
Safety Data Sheet**1. Chemical product and company identification****Product name** : n-Alkane (C4-30) mix solution**SDS code** : DB-05**Company/undertaking identification** :

HAYASHI PURE CHEMICAL IND.,LTD.

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URL : <https://www.hpc-j.co.jp/>**Emergency number** : 06-6910-7305**Recommended use** : For research and experimental use only.**Restrictions on use** : Do not use for any purpose other than research and experiment. Do not use on a human body or for animal medicines, foods, household products, cosmetics, etc. Do not use in the environment.**2. Hazards identification****GHS classification**

Physical hazards	Explosives	classification not possible	
	Flammable gases	No classification	
	Aerosol	classification not possible	
	Oxidizing gases	No classification	
	Gases under pressure	No classification	
	Flammable liquids	classification not possible	
	Flammable solids	No classification	
	Self-reactive substances and mixtures	classification not possible	
	Pyrophoric liquids	classification not possible	
	Pyrophoric solids	No classification	
	Self-heating substances and mixtures	classification not possible	
	Substances and mixtures which in contact with water emit flammable gases	classification not possible	
	Oxidizing liquids	classification not possible	
	Oxidizing solids	No classification	
	Organic peroxides	classification not possible	
	Corrosive to metals	classification not possible	
	Desensitized explosives	classification not possible	
	Health hazards	Acute toxicity (oral)	classification not possible
		Acute toxicity (dermal)	classification not possible
		Acute toxicity (inhalation:gas)	classification not possible
Acute toxicity (inhalation:vapors)		Category 4	
Acute toxicity (inhalation:dust/mist)		classification not possible	
Skin corrosion/irritation		Category 2	
Serious eye damage/eye irritation		Category 2A	
Respiratory sensitization		classification not possible	
Skin sensitization		classification not possible	
Germ cell mutagenicity		classification not possible	
Carcinogenicity	Category 1A		
Reproductive toxicity	Category 2		
Specific target organ toxicity (single exposure)	Category 1 (central nervous system, respiratory system)		

Environmental hazards	Specific target organ toxicity (single exposure)	Category 3 (Narcosis)
	Specific target organ toxicity (repeated exposure)	Category 1 (liver, central nervous system, male genitalia)
	Aspiration hazard	classification not possible
	Hazardous to the aquatic environment, short-term (acute)	Category 3
	Hazardous to the aquatic environment, long-term (chronic)	classification not possible
	Hazardous to the ozone layer	classification not possible

Hazard pictograms (GHS JP)



GHS07



GHS08

Signal word (GHS JP)	: Danger
Hazard statements (GHS JP)	: Causes skin irritation (H315) Causes serious eye irritation (H319) Harmful if inhaled (H332) May cause drowsiness or dizziness (H336) May cause cancer (H350) Suspected of damaging fertility or the unborn child (H361) Causes damage to organs (central nervous system, respiratory system) (H370) Causes damage to organs (liver, central nervous system, male genitalia) through prolonged or repeated exposure (H372) Harmful to aquatic life (H402)
Precautionary statements (GHS JP)	
Prevention	: Obtain special instructions before use. (P201) Do not handle until all safety precautions have been read and understood. (P202) Do not breathe dust/fume/gas/mist/vapors/spray. (P260) Wash hands, forearms and face thoroughly after handling. (P264) Do not eat, drink or smoke when using this product. (P270) Use only outdoors or in a well-ventilated area. (P271) Avoid release to the environment. (P273) Wear protective gloves/protective clothing/eye protection/face protection. (P280)
Response	: IF ON SKIN: Wash with plenty of water. (P302+P352) IF INHALED: Remove person to fresh air and keep comfortable for breathing (P304+P340) IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338) IF exposed or concerned: Call a POISON CENTER or doctor. (P308+P311) Get medical advice/attention if you feel unwell. (P314) If skin irritation occurs: Get medical advice/attention. (P332+P313) If eye irritation persists: Get medical advice/attention. (P337+P313) Take off contaminated clothing and wash it before reuse. (P362+P364)
Storage	: Store in a well-ventilated place. Keep container tightly closed. (P403+P233) Store locked up. (P405)
Disposal	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

