Material Safety Data (MSDS)

1. Information on chemical products and companies

A. Product name

- [IS-1300] Foam Cleaner

B. Recommendations for the product and restrictions on use

- Purpose(Use) : The exclusive cleaner for Ilshin Foam is intended to clean the foam inside the gun and before it is hardened.
- Restrictions on 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

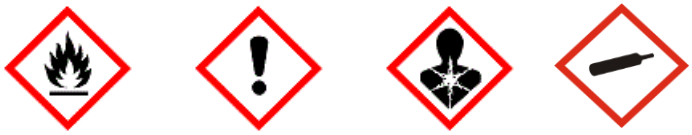
2. Hazards and risks

A. Classification of hazards and risks

- Acute toxicity (percutaneous): Category 4
- Acute toxicity (inhalation: vapour): Category 4
- Chronic aquatic environment hazards: Category 4
- Carcinogenicity: Category 2
- Reproductive toxicity: Category 2
- Severe eye damage/eye irritation: Category 2
- Flammable gases : category 1
- Flammable liquids: Category 2
- Specific target organ toxicity (one exposure): Category3
- Skin Corrosion/Skin Irritation: Category 2
- Inhalation hazard: Category 2

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

- P301+P310 If swallowed, consult a medical institution (doctor) immediately.
- P302+P352 Wash with plenty of soap and water if it gets on your skin.
- P303+P361+P353 On Skin (or Hair): Take off all contaminated clothing immediately.Wash your skin with water.
- P304+P340 When inhaled, move to a place with fresh air and rest in an easy-to-breathe position.
- P305+P351+P338 Wash carefully with water for a few minutes if it gets on your eyes. Remove contact lenses if possible. Keep washing.
- P308+P313 If you are exposed or concerned about exposure, seek medical measures and advice.
- P309+P311 If you feel exposed or uncomfortable, see a medical institution.
- P312 If you feel uncomfortable, consult a medical institution.
- P321 Take the necessary measures.
- P322 Take the necessary steps.
- 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 using it 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: 2, Fire: 4, Reactivity: 1

3. Name and content of components

Chemical substance name	Tolerant name and tinnitus	CAS number or identification number	content(%)
Oxybismethane	Dimethyl ether	115-10-6	30 ~ 40
Isopropyl alcohol	Isopropanol	67-63-0	30 ~ 40
Acetone	Dimethyl ketone	67-64-1	30 ~ 40

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**

- [Isopropyl alcohol] : TWA : 200 ppm 480 mg/㎥ STEL : 400 ppm 980 mg/㎥
- [Acetone] : TWA : 500 ppm 1188 mg/㎥ STEL : 750 ppm 1782 mg/㎥

○ **ACGIH exposure standard**

- [Acetone] : TWA, 500 ppm(1188 mg/m3) STEL, 750 ppm (1782 mg/m3)
- [Isopropyl alcohol] : TWA : 200 ppm STEL : 400 ppm

○ **Biological exposure criteria**

- [Acetone] : Acetone in urine : 50 mg/g (after final 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	Colorlessness
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 ℃
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**

- [Acetone] : LD50 = 5280 ㎎/㎏ Rat (EHC(1990), SIDS(1997))
- [Isopropyl alcohol] : LD50 = 5280 ㎎/㎏ Rat

*** Percutaneous toxicity**

- [Acetone] : LD50 = 12870 ㎎/㎏ rabbit (EHC(1990), PATTY(1994), SIDS(1997))
- [Isopropyl alcohol] : LD50 = 12870 ㎎/㎏ Rabbit

*** Inhalation toxicity**

- [Acetone] : Steam LC50 = 76 mg/L/4hr Rat
- [Isopropyl alcohol] : LC50 = 72.6 ㎎/L Rat

○ **Corrosive or irritating skin**

- [Oxybismethane] : Vapors and liquids irritate the skin
- [Acetone] : Non-irritating skin irritation test results using rabbits
- [Isopropyl alcohol] : Rabbit Skin irritability test results show irritability or mild irritability, but ergonomic data shows no irritability.

○ **Severe eye damage or irritation**

- [Oxybismethane] : Steam and liquids irritate the eyes
- [Acetone] : Steam stimulates the human eye, but stimulation does not last when exposure stops. Corneal epidermal destruction recovered on 4-6 days.
- [Isopropyl alcohol] : Category 1A Moderate Stimulus (Rabbit, Draize Test)

○ **Respiratory irritability**

- No data

○ **Skin irritability**

- [Acetone] : Mouse test result negative, guinea pig test result negative
- [Isopropyl alcohol] : The hypersensitivity test using Guinea Pig showed negative results, and the Buehler-Test using Guinea Pig showed no hypersensitivity.

○ **Carcinogenicity**

*** Ministry of Employment and Labor Notice**

- No data

*** IARC**

- [Isopropyl alcohol] : Group 3

*** OSHA**

- No data

*** ACGIH**

- [Acetone] : A4
- [Isopropyl alcohol] : A4

*** NTP**

- No data

*** EU CLP**

- No data

○ **Germ cell mutagenicity**

- [Oxybismethane] : Microbial return mutation test results negative
- [Acetone] : Nuclear test negative
- [Isopropyl alcohol] : In the return mutation experiment using Invitro microorganisms and sister chromosome replacement experiments using Chinese hamster V79 fibroblasts, exposure at 3.3, 10, 33.3, and 100 mmol/L showed negative results in micronuclear tests using inivo mice.

