

Material Safety Data (MSDS)

1. Information on chemical products and companies

A. Product name

- [IS7340] Speed Penetration Decomposition, Cleaning Agent(P-840)

B. Restrictions on the recommended use and use of the product

- Purpose(Use) : High Speed Penetration Decomposition,Cleaning Agent
 - Restrictions in use : No data

C. Provider Information

- Company name : Ilshin Chemical Co., Ltd
 - Address : 2, Sincheoksandan 1-ro, Deoksan-eup, Jincheon-gun, Chungcheongbuk-do (Sincheok-ri 851)
 - Emergency phone number : TEL : 043)536-0161, FAX : 043)536-0162

2. Hazards and risks

A. Classification of hazards and risks

- Flammable gases : category 1
- High pressure gas: liquefied gas
- Acute toxicity (peripheral): Category 4
- Acute toxicity (percutaneous): Category 4
- Acute toxicity (inhalation: dust/mist): Category 4
- Skin Corrosion/Skin Irritation: Category 2
- Carcinogenicity: Category 1A
- Germ cell mutagenicity: Category 1B
- Inhalation hazard: Category 1
- Chronic aquatic environment hazards: Category 4

B. Items with warning signs including precautionary measures

○ Picture characters



○ Signal word

- Dangerous

○ Hazardous and dangerous statements

- H220 Extremely flammable gas
- H225 Highly flammable liquids and vapors
- H305 Swallowing into the airways can be harmful
- H312 Harmful in contact with skin.
- H315 irritation to the skin
- H319 Causes serious eye irritation.
- H332 Harmful when inhaled
- H351 Suspected of causing cancer.
- H361 Suspected to cause damage to fetal or reproductive capacity
- H371 May cause damage to the eyes and skin in the body (see paragraph 11 (MSDS)).

○ Preventive action statement

1) Prevention

- P201 Secure the manual before use.
- P202 Do not handle all safety precautions until you have read and understood them.
- P210 Keep away from heat, spark, flame and high heat - no smoking
- P233 Seal the container tightly.
- P240 Bond or ground the vessel and receiver.
- P241 Use explosion-proof electricity, ventilation, lighting, and equipment.
- P242 Use only spark-free tools.

- P243 Take antistatic measures.
- P260 (Do not inhale (dust, fume, gas, mist, steam, spray).
- P261 (dust, fume, gas, mist, vapours, spray) Avoid breathing.
- P264 Wash the handling area thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Handle only outdoors or in well ventilated areas.
- P273 Do not discharge into environment.
- P280 (protective gloves, protective clothing, eye protection, face protection).
- P281 Wear appropriate personal protective gear

2) Correspondence

- P321 Take the necessary measures.
- P331 Don't make me vomit.
- P332+P313 Seek medical advice if skin irritation occurs.
- P337+P313 Seek medical advice if eye irritation persists.
- P362 Remove contaminated clothing and wash it before use again.
- P363 Wash contaminated clothing before use again.
- P370+P378 Use fire extinguisher to extinguish fire.

3) Storage

- P403+P235 Store in a well ventilated place and keep at low temperatures.
- P405 Store in a locked storage area.

4) Disposal

- P501 Refer to "13.Disposal Precautions" in MSDS and dispose of contents and containers.

C. Other hazards and risks that are not included in the classification criteria for hazards and risks

○ NFPA rating (Steps 0 Through 4)

- Health: 1, Fire: 4, Reactivity: 0

3. Name and content of components

Chemical substance name	Tolerant name and tinnitus	CAS number or identification number	content(%)
Butane	-	106-97-8	25 ~ 35
Propane	Dimethylmethane	74-98-6	5 ~ 15
Hydrogenated hard refined oil (Oil)	Hydrotreated kerosene	64742-47-8	40 ~ 50
Hydrogenated heavy paraffin oil (Oil)	Hydrotreated (mild) heavy paraffinic distillate	64742-54-7	1 ~ 10
1-Chloro-2-Propanol phosphoric acid	Tris (2-Chloro-1-Methylethyl) Ester Phosphoric	13674-84-5	1 ~ 3
Barium Sulfonate oil	Sulfonic acids,Petroleum,Barium salts	61790-48-5	1 ~ 5

4. Tips for emergency measures

A. When it goes into your eyes

- Don't rub your eyes.
- Use plenty of water to flush eyes for at least 15 minutes.
- Seek immediate medical attention.
- If symptoms (redness, irritation, etc.) occur, go to the hospital immediately.
- If you are wearing contact lenses, remove them first.