3. Composition/information on ingredients

Distinction of substance or mixture : Mixture

Name	Concentration or Concentration range	Formula	Kanpo number		CAS RN
			CSSL no	ISHL no	
Dichloromethane	≥98%	CH ₂ Cl ₂	(2)-36	Existing Chemical Substance	75-09-2
Butane	About 0.0154%	C ₄ H ₁₀	(2)-4	Existing Chemical Substance	106-97-8
Pentane	About 0.0077%	C ₅ H ₁₂	(2)-5	Existing Chemical Substance	109-66-0
Hexane	About 0.0077%	C ₆ H ₁₄	(2)-6	Existing Chemical Substance	110-54-3
Heptane	About 0.0077%	C ₇ H ₁₆	(2)-7	Existing Chemical Substance	142-82-5
n-Octane	About 0.0077%	C ₈ H ₁₈	(2)-8	Existing Chemical Substance	111-65-9
Nonane	About 0.0077%	C ₉ H ₂₀	(2)-9	Existing Chemical Substance	111-84-2
Decane	About 0.0154%	C ₁₀ H ₂₂	(2)-10	Existing Chemical Substance	124-18-5
Undecane	About 0.0077%	C ₁₁ H ₂₄	(2)-10	Existing Chemical Substance	1120-21-4
Dodecane	About 0.0077%	C ₁₂ H ₂₆	(2)-10	Existing Chemical Substance	112-40-3
Tridecane	About 0.0077%	C ₁₃ H ₂₈	(2)-10	Existing Chemical Substance	629-50-5
Tetradecane	About 0.0077%	C ₁₄ H ₃₀	(2)-10	Existing Chemical Substance	629-59-4
Pentadecane	About 0.0077%	C ₁₅ H ₃₂	(2)-10	Existing Chemical Substance	629-62-9
Hexadecane	About 0.0077%	C ₁₆ H ₃₄	(2)-10	Existing Chemical Substance	544-76-3
Heptadecane	About 0.0077%	C ₁₇ H ₃₆	(2)-10	Existing Chemical Substance	629-78-7
Octadecane	About 0.0077%	C ₁₈ H ₃₈	(2)-10	Existing Chemical Substance	593-45-3
Nonadecane	About 0.0077%	C ₁₉ H ₄₀	(2)-10	Existing Chemical Substance	629-92-5
Eicosane	About 0.0154%	C ₂₀ H ₄₂	(2)-10	Existing Chemical Substance	112-95-8
Heneicosane	About 0.0077%	C ₂₁ H ₄₄	(2)-10	-	629-94-7
Docosane	About 0.0077%	C ₂₂ H ₄₆	(2)-10	-	629-97-0
Tricosane	About 0.0077%	C ₂₃ H ₄₈	(2)-10	-	638-67-5
Tetracosane	About 0.0077%	C ₂₄ H ₅₀	(2)-10	-	646-31-1
Pentacosane	About 0.0077%	C ₂₅ H ₅₂	(2)-10	-	629-99-2
Hexacosane	About 0.0077%	C ₂₆ H ₅₄	(2)-10	Existing Chemical Substance	630-01-3
Heptacosane	About 0.0077%	C ₂₇ H ₅₆	(2)-10	-	593-49-7
Octacosane	About 0.0077%	C ₂₈ H ₅₈	(2)-10	-	630-02-4
Nonacosane	About 0.0077%	C ₂₉ H ₆₀	(2)-10	-	630-03-5
Triacotane	About 0.0154%	C ₃₀ H ₆₂	-	2-(1)-17	638-68-6

The above concentration or concentration range are not product specification.

All percentages listed in the above concentration or concentration range are wt%, unless otherwise specified.

4. First aid measures

First aid measures

- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
Get immediate medical advice/attention.
- First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Get immediate medical advice/attention.
- First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.
- First-aid measures after ingestion : Do NOT induce vomiting.
Rinse mouth.
Get immediate medical advice/attention.

5. Fire fighting measures

- Suitable extinguishing media : Use proper extinguishing media depending on peripheral fire.
- Unsuitable extinguishing media : Do not use a heavy water stream.
- Hazardous decomposition products in case of fire : In case of fire, product may produce irritative or toxic fumes/gases.
- Firefighting instructions : If ignited, for the initial fire-fighting, cut off combustion sources, extinguish fire at a stroke using appropriate fire-extinguishers.
In the case of peripheral fire, quickly remove movable containers to safe places.
If unable to be moved containers, sprinkle water to containers and surrounding equipment, etc. to cool.
- Protection during firefighting : Wear appropriate fire-resistant clothing including self contained-compressed air breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

- General measures : Before entering, ventilate the area.
Do not let unauthorized persons come close to the area.
Immediately place the leakage area in isolation, with taking proper distances for all directions.
Wear appropriate personal protective devices to prevent inhalation and contact with eye, skin, and clothing, and never attempt to work on the lee.

Environmental precautions

- Environmental precautions : Avoid release to the environment.
Prevent entry to sewers and public waters.

Methods and Equipment for Containment and Cleaning up

- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it.
Collect leaking and spilled liquid in sealable containers as far as possible.
Wash out the spilled area with large amounts of water.

