

SAFETY DATA SHEET

According to Regulation (EC) No 453/2010

Version 1.3

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

1.1 Product identifier

Product name : **N-Heptane**
Included product code : HEP010-2.5, HEP010-2.0, HEP012-2.5, HEP012-4.0

1.2 Relevant identified uses of the substance or mixture

Identified uses : Laboratory chemicals, Manufacture of substances
Uses advised against : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : Elite Advanced Materials Sdn Bhd
Lot 34, Jalan RP2, Rawang Perdana Industrial Estate, 48000 Rawang, Selangor, Malaysia

E-mail address : enquiry@eamaterials.com

1.4 Emergency telephone number

Emergency phone : +60 3-6091 4200 (Local business hours only)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flammable liquids	Category 2
Skin corrosion/irritation	Category 2
Specific target organ toxicity - single exposure, Central nervous system	Category 3
Aspiration hazard	Category 1
Hazardous to the aquatic environment - acute hazard	Category 1
Hazardous to the aquatic environment - chronic hazard	Category 1

2.2 Label elements

Labeling in compliance to Regulation (EC) No. 1272/2008 [CLP/GHS]

Hazard pictograms



GHS02



GHS07



GHS08



GHS09

Signal word

Danger

Hazard statements

H225	Highly flammable liquid and vapour
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

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P273	Avoid release to the environment

Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331	Do NOT induce vomiting.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

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

2.3 Other hazards

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Synonyms : n-Heptane

Formula : C₇H₁₆

Molecular Weight : 100.20 g/mol

CAS-No. : 142-82-5

Component	Identity	Classification Code	H-Code	Concentration (by wt)
n-Heptane	CAS-No. : 142-82-5 EC-No. : 205-563-8 Index-No. : 601-008-00-2	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Chronic 1; Aquatic Acute 1;	H225 H304 H315 H336 H410	<=100 %

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid measures

General information

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, drowsiness, unconsciousness, narcosis, headache, somnolence, vertigo, death

4.3 Indication of any immediate medical attention and special treatment

No data available.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for fire-fighters

Special protective equipment for firefighters. Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing

5.4 Further information

In case of fire: Evacuate area. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system. Remove container from danger zone and cool with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal protective equipment is required during handling. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. All sources of ignition must be removed. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Do not discharge into drains or waterways. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precaution for safe handling

Avoid direct contact with skin and eyes. Work under hood. Avoid inhalation of vapour or mist. Remove all sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge. Keep away from source of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place and under inert gas. Container must closed tightly in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage and away from source of ignition.

7.3 Specific end use

No further relevant information available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
n-Heptane	TWA: 400 ppm STEL: 500 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1,600 mg/m ³ (Vacated) STEL: 500 ppm (Vacated) STEL: 2,000 mg/m ³ TWA: 500 ppm TWA: 2,000 mg/m ³	IDLH: 750 ppm TWA: 85 ppm TWA: 350 mg/m ³ Ceiling: 440 ppm Ceiling: 1,800 mg/m ³

8.2 Exposure control

Personal protection measures, such as personal protective equipment

Never eat, drink or smoke during handling the chemical. Ensure that there is adequate ventilation, especially in confined areas. Wash hands before breaks and at the end of workday.

Eye/ face protection

Face shield and safety glasses is required during handling. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact*

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact*

Material: Nitrile rubber
 Minimum layer thickness: 0.2 mm
 Break through time: 30 min
 Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

*Source – Sigma Aldrich, 2015

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body protection

Complete suit protecting against chemicals, flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Ordor	:	Sweet
Ordor threshold	:	Not determined
pH - value	:	Not determined
Melting point / Range	:	-90.6 °C
Boiling point / Range	:	98.4 °C
Flash point	:	-4.0 °C [closed cup]
Evaporation rate	:	Not determined
Flammability limit - LEL	:	1.05 % (V)
Flammability limit - UEL	:	6.7 % (V)
Vapour pressure	:	48 hPa at 20.0 °C
Vapor density (air = 1)	:	3.5
Density	:	0.6837 g/mL at 25 °C

Bulk density	:	Not determined
Solubility(ies)	:	Not determined
Water solubility	:	insoluble
Partition coefficient: n-octanol/water:		log Pow: 4.6
Auto-ignition temperature	:	223.0 °C
Decomposition temperature	:	Not determined
Viscosity	:	0.42cP at 25°C
Explosive properties	:	Not determined
Oxidising properties	:	Not determined

9.2 Other information

Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Vapours may form explosive mixture with air

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature)

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Strong oxidising agents

Phosphorus, in the presence of:

Chlorine

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents, rubber, various plastics

10.6 Hazardous decomposition products

No data available

SECTION 11: TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
n-Heptane	> 2,000 mg/kg (Rat)	LD50 = 3,000 mg/kg (Rabbit)	LC50 = 103 g/m ³ /4h (Rat)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Eyes - Rabbit - No eye irritation - OECD Test Guideline 405

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

May be fatal if swallowed and enters airways.

Potential health effects

Inhalation

May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.

Ingestion

May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

Skin May be harmful if absorbed through skin. Causes skin irritation.

Signs and Symptoms of Exposure

Prolonged or repeated exposure to skin causes defatting and dermatitis, Central nervous system depression, narcosis, Damage to the lungs.

Additional Information

RTECS: MI7700000

SECTION 12: ECOLOGY INFORMATION

12.1 Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
n-Heptane	Not listed	LC50: = 375.0 mg/L/96h (Cichlid fish)	Not listed	EC50: > 10 mg/L/24h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
Log Pow: 4.66

Potential bioaccumulation

12.4 Mobility in soil

No data available

12.5 Other adverse effects

Very toxic to aquatic life.
Do not empty into drains. Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1206

IMDG: 1206

IATA-DGR: 1206

14.2 UN proper shipping name

ADR/RID: HEPTANES

IMDG: HEPTANES

IATA-DGR: HEPTANES

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA-DGR: 3

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA-DGR: II

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA-DGR: no

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

No data available

14.7 Special precautions for user

No data available

SECTION 15: REGULATORY INFORMATION

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

No data available

SECTION 16: OTHER INFORMATION

This information is based on present level of our knowledge, however, this shall not constitute a guarantee product features and shall not establish a legally valid contractual relationship.

Abbreviations:

ADR : European agreement concerning the international carriage of dangerous goods by road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association

ICAO : International Civil Aviation Organization

RID : Regulations concerning the International Carriage of Dangerous goods by rail.

Notice to reader

The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the products and should not be construed as any guarantee of technical performance or suitability for particular application.

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