


MSDS	Material Safety Data Sheet
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n-HEXANE

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

PRODUCT NAME	n-Hexane
RECOMMENDED USE & RESTRICTIONS ON USE	Research use only
INFORMATION OF MANUFACTURER/IMPORTER/SUPPLIER	
COMPANY	
ADDRESS	
EMERGENCY PHONE	
E-MAIL ADDRESS	

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION	Flammable liquids : Category 2 Skin corrosion/irritation : Category 2 Serious eye damage/irritation : Category 2A Reproductive toxicity : Category 2 Specific target organ toxicity - Single exposure : Category 3(respiratory organs) Specific target organ toxicity - single exposure : Category 3(anesthesia) Specific target organ toxicity - Repeated exposure :Category 1(central nervous system, peripheral nervous system) Aspiration Hazard : Category 1	
	PICTOGRAM	
LABEL ELEMENTS	HAZARD SYMBOL	DANGER
	HAZARD STATEMENTS	Highly flammable liquid and vapour. May be harmful if swallowed and enters airways.

		<p>Causes skin irritation.</p> <p>Causes serious eye irritation.</p> <p>May cause respiratory irritation.</p> <p>May cause drowsiness or dizziness.</p> <p>Suspected of damaging fertility or the unborn child.</p> <p>Causes damage to organs(central nervous system, peripheral nervous system) through prolonged or repeated exposure.</p>
	<p>PRECAUTIONARY STATEMENTS</p>	<p>Obtain special instructions before use.</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Keep away from heat/sparks/open flames/hot surfaces. No smoking.</p> <p>Ground/bond container and receiving equipment.</p> <p>Use explosion-proof electrical/ventilating/lighting equipment.</p> <p>Use only non-sparking tools.</p> <p>Take precautionary measures against static discharge.</p> <p>Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>Wash thoroughly after handling.</p> <p>Do not eat, drink or smoke when using this product.</p> <p>Use only outdoors or in a well-ventilated area.</p> <p>Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>Use personal protective equipment as required.</p> <p>Call a POISON CENTER or doctor/physician.</p> <p>Get medical advice/attention if you feel unwell.</p> <p>Specific treatment (see ... on this label).</p> <p>Do NOT induce vomiting.</p> <p>Wash contaminated clothing before reuse.</p> <p>IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</p> <p>IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>IF exposed or concerned: Get medical advice/attention.</p>

		<p>If eye irritation persists: Get medical advice/attention.</p> <p>In case of fire: Use ... for extinction.</p> <p>IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>Store locked up.</p> <p>Store in a well-ventilated place. Keep container tightly closed.</p> <p>Store in a well-ventilated place. Keep cool.</p> <p>Dispose of this material and its container in accordance with local/regional/national/international regulation.</p>
OTHER HAZARDS (NFPA)	Health	2
	Fire	3
	Reactivity	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL IDENTITY	SYNONYMS	CAS NUMBER	ASSAY
n-Hexane	Hexane	110-54-3	Above 96% (GR); Above 95% (EP); (KP); (HPLC)

4. FIRST AID MEASURES

GENERAL ADVICE	Wash off immediately with soap and plenty of water. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.
IN CASE OF EYE CONTACT	Remove any contact lenses at once. Flush eyes well with a large amount of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, transport to a hospital immediately.

IN CASE OF SKIN CONTACT	Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. If irritation persists, transport to a hospital immediately.
IF INHALED	Move victim to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, administer artificial respiration. Maintain normal body temperature with a blanket. If irritation persists, transport to a hospital immediately.
IF SWALLOWED	Rinse mouth, give plenty of water to dilute the substance. Never give anything by mouth to an unconscious person. Transport to a hospital immediately.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA	Carbon dioxide, dry chemical powder, foam, water spray
SPECIFIC HAZARDS ARISING FROM THE CHEMICAL	Flammable liquid. Hazardous toxic and irritating fumes or smoke may be emitted. Vapors may travel considerable distance to ignition source and flash back.
SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:	Firemen should wear normal protective equipment(full bunker gear)and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	Remove ignition sources and ventilate the area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes.
ENVIRONMENTAL PRECAUTIONS	Prevent spills from entering sewers, watercourses or low areas.
METHODS FOR CLEANING UP	Do not touch spilled material without suitable protection(See section 8). Take up spilled material with ashes or other absorbents. After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly.