B. When it comes into contact with the skin

- Remove contaminated clothing and shoes and immediately rinse with soap and water for at least 15 minutes.
- Wash contaminated cloth thoroughly before reuse.
- Seek immediate medical attention.
- If symptoms (redness, irritation, etc.) occur, go to the hospital immediately.
- Wash thoroughly after handling.
- Prevent skin spread.

C. When you inhale it

- If exposed to large amounts of steam or mist, move to a place with fresh air.
- Take action as necessary.
- Seek immediate medical attention.
- If breathing is irregular or stops, perform artificial respiration and oxygen.

D. When you eat it

- Get advice from your doctor as to whether vomiting should be triggered.
- Rinse your mouth with water immediately.
- if swallowed, drink plenty of water and do not induce vomiting.
- Seek immediate medical attention.

E. Other doctor's precautions

- Inform medical personnel of the contamination so that they can Take appropriate protective measures.
- Seek medical attention and advice if exposed or concerned about exposure.

5. How to cope with an explosion or fire

A. Appropriate (and inappropriate) digestive medicine

- Water, carbon dioxide, powder, dry chemical fire extinguishing agent
- Water, Foams
- Powdered fire extinguishing agent, carbon dioxide, water, alcohol-type home
- Particulate powder fire extinguishing agent, carbon dioxide, water, common foams
- Avoid fire extinguishing using waterjets.

B. Specific hazards arising from chemicals

- Highly flammable liquids and vapors
- Intense polymerization can cause fires and explosions
- Steam can be transferred to the ignition source to ignite
- May produce irritating and highly toxic gases by pyrolysis or combustion during burning
- Can form explosive mixtures at or above the flash point
- Containers may explode when heated
- High flammability: easily ignited by heat, spark, flame
- Leakage is at risk of fire/explosion
- Risk of steam explosion in indoor, outdoor, and sewers
- Vapor can form an explosive mixture with air
- Steam can backfire (flash back) to travel to the sources of ignition.
- Steam may cause dizziness or suffocation without awareness
- Irritates or burns skin and eyes on inhalation and contact

C. Protective equipment and preventive measures to be worn in the event of a fire suppression

- Move the container away from the fire area if you can Do it without danger.
- Avoid inhalation of the substance itself or combustion products.
- If the tank is engulfed in flames, do not approach it.
- Find and Use an evolutionary method that suits your surroundings.
- Wear appropriate protective equipment if necessary.
- Steam or gas can ignite from a distant ignition source and diffuse in an instant.
- These are materials with extremely low flash points, and the main water extinguishing effect may be small when extinguishing fires.

6. How to deal with leakage accidents

A. Measures and protective equipment necessary to protect the human body

- Ventilate before entering confined spaces.
- Be sure to work with your back to the wind and evacuate anyone who has it.
- Move the container to an area safe from leakage.
- Wear protective equipment and dispose of damaged containers or leaking materials.
- Do not inject directly into spilled liquid and leak area.
- Prevent access to non-related persons, isolate dangerous areas, and prohibit entry.
- Do not clean and dispose without professional supervision.
- Avoid skin contact and breathing.

B. Measures necessary to protect the environment

- Prevent leakage from entering sewage systems and water systems.

- If there is a large amount of leakage, report it to 119, the Ministry of Environment, the Regional Environmental Management Agency, or the city or province (Environmental Guidance Division).

C. Purification or removal method

- Massive leakage: Avoid low-lying areas and stay in the opposite direction from the wind. Build and manage embankments for the disposal of leakage.
- If you discharge more than the standard amount, notify the central government and local governments of the emissions.
- Disposal by the Waste Management Act (Ministry of Environment).
- Collect in a suitable container for disposal of leaking material.
- Small amount leakage: Use sand or other non-flammable materials to absorb.
- Wipe off the solvent.
- Build the embankment for further processing.
- Prevent wastewater from entering or spreading into waterways, sewers and underground.
- Do not Use plastic containers.

