

물질안전보건자료 (Material Safety Data Sheet)

Product name	OSUNG-ACE FOAM
--------------	----------------

Section 1. Chemical product and company identification

A. Product name	OSUNG-ACE FOAM
Product code	-
B. Relevant identified uses of the substance or mixture and uses advised against	
Product use	Industrial applications.
Use of the substance/ mixture	Around a doorframe and window frame, All sorts of piping work, Filling gaps and empty spaces.
Uses advised against	None identified.
C. Supplier's information	ILSINCHEMICAL Co.,Ltd 278-50 2, Sincheoksandan 1-ro, Deoksan-Eup, Jincheon-gun, Chungcheongbuk-do, Republic of Korea Tel: +82-43-536-0162 Tel: +82-43-536-0161

Section 2. Hazards identification

A. Hazard classification	FLAMMABLE Gas - Category 1 High-pressure Gas - Liquefied Gas SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 TOXIC TO REPRODUCTION (Fertility) - Category 2 TOXIC TO REPRODUCTION (Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
--------------------------	---

B. GHS label elements, including precautionary statements

Symbol



Signal word

Danger

Hazard statements

Highly flammable Gas.

Highly flammable liquid and vapor.

Causes serious eye irritation.

Causes skin irritation.

Suspected of damaging fertility or the unborn child.

Hazard statements

May cause drowsiness and dizziness.

May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks,

open flames and hot surfaces. – No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling.

Response

Get medical attention if you feel unwell. IF exposed or concerned: Get medical

attention. 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.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.301+P310

Storage

Store locked up. Store in a well-ventilated place. Keep cool.

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

Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Chemical name	Common name	CAS #	(%)
Butane(Butadiene Excluded)	Butane(Butadiene Excluded)	106-97-8	5 ~ 10
Diphenylmethane-4,4-di isocyanate	Diphenylmethane-4,4-di isocyanate	101-68-8	3 ~ 5
Dimethylether	Dimethylether	115-10-6	20 ~ 30
Polyetherglycol	Polyetherglycol	25332-69-4	17 ~ 22
Polyetherpolyol	Polyetherpolyol	25791-96-2	17 ~ 22
Propane	Propane	74-98-6	5 ~ 10
Diphenylmethanedi isocyanate	Diphenylmethanedi isocyanate	9016-87-9	5 ~ 10

CAS number/other identifiers

CAS number : Not applicable.

EC number : Mixture.

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. SUB codes represent substances without registered CAS Numbers.

Section 4. First aid measures

- A. Eye contact** Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- B. Skin contact** Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- C. Inhalation** Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- D. Ingestion** If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
- E. Notes to physician** Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** No specific treatment.
- 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. Fire-fighting measures

- A. Extinguishing media**
- Suitable extinguishing media** Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** Do not use water jet.
- B. Specific hazards arising from the chemical** Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is harmful to aquatic life.
- 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
halogenated compounds
metal oxide/oxides
- C. Special equipment for fire-fighting** Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Fire-fighting procedures** 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

B. Environmental precautions

Avoid dispersal of spilled 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).

C. Methods and materials for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Use spark-proof tools and explosion-proof equipment. Approach 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 noncombustible, 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 spilled 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

Put on appropriate personal protective equipment (see Section 8). 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. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

B. Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and wellventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

A. Occupational exposure limits

Ingredient name	Exposure limits
Butane	Ministry of Labor (Republic of Korea, 8/2013). TWA: 800 ppm
Diphenylmethane-4,4-di isocyanate	Ministry of Labor (Republic of Korea, 8/2013). TWA: 0.005ppm

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. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Eye protection

Chemical splash goggles.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of

Gloves	mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. For prolonged or repeated handling, use the following type of gloves: Recommended: nitrile rubber, butyl rubber
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
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.
Color	Clear.
B. Odor	Solvent.
C. Odor threshold	Not available.
D. pH	Not available.
E. Melting/freezing point	Not available.
F. Boiling point/boiling range	Not available.
G. Flash point	>204°C (Polyol Blend). -80°C (Propellant)
H. Evaporation rate	Not available.
I. Flammability (solid, gas)	Not available.
J. Lower and upper explosive (flammable) limits	Not available.
K. Vapor pressure	Not available.
L. Solubility	Not available.
M. Vapor density	Not available.
N. Relative density	Not available.
O. Partition coefficient: noctanol/water	Not available.
P. Auto-ignition temperature	Not available.
Q. Decomposition temperature	Not available.
R. Viscosity	Not available.
S. Molecular weight	Not available.

Section 10. Stability and reactivity

A. Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
B. Conditions to avoid	When exposed to high temperatures may produce hazardous decomposition products.

C. Incompatible materials

Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.

D. Hazardous decomposition products

Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Section 11. Toxicological information

A. Information on the likely routes of exposure

Not available.

Potential acute health effects

Inhalation

Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

Ingestion

Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Skin contact

May be harmful in contact with skin. Causes skin irritation. Defatting to the skin.

Eye contact

Causes serious eye irritation.

