

Jotun Thinner No. 21

In accordance with the Standard for Classification and Labeling of Chemical Substance and Safety Data Sheet,
Article 10 Paragraph 1

Section 1. Chemical product and company identification

- A. Product name** : Jotun Thinner No. 21
Label No. : 17120
Product description : Thinner.
Product type : Liquid.

B. Recommended use of the chemical

Identified uses

Use in coatings - Industrial use
Use in coatings - Professional use

- C. Supplier/Manufacturer** : Chokwang Jotun Ltd.
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- Emergency telephone number** : H.G.LEE Chokwang Jotun Ltd.
Tel: +82 51 797 6000

Section 2. Hazards identification

- A. Hazard classification** : SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
LONG-TERM AQUATIC HAZARD - Category 2

B. GHS label elements, including precautionary statements

Symbol :



Signal word : Warning.

Hazard statements : May cause drowsiness or dizziness.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : Use only outdoors or in a well-ventilated area. Avoid release to the environment.
Avoid breathing vapour.

Response : Collect spillage. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

- C. Other hazards which do not result in classification** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Synonyms	CAS number	%
hydrocarbons, C10, aromatics, <1% naphthalene	Kerosine - unspecified; (Polyethyl) benzenes; Solvent naphtha, petroleum, heavy aromatic; Heavy aromatic solvent naphtha; Solvent naphtha (petroleum), heavy arom; Solvent naphtha; Solvent naphtha (petroleum), heavy aromatic	64742-94-5	90-100
naphthalene	White tar; Tar camphor; Naphthalin; Alpha-Methyl styrene; naphthalene, pure; MOTH FLAKES; Naphthalene (8CA & 9CA); naphtalene; Naphthalene, crude or refined; Naphthene	91-20-3	0.1-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

- A. Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- B. Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- C. Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- D. Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

E. Most important symptoms/effects, acute and delayed

Potential acute health effects

- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Ingestion** : Can cause central nervous system (CNS) depression.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Ingestion** : No specific data.

Section 4. First aid measures

Skin : No specific data.

Eyes : No specific data.

F. Indication of immediate medical attention and special treatment needed, if necessary

Specific treatments : Not available.

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

A. Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

B. Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

C. Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

B. Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

C. Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

- A. Precautions for safe handling** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- B. Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

- A. Control parameters**
Occupational exposure limits

Ingredient name	Exposure limits
hydrocarbons, C10, aromatics, <1% naphthalene naphthalene	Ministry of Labor (Republic of Korea, 5/2002). TWA: 125 mg/m ³ 8 hours. Form: All forms TWA: 25 ppm 8 hours. Form: All forms Ministry of Labor (Republic of Korea, 8/2013). Absorbed through skin. STEL: 75 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 50 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- B. Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- C. Personal protective equipment**
- Respiratory protection** : If workers are exposed to concentrations above the exposure limit, they must use a respirator according to EN 140. Use respiratory mask with charcoal and dust filter when spraying this product, according to EN 14387(as filter combination A2-P2). In confined spaces, use compressed-air or fresh-air respiratory equipment. When use of roller or brush, consider use of charcoalfilter.
- Hand protection** : There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals. The breakthrough time must be greater than the end use time of the product. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed. Gloves should be replaced regularly and if there is any sign of damage to the glove material. Always ensure that gloves are free from defects and that they are stored and used correctly. The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Section 8. Exposure controls/personal protection

Wear suitable gloves tested to EN374.

Recommended, gloves(breakthrough time) > 8 hours: nitrile rubber, neoprene, butyl rubber, fluor rubber, Viton®

For right choice of glove materials, with focus on chemical resistance and time of penetration, seek advice by the supplier of chemical resistant gloves.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

- Eye protection** : Use safety eyewear designed to protect against splash of liquids.
- Skin protection** : Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9. Physical and chemical properties

- A. Appearance**
- Physical state** : Liquid.
- Colour** : Clear.
- B. Odour** : Characteristic.
- C. Odour threshold** : Not available.
- D. pH** : Not applicable.
- E. Melting/freezing point** : Not applicable.
- F. Boiling point/boiling range** : Lowest known value: 146 to 299°C (294.8 to 570.2°F)(hydrocarbons, C10, aromatics, <1% naphthalene).
- G. Flash point** : Closed cup: 62°C (143.6°F)
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- H. Evaporation rate** : Not available.
- I. Flammability (solid, gas)** : Not available.
- J. Lower and upper explosive (flammable) limits** :
- K. Vapour pressure** : Highest known value: 0.003 kPa (0.02 mm Hg) (at 20°C) (hydrocarbons, C10, aromatics, <1% naphthalene).
- L. Solubility** : Insoluble in the following materials: cold water and hot water.
- M. Vapour density** : Not available.
- N. Relative density** : 0.9 g/cm³
- O. Partition coefficient: n-octanol/water** : Not available.
- P. Auto-ignition temperature** : Lowest known value: 220 to 250°C (428 to 482°F) (hydrocarbons, C10, aromatics, <1% naphthalene).
- Q. Decomposition temperature** : Not available.
- SADT** : Not available.
- R. Viscosity** : Kinematic (40°C): >0.205 cm²/s (>20.5 mm²/s)
- S. Molecular weight** : Not applicable.

