated) STEL: 2250 mg/m ³ TWA: 1000 ppm TWA: 2950 mg/m ³

Component	European Union	The United Kingdom	Germany
n-Pentane	TWA: 1000 ppm (8hr) TWA: 3000 mg/m ³ (8hr)	STEL: 1800 ppm 15 min STEL: 5400 mg/m ³ 15 min TWA: 600 ppm 8 hr TWA: 1800 mg/m ³ 8 hr	TWA: 1000 ppm (8 Stunden). AGW - exposure factor 2 TWA: 3000 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 1000 ppm (8 Stunden). MAK TWA: 3000 mg/m ³ (8 Stunden). MAK Höhepunkt: 2000 ppm Höhepunkt: 6000 mg/m ³

Exposure Controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. 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

Personal protective equipment

Eye Protection

Wear safety glasses with side shields (or goggles)

Hand Protection

Protective gloves

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

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 compatibility, 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.

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

Respiratory Protection

No protective equipment is needed under normal use conditions

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear	
Physical State	Liquid	
Odor	Petroleum distillates	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	-130 °C / -202 °F	
Softening Point	No data available	
Boiling Point/Range	36 °C / 96.8 °F	@ 760 mmHg
Flash Point	-49 °C / -56.2 °F	Method - No information available
Evaporation Rate	28.6 (Butyl Acetate = 1.0)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 1.4 vol% Upper 8 vol%	
Vapor Pressure	573 mbar @ 20 °C	
Vapor Density	2.5 (Air = 1.0)	(Air = 1.0)
Specific Gravity / Density	0.626	
Bulk Density	Not applicable	Liquid
Water Solubility	Insoluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
n-Pentane	3.45	
Autoignition Temperature	260 °C / 500 °F	
Decomposition Temperature	No data available	
Viscosity	0.25 mPa.s @ 20 °C	
Explosive Properties		Vapors may form explosive mixtures with air
Oxidizing Properties	No information available	
Molecular Formula	C5 H12	
Molecular Weight	72.15	

SECTION 10: STABILITY AND REACTIVITY

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

Reactivity

None known, based on information available.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous Reactions

Hazardous polymerization does not occur.
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. Halogens.

Hazardous Decomposition Products

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

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Product Information

(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

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
n-Pentane	> 2000 mg/kg (Rat)	3000 mg/kg (Rabbit)	364 g/m ³ (Rat) 4 h

(b) skin corrosion/irritation;

Based on available data, the classification criteria are not met

(c) serious eye damage/irritation;

Based on available data, the classification criteria are not met

(d) respiratory or skin sensitization;

Respiratory

Based on available data, the classification criteria are not met

Skin

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

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

(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.

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
n-Pentane	LC50: = 9.99 mg/L, 96h (Lepomis macrochirus) LC50: = 11.59 mg/L, 96h (Pimephales promelas) LC50: = 9.87 mg/L, 96h (Oncorhynchus mykiss)	EC50: = 9.74 mg/L, 48h (Daphnia magna)		

Persistence and degradability

Persistence

Persistence is unlikely, based on information available.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
n-Pentane	3.45	No data available

Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Other adverse effects

No information available

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local 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

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

IMDG/IMO

UN-No UN1265
Hazard Class 3
Packing Group II
Proper Shipping Name PENTANES

Road and Rail Transport

UN-No UN1265
Hazard Class 3
Packing Group II
Proper Shipping Name PENTANES

IATA

UN-No UN1265
Hazard Class 3
Packing Group II
Proper Shipping Name PENTANES

Special Precautions for User

No special precautions required

SECTION 15: REGULATORY INFORMATION

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

International Inventories

X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
n-Pentane	203-692-4	X	X	X	X	X	X	X	KE-27968

National Regulations

Persistent Organic Pollutant Ozone Depletion Potential

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

SAFETY DATA SHEET

n-Pentane, extra dry

Revision Date 31-Mar-2025

SECTION 16: OTHER INFORMATION

Legend

CAS - Chemical Abstracts Service

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

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

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

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

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

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

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

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

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

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

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

Prepared By

Revision Date

Revision Summary

Health, Safety and Environmental Department

31-Mar-2025

Not applicable.

In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

Disclaimer

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End of Safety Data Sheet