7. Handling and storage methods

A. Safety handling tips

- Follow all MSDS, label precautions as product residue (vapors, liquids, solids) may remain after the container is emptied.
- Obtain the instruction manual before use.
- Handle only in a well-ventilated area.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale vapors for long periods of time or repeatedly.
- Avoid contact with heat, sparks, flames or other ignition sources.
- Do not take contaminated clothing out of the workplace.

B. Safe storage method

- Store in a cool, dry and well-ventilated place.
- Do not subject the container to physical impact.
- Avoid direct sunlight.
- If not in use, place airtight.
- No Flammables
- Collect in an airtight container.
- Designate and store carcinogenic substances.
- Store in a place away from water supply and sewerage.

8. Exposure protection and personal protective equipment

A. Exposure standards of chemical substances, biological exposure standards, etc

○ Domestic exposure standards

- [Toluene] : TWA - 50ppm STEL - 150ppm
- [Butane] : TWA, 800 ppm

○ ACGIH exposure standard

- [Toluene] : TWA 20 ppm
- [Butane] : TWA 1000 ppm

○ Biological exposure criteria

- [Toluene] : Toluene in blood: 0.02 mg/L (before final work on weekdays), Toluene in urine: 0.03 mg/L (after work),
With hydrolysis o-Cresol : 0.3 mg/g creatinine (after work)

B. Appropriate engineering management

- The employer shall take necessary measures, such as installing facilities to suppress the emission of gas, gas, etc. or sealing the emission source of gas, etc. so that the concentration of gas, steam, mist, fume, or dust does not exceed the harmful level in the air.

C. Personal Protective Equipment

○ Respiratory protection

- Wear a gas mask certified by the Korea Occupational Safety and Health Agency if there is a possibility of direct exposure or exposure to the substance.
- Respiratory protection is classified from minimum to maximum concentration.
- Consider the warning characteristics before use.

- Gas mask (directly small, for organic compounds)
 - Air-filtered respirators (purification containers and front type for organic compounds)
 - Unknown concentration or other imminent danger to life or health: air ventilation mask (complex air line mask), air respirator (front type)
- Eye protection**
- If you are concerned about direct contact or exposure to the substance, wear safety glasses certified by the Korea Occupational Safety and Health Agency.
 - Workshop in close proximity Install eye washing and emergency washing facilities (shower type).
- Hand protection**
- If you are concerned about direct contact or exposure to the substance, wear chemical resistant gloves certified by the Korea Occupational Safety and Health Agency.
- Physical protection**
- If you are concerned about direct contact or exposure to the substance, wear chemical resistant protective clothing certified by the Korea Occupational Safety and Health Agency.

9. Physical and chemical properties

A. Appearance	
- an icon of nature	liquid
- Colors	No data
B. Smell	The smell of solvent
C. Smell threshold	No data
D. pH	No data
E. Melting point/Freezing point	No data
F. Initial boiling point and boiling point range	No data
G. Flash point	-80 °C
H. Evaporation rate	No data
I. Flammable (solid, gas)	No data
J. Upper/lower limit of range of ignition or explosion	No data
K. steam pressure	No data
L. solubility	No data
M. steam density	No data
N. specific gravity	No data
O. N-octanol/water distribution factor	No data
P. Natural ignition temperature	No data
Q. Decomposition temperature	No data
R. Viscosity	No data
S. molecular weight	No data

10. Stability and Reactivity

A. Possibility of chemical stability and adverse reactions

- Stable for recommended storage and handling.
- No adverse polymerization reaction.

B. Conditions to Avoid

- Avoid non-mixing substances and conditions.
- Avoid contact with heat, flame, flame or other sources of ignition.