	Remove, clean, or dispose of contaminated clothing.
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7. HANDLING AND STORAGE	
PRECAUTION FOR SAFE HANDLING	Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Handle material with suitable protection away from source of heat or ignition and use non-sparking type tools. Use explosion-proof electrical equipments and lighting.
CONDITIONS FOR SAFE STORAGE	Store away from sunlight in well-ventilated dry place at room temperature (preferably cool place). Keep container tightly closed. See also the indication described on label for handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION		
EXPOSURE STANDARDS	ACGIH	TWA : 50ppm
APPROPRIATE ENGINEERING CONTROLS:		Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
INDIVIDUAL PROTECTION MEASURES	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)
	EYE PROTECTION	Face shield and safety glasses 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.
	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.

9. PHYSICAL AND CHEMICAL PROPERTIES		
APPEARANCE	FORM	Liquid
	COLOR	Colorless
ODOUR		Characteristic odour
ODORODOUR THRESHOLD VALUE		60 ppm
pH		No data
FREEZING POINT :		-95 °C
INITIAL BOILING POINT		69 °C
FLASH POINT		-22 °C(c.c.)
EVAPORATING RATE		No data
FLAMMABILITY(solid, gas)		No data
EXPLOSIVE LIMITS		7.5 / 1.1 %
VAPOR PRESSURE		17 kPa (20°C)
SOLUBILITY IN	WATER	0.0013 g/100ml (20°C)
VAPOR DENSITY		3.0 (Air=1)
RELATIVE DENSITY		0.7
PARTITION COEFFICIENT: N-OCTANOL/WATER		3.9
AUTOIGNITION TEMPERATURE		225 °C
DECOMPOSITION TEMPERATURE		No data
VISCOSITY		0.326 cP (20°C)
MOLECULAR WEIGHT		86.18

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY & POSSIBILITY OF HAZARDOUS REACTIONS	No data
CONDITIONS TO AVOID	Sunlight, heat, open flames, high temperature, spark, static electrical charge, other ignition sources.
INCOMPATIBLE MATERIALS	Oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon monoxide may be formed.

11. TOXICOLOGICAL INFORMATION

INFORMATION ON THE LIKELY ROUTES OF EXPOSURES:	No data	
HEALTH HAZARD INFORMATION	ACUTE TOXICITY	LD50(oral,rat): 25000mg/kg;(KOSHA) LC50(inhalation,rat): 77000 ppm, 1hr;(KOSHA)
	SKIN CORROSION/ SKIN IRRITATION	Human; Moderate(EHC 122, 1993, DFGOT vol 14, 2000, PATTY 4th, 1994, ATSDR 1999)
	EYE DAMAGE/ EYE IRRITATION	Rabbit; 10mg; Mild(TXAPA9 55,501,1980) Human;; Moderate(Japan department of environment report vol 1, 2002)
	RESPIRATORY SENSITIZATION	No data
	SKIN SENSITIZATION	No data
	CARCINOGENICITY	IARC: No data OSHA: No data ACGIH: No data NTP: No data EU CLP: No data
	GERM CELL MUTAGENICITY	Sex chromosome loss and nondisjunction; S.cerevisiae; 132mmol/L(MUREAV 341, 83, 1994)