Over-exposure signs/symptoms

Inhalation

Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion

Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact

Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations

Eye contact

Adverse symptoms may include the following:
pain or irritation
watering
redness

B. Health hazards

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Diphenylmethane-4,4-diisocyanate	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LC50 Inhalation Vapor	Rat	558.98 mg/L	-
	LD50 Oral	Rat	>2000 mg/kg	-
Polyetherglycol	LD50 Oral	Rat	>2000 mg/kg	-
Diphenylmethane diisocyanate	LD50 Oral	Rat	49000 mg/kg	
	LD50 Dermal	Rabbit	>9500 mg/kg	
	LC50 Inhalation Vapor	Rat	0.49 mg/kg	-4hr
Dimethylether	LC50 Inhalation Gas	Rat	308.5 mg/L	-4hr

Butane	LC50 Inhalation Gas	Rat	>800000 ppm	-15min
Propane	LC50 Inhalation Gas	Rat	570000 ppm	-15min

Conclusion/Summary

Skin : Not available.
 Eyes : Not available.
 Respiratory : Not available.

Sensitization

Skin : Not available.
 Respiratory : Not available.

GERM CELL MUTAGENICITY

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Specific target organ toxicity (single exposure)

Name	Classification	Route of exposure	Target organs
Diphenylmethane-4,4-di isocyanate	Category 3	Not applicable	Respiratory stimulation
Dimethylether	Category 3	Not applicable	Narcotic effects
Diphenylmethanedi isocyanate	Category 1	Not applicable	Not applicable

Specific target organ toxicity (repeated exposure)

Name	Classification	Route of exposure	Target organs
Diphenylmethane-4,4-di isocyanate	Category 2	Not applicable	Not determined
Diphenylmethanedi isocyanate	Category 1	Not applicable	Not determined

Potential chronic health effects

Chronic toxicity

General

May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

Suspected of damaging the unborn child.

Developmental effects

No known significant effects or critical hazards.

Fertility effects

No known significant effects or critical hazards.

Other information

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys,

liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Section 12. Ecological information

A. Ecotoxicity

Product/ingredient name	Result	Species	Exposure
Butane	LC50 =27.98 mg/L	Fish	96 hours
	LC50 =69.43 mg/L	Daphnia	48 hours
	EC50 =16.47 mg/L	Green alga	96 hours
Polyetherpolyol	LC50 =218000 mg/L	Fish	96 hours
	LC50 =193000 mg/L	Daphnia	48 hours
	EC50 =16.47 mg/L	Green alga	96 hours
Propane	LC50 >100 mg/L	Fish	96 hours
	LC50 =52.157 mg/L	Daphnia	48 hours
	EC50 =32.252 mg/L	Green alga	96 hours
Polyetherglycol	LC50 =1700 mg/L	Lepomis macrochirus	96 hours

B. Persistence

Product/ingredient name	Result
Butane	log Kow 2.89
Dimethylether	log Kow 0.1
Propane	log Kow 2.36
Diphenylmethanedi isocyanate	log Kow 10.46

Degradability

Product/ingredient name	Result
Not available.	Not available.

C. Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Butane	2.89	–	low
Propane	2.36	13	low
Dimethylether	0.1	–	low
Diphenylmethane-4,4-di isocyanate	10.46	–	low
Polyetherpolyol	–	3.162	low

D. Mobility in soil

Soil/water partition coefficient (KOC) : 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 minimized 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 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container.

Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
A. UN number	UN1950	UN1950	UN1950
B. UN proper shipping name	AEROSOL	AEROSOL	AEROSOL
C. Transport hazard class(es)	2.1	2.1	2.1
D. Packing group	III	III	III
E. Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

F. Additional information

UN : None identified.

IMDG : None identified.

IATA : None identified.

Special precautions for user : 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.

Section 15. Regulatory information

A. Regulation according to ISHA

ISHA Article 37 : None of the components are listed.

ISHA Article 38 : None of the components are listed.

Article 2 of Youth Protection Act on Substances Hazardous to Youth : It is not allowed to sell to persons under the age of 19.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:

Exposure Standards established for Harmful Factors : None of the components are listed.

Harmful Factors Subject to Work Environment Measurement : The following components are listed:

Harmful Factors Subject to Special Health Check-up : The following components are listed:

Hazardous Substances Subject to Control : The following components are listed:

B. Regulation according to TCCA

TCCA Toxic chemicals : Not applicable
TCCA Observational chemicals : None of the components are listed.
TCCA Article 32 (Banned) : None of the components are listed.
TCCA Article 32 (Restricted) : None of the components are listed.
TCCA Article 17 (TRI) : The following components are listed: Toluene
Korea inventory : All components are listed or exempted.
Accident Precaution chemicals : None of the components are listed.

C. Dangerous Materials Safety Management Act :

This product is classified under the Dangerous Materials Safety Management Act.

Class	Item	Threshold	Danger category	Signal word
Class 2.1 – Flammable Gas	Aerosol	960ml	III	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

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 : Korean Ministry of Environment; Toxic Chemicals Control Act (TCCA)
Korean Ministry of Labor; Industrial Safety and Health Act
NIER Notice 2016-19
Registry of Toxic Effects of Chemical Substances (RTECS)
U.S. Environmental Protection Agency, AQUIRE (Aquatic toxicity Information Retrieval) ECOTOX Database System.

B. Date of issue/Date of revision : 2020.05.08

C. Version : -

Prepared by : EHS

D. Other

* Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by ILSINCHEMICAL, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.