C. Substances to be avoided

- No data

D. Hazardous substances produced during decomposition

- No data

11. Information on toxicity

A. Information on likely exposure routes

- (respiratory)**
 - Swallowing into the airways can be harmful
- (Original)**
 - No data

- **(Eyes and Skin)**
 - Severe irritation to the eyes
 - Irritation to the skin

B. Health Hazard Information

- **Acute toxicity**
 - * **Oral toxicity**
 - [Hydrogenated hard refined oil (Oil)] : LD50 > 15000 mg/kg Rat
 - [Hydrogenated heavy paraffin oil (Oil)] : LD50 > 15000 mg/kg Rat
 - [1-Chloro-2-Propanol phosphoric acid] : LD50 > 1500 mg/kg Rat
 - [Barium Sulfonate oil] : LD50 > 3000 mg/kg Rat
 - * **Percutaneous toxicity**
 - [Hydrogenated hard refined oil (Oil)] : LD50 > 2000 mg/kg Rat
 - [Hydrogenated heavy paraffin oil (Oil)] : LD50 > 5000 mg/kg Rat
 - [1-Chloro-2-Propanol phosphoric acid] : LD50 > 5000 mg/kg Rat
 - * **Inhalation toxicity**
 - [Hydrogenated hard refined oil (Oil)] : Mist LC50> 5.2 mg/ℓ 4 hr Rat
 - [1-Chloro-2-Propanol phosphoric acid] : Mist LC50> 4.6 mg/ℓ Rat
 - [Propane] : Gas LC50 800000 ppm 15 min Rat
- **Corrosive or irritating skin**
 - [Propane] : No data (EU Directive 67/548). rabbit /irritating (IUCLID)
- **Severe eye damage or irritation**
 - [Propane] : Rabbit/not irritating (IUCLID)
- **Respiratory irritability**
 - No data
- **Skin irritability**
 - No data
- **Carcinogenicity**
 - * **Occupational Safety and Health Act**
 - No data
 - * **Ministry of Employment and Labor Notice**
 - No data
 - * **IARC**
 - No data
 - * **OSHA**
 - No data
 - * **ACGIH**
 - No data
 - * **NTP**
 - No data
 - * **EU CLP**
 - No data
- **Germ cell mutagenicity**
 - [Bhutan] : In vitro mammalian (human) chromosomal abnormality test results negative with or without metabolic activity (OECD Guideline 473, GLP),
Return mutation test results using in vitro microorganisms are negative with or without metabolic activity (OECD Guideline 471),
In vivo drosophila SLRL test result negative,
Negative micronucleus test results using in vivo mammalian (rat) red blood cells (OECD Guideline 474, GLP)
*EU CLP : 1B (only if it contains more than 0.1% butadiene)
 - [Hydrogenated hard refined oil (Oil)] : in vitro, in vivo Mutagenicity test results negative
 - [1-Chloro-2-Propanol phosphoric acid] : Ames test : Negative, Mouse lymphoma mutation assay : Negative, Cell transformation assay :
Negative, Unscheduled DNA synthesis : Negative, rat Marrow cytogenetics assay : Negative
- **Reproductive toxicity**
 - [Bhutan] : Reproductive toxicity tests using rats show no specific abnormalities related to reproduction and development (OECD Guideline 422, GLP)
 - [1-Chloro-2-Propanol phosphoric acid] : A rat- There were no specific symptoms in the control group and the test substance administration group
- **Specific target organ toxicity (1 exposure)**

- [Butane] : Acute inhalation toxicity test results using mice Central nervous system suppression, fast and shallow breathing, and apnea signs observed (LC50(120min) = 1237mg/L air)
- Acute toxicity test using rabbits shows no toxicity to the eyes
- [Hydrogenated hard refined oil (Oil)] : May affect the central nervous system. High-concentration steam inhalation can cause unconsciousness

○ **Specific target organ toxicity (repeated exposure)**

- [Butane] : Repeat inhalation toxicity test using rats (4 weeks) showed no abnormalities other than weight loss
- [Hydrogenated hard refined oil (Oil)] : Skimmed skin.
- [1-Chloro-2-Propanol phosphoric acid] : A rat - 90 days dietary study; NOAEL(male) = 800 ppm, NOAEL (female) 7500ppm(0, 800, 7500, 20000ppm)
- [Propane] : No data (EU Directive 67/548/EEC). Central nervous system : the effects of the nervous system (TOMES)