○ **Reproductive toxicity**

- [Oxybismethane] : There are reports of fetal and embryonic effects in experimental animals
- [Acetone] : Mild developmental toxicity symptoms in mouse high concentration exposure (11000 ppm (20 mg/L)); fetal weight loss; fetal weight loss in mouse high concentration exposure (6600 ppm (15.6 mg/L)); late fetal absorption increase (EHC, 207 (1998)

- [Isopropyl alcohol] : NOEL Parental <500mg/kg bw/day, Developmental toxicity of Noel f1, F2=400mg/kg bw/day Rat, and genotoxicity such as decreased pregnancy rate, increased fetal death were observed at doses observed, but were not statistically significant compared to the control group. No exposure-related effects were observed in rats' developmental toxicity tests

○ **Specific target organ toxicity (1 exposure)**

- [Acetone] : In humans, nasal, airway, bronchial irritation, headache, dizziness, leg exhaustion, and fainting when exposed to high concentrations.
- [Isopropyl alcohol] : Classification 3 (anesthesia, respiratory irritation) Acute toxic clinical symptoms include nausea, vomiting, reflex beha vior and respiratory failure, and abdominal pain.. In addition, irritability is recognized in the nose and neck of the human body, indicating airway irritability.

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

- [Oxybismethane] : The inhalation of mice did not reveal any significant differences in behavior, health status, food intake, and food rate during repeated exposure for 13 weeks.
- [Isopropyl alcohol] : Oral and inhalation repeated toxicity tests using Rat and mice revealed protein droplet accumulation and tissue expan sion in the renal proximal tubule, but no effect of dose was observed and only in a small number of animals

○ **The harmful effects of aspiration**

- [Acetone] : kinematic viscosity 0.426 ㎟/s (a calculated value)

12. Environmental Impact

A. Ecotoxicity

○ **Fish**

- [Acetone] : LC50 > 100 ㎎/ℓ 96 hr
- [Isopropyl alcohol] : LC50 = 9640 ㎎/ℓ 96 hr (Pimephales promelas)`

○ **Crustaceans**

- [Isopropyl alcohol] : EC50 > 10000 ㎎/ℓ (daphnia magna, 24 hr)

○ **The current**

B. Residue and Decomposition

○ **Residuity**

- [Oxybismethane] : log Kow 0.1
- [Isopropyl alcohol] : log Kow 0.05

○ **Decomposibility**

- [Isopropyl alcohol] : Decomposed by photochemical reactions to form hydroxy radicals in the atmosphere, half-life in the atmosphere is 3.2 days.

C. Biological Concentration

○ **Bioconcentrality**

- [Isopropyl alcohol] : Low bio-concentration potential

○ **Biodegradable**

- [Oxybismethane] : 5 (%) 28 day
- [Isopropyl alcohol] : BOD5=49%

D. Soil Mobility

- [Oxybismethane] : Koc 27
- [Isopropyl alcohol] : Koc 25

E. Other harmful effects

- No data

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

- Not Applicable

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**
- [Acetone] : Measurement cycle: 6 months
- [Isopropyl alcohol] : Measurement cycle: 6 months

○ **Exposure criteria setting substances**
- [Acetone]
- [Isopropyl alcohol]

○ **Ministry of Employment and Labor Notice**

*** Carcinogenicity**
- No data

*** Reproductive cell mutagenicity**
- No data

*** Reproductive toxicity**
- No data

○ **Hazardous substances to be managed**
- [Acetone]
- [Isopropyl alcohol]

○ **Substances subject to special health examination**
- [Acetone] : Diagnosis cycle: 12 months
- [Isopropyl alcohol] : Diagnosis cycle: 12 months

B. Regulation under the Chemical Substance Control Act

○ **Toxic substances**
- Not applicable

○ **Chemicals subject to emission investigation**
- Not applicable

○ **Accident preparation material**
- Not applicable

○ **Restricted substances**
- Not applicable

○ **Permitted substance**

- Not applicable

C. Regulation under the Dangerous Goods Safety Management Act

- Classified as hazardous material : Class 4, Category 1 petroleum (Designated quantity: 200 liters [non-aqueous 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**

- [Oxybismethane] : F+; R12
- [Acetone] : F; R11Xi; R36R66R67
- [Isopropyl alcohol] : F; R11 Xi; R36 R67

*** Risk statement**

- [Oxybismethane] : R12
- [Acetone] : R11, R36, R66, R67
- [Isopropyl alcohol] : R11, R36, R67

*** Safety statement**

- [Oxybismethane] : S2, S9, S16, S33
- [Acetone] : S2, S9, S16, S26, S46
- [Isopropyl alcohol] : S2, S7, S16, S24/25, S26

○ **About U.S. Management**

*** OSHA Regulation (29CFR1910.119)**

- Not Applicable

*** CERCLA 103 Regulation (40CFR302.4)**

- [Acetone] : 2267.995kg 5000lb

*** EPCRA 302 Regulation (40CFR355.30)**

- Not Applicable

*** EPCRA 304 Regulation (40CFR355.40)**

- Not Applicable

*** EPCRA 313 Regulations (40CFR372.65)**

- [Isopropyl alcohol] : 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

- 2008-03-14

C. Number of revisions and the date of final revisions

- 12th/2025-04-16

D. Other

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