7. Handling and storage

Handling

- Technical measures : Work with appropriate personal protective equipment to prevent inhalation or contact to eyes, skin, and clothing.
Handle with care to prevent leakage, overflowing, or scattering, minimize generation of mist or vapor, and thoroughly ventilate.
- Precautions for safe handling : Do not eat, drink or smoke when using this product.
Thoroughly wash your hands and gargle after handling.
Ensure good ventilation of the work station.
Do not contact, breathe or swallow.
- Prevents handling of incompatible substances or mixtures : Avoid prolonged or repeated exposure.

Storage

- Storage conditions : Store locked up.
Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources.
- Material used in packaging/containers : Light shielding airtight container.
- Technical measures : Comply with applicable regulations.
- Storage temperature : Freeze: -20°C

8. Exposure controls / Personal protection equipment

Exposure limit values	
Dichloromethane	
Japan administration level	50ppm
Exposure limits (JSOH)	50ppm(170mg/m3)【Ceiling】100ppm(340mg/m3)(skin)
Exposure limits (ACGIH)	TWA 50 ppm,STEL -

- Appropriate engineering controls : Cover up tightly the generation source at the handling place or install local exhaust equipment or overall ventilation equipment. Install safety showers and eye-fountains near a handling place. Clearly indicate the location.

Protective equipment

- Respiratory protection : Gas mask for organic gases
- Hand protection : Impervious protective gloves
- Eye protection : Protective glasses (general glasses, glasses with side-shields, goggles)
- Skin and body protection : Impervious aprons, Impervious work clothing, Protective long boots

9. Physical and chemical properties

- Physical state : Liquid
- Appearance : Liquid
- Color : No data available
- Odor : No data available
- pH : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : 40.2 °C (as dichloromethane)
- Flash point : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : No data available
- Relative density : No data available
- Density : 1.3 g/cm³ (as dichloromethane, 20°C)
- Relative gas density : No data available
- Solubility : No data available
- Partition coefficient n-octanol/water (Log Pow) : No data available
- Explosive limits (vol %) : No data available
- Viscosity, kinematic : No data available
- Particle characteristics : No data available

10. Stability and reactivity

- Reactivity : No data available
- Chemical stability : Stable under normal handling conditions.
- Possibility of hazardous reactions : Decomposes by contact with high temperature and flame, generates phosgene and hydrogen chloride. Reacts with strong oxidizing agents, strong bases, alkali metals and aluminium.
- Conditions to avoid : Sunlight, heat. Contact with high temperature, flame, strong oxidizing agents, strong bases, alkali metals and aluminium.

Incompatible materials : Strong oxidizing agents, Strong bases, Alkali metals, Aluminium
 Hazardous decomposition products : Chlorine, Hydrogen chloride, Phosgene

11. Toxicological information

The information in this section is based on the "GHS Classification Results" by NITE.

As a product	
Acute toxicity (oral)	classification not possible
Acute toxicity (dermal)	classification not possible
Acute toxicity (inhalation)	vapors:Category 4 Gases:classification not possible dust, mist:classification not possible
Skin corrosion/irritation	Category 2
Serious eye damage/irritation	Category 2A
Respiratory sensitization	classification not possible
Skin sensitization	classification not possible
Germ cell mutagenicity	classification not possible
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
STOT-single exposure	Category 1 Category 3 (Narcosis)
STOT-repeated exposure	Category 1
Aspiration hazard	classification not possible
Dichloromethane	
Acute toxicity (oral)	No classification
Acute toxicity (dermal)	classification not possible
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	Category 4
Acute toxicity (inhalation:dust/mist)	classification not possible
Skin corrosion/irritation	Category 2
Serious eye damage/irritation	Category 2A
Respiratory sensitization	classification not possible
Skin sensitization	classification not possible
Germ cell mutagenicity	classification not possible
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
STOT-single exposure	Category 1 Category 3 (Narcosis)
STOT-repeated exposure	Category 1
Aspiration hazard	classification not possible

12. Ecological information

The information in this section is based on the "GHS Classification Results" by NITE.

As a product	
Hazardous to the aquatic environment, short-term (acute)	Category 3
Hazardous to the aquatic environment, long-term (chronic)	classification not possible
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Ozone	classification not possible
Dichloromethane	
Hazardous to Aquatic Environment - Acute Hazard	Category 3
Hazardous to Aquatic Environment - Chronic Hazard	Category 3
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	classification not possible

13. Disposal considerations

- Ecology - waste materials : With the detail information of the waste, subcontract its disposal to a waste disposer authorized by a Prefectural Governor.
- Contaminated container and packaging : Empty the packaging completely prior to disposal.
Empty containers should be taken for recycle, recovery or waste in accordance with local regulation.