○ **The harmful effects of aspiration**

- [Hydrogenated hard refined oil (Oil)] : Swallowing liquids can cause aspiration to the lungs, causing chemical pneumonia

12. Environmental Impact

A. Ecotoxicity

○ **Fish**

- [Bhutan] : LC50 27.98 mg/l 96 hr Others (Similar substance CAS no.74-28-5)
- [Hydrogenated hard refined oil (Oil)] : LC50 2.4 mg/l 96 hr *Oncorhynchus mykiss*
- [Hydrogenated heavy paraffin oil (Oil)] : LC50 > 5000 mg/l 96 hr *Oncorhynchus mykiss*
- [1-Chloro-2-Propanol phosphoric acid] : LC50 51 mg/l 96 hr (Test specie: Fathead minnow)
- [Barium Sulfonate oil] : LC50 0.00000159 mg/l 96 hr (Substances with a water solubility of less than 1 mg/L are not classified because the test medium is difficult to dissolve)
- [Propane] : LC50 > 100 mg/l 96 hr Others ((Test specie : Fish TLm))

○ **Crustaceans**

- [Butane] : LC50 69.43 mg/l 48 hr Others (*Daphnia* sp., Similar substance CAS no.74-28-5)
- [Hydrogenated hard refined oil (Oil)] : No data
- [Hydrogenated heavy paraffin oil (Oil)] : EC50 > 1000 mg/l 48 hr *Daphnia magna*
- [1-Chloro-2-Propanol phosphoric acid] : EC50 131 mg/l 48 hr
- [Barium Sulfonate oil] : LC50 0.00000318 mg/l 48 hr (Substances with a water solubility of less than 1 mg/L are not classified because the test medium is difficult to dissolve)
- [Propane] : LC50 52.157 mg/l 48 hr

○ **The current**

- [Butane] : EC50 16.47 mg/l 96 hr Others (Green algae, Similar substance CAS no. 74-84-0)
- [Hydrogenated hard refined oil (Oil)] : No data
- [Hydrogenated heavy paraffin oil (Oil)] : EC50 > 1000 mg/l 96 hr *Scenedesmus subspicatus*
- [1-Chloro-2-Propanol phosphoric acid] : EC50 73 mg/l *Selenastrum capricornutum*
- [Barium Sulfonate oil] : EC50 0.00000335 mg/l 96 hr (Substances with a water solubility of less than 1 mg/L are not classified because the test medium is difficult to dissolve)
- [Propane] : LC50 32.252 mg/l 96 hr

B. Residue and Decomposition

○ **Residuity**

- [Bhutan] : log Kow 2.89
- [Hydrogenated hard refined oil (Oil)] : log Kow 3.3 ~ 6 (Estimation)
- [Hydrogenated heavy paraffin oil (Oil)] : log Kow 3.9 ~ 6 (Estimation)
- [1-Chloro-2-Propanol phosphoric acid] : log Kow 3.33 (20°C)
- [Barium Sulfonate oil] : log Kow 11.05
- [Propane] : log Kow 2.36

○ **Decomposibility**

- No data

C. Biological Concentration

○ **Bioconcentration**

- [Hydrogenated hard refined oil (Oil)] : BCF 130 ~ 159 (*Jordanella floridae*(Fish, fresh water), 1mg/l)
- [1-Chloro-2-Propanol phosphoric acid] : BCF 9.57 (Evaluate from acceptability)
- [Propane] : BCF 13

○ **Biodegradable**

- [Butane] : 100 % 385.5 hr
- [Hydrogenated hard refined oil (Oil)] : 4 (%) 28 day ((Aerobic, active sludge, domestic sewage, not easily decomposed))
- [Hydrogenated heavy paraffin oil (Oil)] : 6 (%) 28 day (Aerobic, domestic sewage, not easily decomposed)
- [1-Chloro-2-Propanol phosphoric acid] : 0 (%) 28 day
- [Propane] : 65.7 (%) 35 day

D. Soil Mobility

- No data

E. Other harmful effects

- [Hydrogenated heavy paraffin oil (Oil)] : fish: NOEC(Pimephales promelas) >5000 mg/L/7day

13. Precautions for disposal

A. Disposal method

- If two or more types of designated wastes are mixed and it is difficult to separate and dispose of them, the reduction and stabilization can be performed by incineration or similar methods.
- Oil and water separation shall be performed in advance by the method of separating oil and water.
- To be incinerated.
- Burn at high temperature.
- After recovering substances to be recycled such as organic solvents, incinerate the residues at high temperature.
- Drain all remaining gas in the spray container and drain according to the procedure.