Section 10. Stability and reactivity

- A. Chemical stability** : The product is stable.
- B. Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- C. Conditions to avoid** : No specific data.
- D. Incompatible materials** : Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.
- E. Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

A. Information on likely routes of exposure

- Respiratory** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Oral** : Can cause central nervous system (CNS) depression.
- Skin** : No known significant effects or critical hazards.
- Eyes** : No known significant effects or critical hazards.

B. Delayed and immediate effects as well as chronic effects from short and long-term exposure

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
naphthalene	LD50 Oral	Rat	490 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
naphthalene	Skin - Mild irritant	Rabbit	-	495 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 0.05 Milliliters	-

Sensitisation

Not available.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Chronic toxicity

Not available.

Carcinogenicity

Not available.

Mutagenicity

Not available.

Teratogenicity

Not available.

Reproductive toxicity

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Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hydrocarbons, C10, aromatics, <1% naphthalene	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
hydrocarbons, C10, aromatics, <1% naphthalene	ASPIRATION HAZARD - Category 1

C. ATE value

Not available.

Section 12. Ecological information

A. Aquatic and terrestrial toxicity

Ecotoxicity : Water polluting material. May be harmful to the environment if released in large quantities. This material is toxic to aquatic life with long lasting effects.

Product/ingredient name	Result	Species	Exposure
hydrocarbons, C10, aromatics, <1% naphthalene	Acute EC50 <10 mg/l	Daphnia	48 hours
naphthalene	Acute IC50 <10 mg/l Acute LC50 <10 mg/l Acute EC50 0.4 mg/l Acute EC50 1.6 ppm Fresh water Acute LC50 2800 µg/l Marine water Chronic NOEC 0.67 ppm Fresh water	Algae Fish Algae - Skeletonema costatum Daphnia - Daphnia magna Crustaceans - Elasmopus pecteniscrus - Adult Fish - Oncorhynchus kisutch	72 hours 96 hours 96 hours 48 hours 48 hours 40 days

B. Persistence/degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
hydrocarbons, C10, aromatics, <1% naphthalene	-	-	Not readily
naphthalene	-	-	Not readily

C. Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
hydrocarbons, C10, aromatics, <1% naphthalene	2.8 to 6.5	99 to 5780	high
naphthalene	3.4	36.5 to 168	low

D. Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

E. Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

A. Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or

Section 13. Disposal considerations

landfill should only be considered when recycling is not feasible.

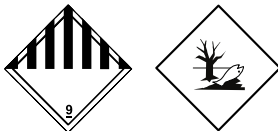
- B. Disposal precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

International transport regulations

- Proper shipping name** : Environmentally hazardous substance, liquid, n.o.s. (hydrocarbons, C10, aromatics, <1% naphthalene)
- Marine pollutant substances** : hydrocarbons, C10, aromatics, <1% naphthalene
- UN Number** : 3082
- Class** : 9
- Packing group** : III
- Label** :



- Marking** : The environmental hazardous / marine pollutant mark is only applicable for packages containing more than 5 litres for liquids and 5 kg for solids.

Additional information

- ADR / RID** : Tunnel restriction code: (-)
Hazard identification number: 90
- IMDG** : Emergency schedules (EmS): F-A, S-F
Marine pollutant: Yes.

Transport in accordance with ADR/RID, IMDG/IMO and ICAO/IATA and national regulation.

This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Section 15. Regulatory information

A. Regulation according to ISHA

- Article 2 of Youth Protection Act on Substances Hazardous to Youth** : Not applicable.
- ISHA article 37 (Harmful substances prohibited from manufacture)** : None of the components are listed.
- ISHA article 38 (Harmful substances requiring permission)** : None of the components are listed.
- ISHA Article 39** :

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
hydrocarbons, C10, aromatics, <1% naphthalene
naphthalene

- ISHA Enforcement Regs Annex 11-3 (Exposure standards established for harmful factors)** : None of the components are listed.

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ISHA Enforcement Regs Annex 11-4 (Harmful factors subject to Work Environment Measurement) : None of the components are listed.

ISHA Enforcement Regs Annex 12-2 (Harmful Factors Subject to Special Health Check-up) : None of the components are listed.

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) : None of the components are listed.

B. Regulation according to AREC & CCA

AREC Toxic chemicals : Not applicable

AREC Article 32 (Banned) : None of the components are listed.

AREC Article 32 (Restricted) : None of the components are listed.

AREC Article 17 (TRI) : The following components are listed: Naphthalene

Korea inventory : All components are listed or exempted.

CSCA Article 39 (Accident Precaution Chemicals) : None of the components are listed.

C. Dangerous Materials Safety Management Act : Class: Class 4 - Flammable Liquid
Item: 4. Class 2 petroleums - Water-insoluble liquid
Threshold: 1000 L
Danger category: III
Signal word: Contact with sources of ignition prohibited

D. Wastes regulation : Dispose of contents and container in accordance with all local, regional, national and international regulations.

E. Regulation according to other foreign laws

Europe inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Japan inventory : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

Safety, health and environmental regulations specific for the product : No known specific national and/or regional regulations applicable to this product (including its ingredients).

Section 16. Other information

A. References : Not available.

B. Date of issue/Date of revision : 28.05.2018

C. Version : 3

Date of printing : 28.05.2018

D. Other

✔ Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.