		Cytogenetic analysis; hamster; fibroblast; 500mg/L(FCTOD7 22, 623, 1984)
	TOXIC TO REPRODUCTION	TCLo(ihl,rat): 10000 ppm/7H(1-18 D preg)(TOXID9 1, 152, 1981) rat: spermatogenesis obstruction, atrophica musculorum, loss of weight(EHC 122, 1993, DFGOT vol.4, 1992, IRIS July 2005, ASTDR 1999)
	SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE	Human; anesthetic action(EHC 122, 1993, ACGIH 7th, 2001, DFGOT vol.4 1992, PATTY 4th, 1994) Human; the respiratory tract irritation (ACGIH 7th, 2001,PATTY 4th, 1994)
	SPECIFIC TARGET ORGAN TOXICITY REPEATED EXPOSURE	Human; multiple diphtheritic neuropathy(EHC 122, 1993, ACGIH 7th, 2001, DFGOT vol.4 1992, PATTY 4th, 1994, IRIS, 2005, ASTDR, 1999)
	ASPIRATION HAZARD	Hydrocarbon, kinematic viscosity below 20.5 mm ² /s (40°C)

12. ECOLOGICAL INFORMATION

ECOTOXICITY	TO FISH	No data
	TO CRUSTACEA	LC50 3.88 mg/l 4 hr Daphnia magna; (KOSHA)
	TO OTHER AQUATIC LIFE	No data
PERSISTENCE/ DEGRADABILITY	PERSISTENCE	log Kow 3.9; (KOSHA)
	DEGRADABILITY	No data
BIOACCUMULATION POTENTIAL	ACCUMUKATION	No data
	BIODEGRADABILITY	100%; (KOSHA)
MOBILITY IN SOIL		No data
OTHER ADVERSE EFFECTS		No data

13. DISPOSAL CONSIDERATION

DISPOSAL METHODS	Use only licensed transporters and permitted facilities for waste disposal.
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DISPOSAL CONSIDERATIONS	Dispose of this material and its container in accordance with local/regional/national/international regulation.
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14. TRANSPORT INFORMATION	
IATA	
UN NUMBER	1208
UN PROPER SHIPPING NAME	HEXANES
TRANSPORT HAZARD CLASS	3
PACKING GROUP	2
MARINE POLLUTANT	No data
SPECIAL PRECAUTIONS FOR USER	
IN CASE OF FIRE	F – E
IN CASE OF LEAK	S - D

15. REGULATORY INFORMATION		
Occupational Safety and Health Act	Substance Requiring Working Environment Measurement (period : 6 month) Hazardous Substance Requiring Management Substance Requiring Exposure Standards	
Toxic Chemicals Control Act	Not listed	
Safety Control of Dangerous Substance Act	4-1; 200L	
Wastes Control Act	Controlled Waste	
Persistent Organic Pollutants Control Act	Not listed	
US REGULATIONS	OSHA	Not listed
	CERCLA	2267.995 kg 5000 lb
	EPCRA302	Not listed
	EPCRA304	Not listed
	EPCRA313	Lcisted
	ROTTERDAM CONVENTION	Not listed
	STOCKHOLM CONVENTION	Not listed

	MONTREAL PROTOCOL	Not listed
EU CLASSIFICATION INFORMATION	CLASSIFICATION	F; R11 Repr. Cat. 3; R62 Xn; R48/20-65 Xi; R38 R67 N; R51-53
	RISK PHRASES	R11, R38, R48/20, R62, R65, R67, R51/53
	SAFETY PHRASES	S2, S9, S16, S29, S33, S36/37, S61, S62

16. OTHER INFORMATION	
REFERENCES AND SOURCES FOR DATA	Korea Occupational Safety & Health Agency(KOSHA) Wako Corporation Sigma Aldrich Corporation
ORIGINATED DATE	
REVISION NUMBER AND DATE	
OTHER	The information in this MSDS is based on several references and the present state of our knowledge. However, the MSDS dose not always cover all information about product. The information in this MSDS is only provision of information, and It does not represent any guarantee of the properties of the product.