B. Precautions for disposal

- A business operator (business waste discharger) that discharges business waste shall dispose of the waste generated from the business site by itself, or delegate it to a waste disposal business operator, a person who regenerates the waste of others, or a person who installs and operates a waste disposal facility.
- Compliance with the Waste Management Act.

14. Information Required for Transport

A. United Nations number (UN No.)

- UN 1950

B. UN proper shipping name

- AEROSOLS

C. Risk rating in transportation

- 2.1

D. Container rating

- No data

E. Marine pollutants

- No data

F. Special safety measures that users need or need to know about transportation or means of transportation

- In accordance with the Dangerous Goods Safety Control Act for local transportation.
- Packaging and transportation to DOT and other regulations.
- Types of emergency measures in case of fire: F-E (non-water-reactive flammable liquids)
- Types of emergency measures in case of spillage: S-E (floating on water)

15. Legal regulatory status

A. Regulation under the Occupational Safety and Health Act

- Material to be measured in the working environment
 - [Hydrogenated heavy paraffin oil (Oil)] : Measurement cycle: 6 months
- Exposure criteria setting substances
 - [Hydrogenated hard refined oil (Oil)]
- Hazardous substances to be managed
 - No data

- Substances subject to special health examination
 - No data
- Substances subject to PSM submission
 - [Butane]
 - [Propane]

B. Regulation under the Chemical Substance Control Act

- Toxic substances
 - Not applicable (85% or more of Toluene)
- Chemicals subject to emission investigation
 - Not applicable (1% or more of Toluene)
- Accident preparation material
 - Not applicable (85% or more of Toluene)
- Restricted substances
 - Not applicable
- permitted substance
 - Not applicable

C. Regulation under the Dangerous Goods Safety Management Act

- Dangerous goods: Category 4 oil (Designated quantity: 200 liters (non-water-soluble liquid))

D. Regulation under the Waste Management Act

- This product falls under the designated waste (waste paint and waste locker) according to the Enforcement Decree of the Waste Management Act (Attachment 1) among wastes generated at the workplace.

E. Other regulations under domestic and foreign laws

- Residual Organic Pollutants Control Act
 - Not Applicable
- * EU classification information
 - * Result of definitive classification
 - Not Applicable
 - * Risk statement
 - [Propane] : R12
 - * Safety statement
 - [Propane] : S2, S9, S16
- About U.S. Management
 - * OSHA Regulation (29CFR1910.119)
 - Not Applicable
 - * CERCLA 103 Regulation (40CFR302.4)
 - Not Applicable
 - * EPCRA 302 Regulation (40CFR355.30)
 - Not Applicable
 - * EPCRA 304 Regulation (40CFR355.40)
 - Not Applicable
 - * EPCRA 313 Regulations (40CFR372.65)
 - Not Applicable
- Rotterdam Convention Substances
 - Not Applicable
- Stockholm Convention Substances
 - Not Applicable
- Montreal Protocol Substances
 - Not Applicable

16. Other Notes

A. Source of data

- This MSDS is referred to in Article 110 of the Occupational Safety and Health Act (the provision of material safety and health data) and Notice No. 2023-9 of the Ministry of Employment and Labor (classification and labeling of chemicals, and Based on the criteria for material safety and health data), it is prepared in consideration of the current status of related regulatory laws and regulations in Korea.
- This MSDS was prepared based on KOSHA, NITE, ESIS, NLM, SIDS, IPCS, NCIS, etc.

B. Date of initial preparation

- 2020-08-12

C. Number of revisions and the date of final revisions

- 3th / 2023-07-19

D. Other

- This information was prepared based on the DB currently available to protect worker health, environment, and safety.