14. Transport information

International Regulations

Transport by sea(IMDG)

- UN-No. (IMDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Packing group (IMDG) : Not applicable
Transport hazard class(es) (IMDG) : Not applicable

Air transport(IATA)

- UN-No. (IATA) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Packing group (IATA) : Not applicable
Transport hazard class(es) (IATA) : Not applicable

- Marine pollutant : Not applicable

Regulations in Japan

- Regulatory information by sea : Not applicable
Regulatory information by air : Not applicable

- Special transport precautions** : When transporting, load containers so that they do not tip over, damage, drop or collapse. Make sure there is no leak in containers.

15. Regulatory information

National law

- Chemical Substances Control Law : Priority Assessment Chemical Substances (Law Article 2, Para.5)
- Industrial Safety and Health Law : Group 2 Specified Chemical Substance, Special Organic Solvents (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Items 2, 3-2, 3-3)
Mutagenic Existing Chemicals (Act, Art.57-5, Official Notice by Director of Labor Standards Bureau)
Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1)
Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9)
Published Substances of the Guidelines for Preventing the Impairment of Workers' Health (Act, Art.28, Para.3, MHLW Noticed Guideline)
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9)
Dichloromethane (Ordinance number : 257)
Specified Chemical Substances, Special Control Substances (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.38-3)
Substances on Special medical examination, Current handling workers (Act, Art.66, Para.2, Enforcement Order, Art.22 Item 1)
Substances on Special medical examination, Past handling workers (Act, Art.66, Para.2, Enforcement Order, Art.22 Item 2)
- Japanese Poisonous and Deleterious Substances Control Law : Not applicable
- Water Pollution Prevention Law : Hazardous Substances (Act, Art.2, Enforcement Order Art.2, Ministerial Ordinance to Provide for Effluent Standards, Art.1)
- Fire Service Law : Not applicable
- Air Pollution Control Law : Hazardous Air Pollutants (Central Environment Council Report No. 9)
Hazardous Air Pollutants, Priority Substances (Central Environment Council Report No. 9)
Substances with Self-Imposed Control (Notification of Environment Agency)
Volatile Organic Compounds (Law Art.2 Para.4) (MOE Official Notice

	to Prefectures) Volatile organic compounds (Article 2, Paragraph 4 of the Act) (2002 VOC emission survey report)
Foreign Exchange and Foreign Trade Control Act	: Export Trade Control Ordinance appendix 1-16
Waste Management on Public Cleansing Law	: Specially Controlled Industrial Wastes (Act Art.2, para 5, Enforcement Order Art.2-4)
Waterworks Law	: Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)
Sewerage Law	: Substances for Water Quality Standard (Act Art.12-2 Para.2, Enforcement Order Art.9-4)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)	: Class 1 Designated Chemical Substances (Act Art.2 para. 2, Enforcement Order Art.1 Appended Table No.1) Dichloromethane; methylene dichloride (≥98%) 【After amendment of April 2023】 Class 1 Designated Chemical Substances (Act, Art.2, Para.2, Enforcement Order, Art.1 Appended Table 1) Dichloromethane (synonym: Methylene dichloride) (≥98%)
Labor Standards Act	: Chemical Substances Causing Occupational Illnesses (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 4-1,MHLW Notification No.36 of 1978 Carcinogens (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 7)
Soil Contamination Countermeasures Law	: Designated Hazardous Substances (Act Art.2 Para.3, Enforcement Order Art.1)

16. Other information

Data sources	: Handbook of 17322 Chemical Products, The Chemical Daily Co, Ltd. International Chemical Safety Cards. National Institute of Technology and Evaluation (NITE). 2020 Emergency Response Guidebook (ERG 2020).
Other information	: The SDS is copyrighted material of Hayashi Pure Chemical Ind, Ltd. This Safety Data Sheet is intended to be provided for business operators who handle chemical substance products of the relevant product and is not intended to assure safety in any way. The Safety Data Sheet does not verify all the information on the applicable chemical substance in the present time. With the recognition in that unknown danger constantly exists in the relevant chemical substance, the product shall be used in the principle of self-responsibility of the user with the highest priority to safety from transport and unpacking to disposal. When the relevant chemical substance is used, the user him/herself shall collect safety information and shall investigate laws and regulations at the place, organizations, countries, etc. where the substance is actually used and give the highest priority to them. The Company shall take no responsibility for investigating state and local regulations and the user shall handle this problem on his/her own responsibility. In the event that SDS in Japanese and SDS translated into other languages exist, the document described in Japanese is prior to all other documents whether or not there is any difference in contents, and documents in other languages shall be references.