물질안전보건자료
(Material Safety Data Sheet)

Product name	HYUNDAI Lacquer Paint Spray(G-Grey)

Section 1. Chemical product and company identification

A. Product name — HYUNDAI Lacquer Paint Spray(G-Grey)
Product code — HYUNDAI Lacquer Paint Spray(G-Grey)/420ml

B. Relevant identified uses of the substance or mixture and uses advised against

Product use — Industrial applications.
Use of the substance/ mixture — Coating. Paint. Painting-related materials.
Uses advised against — None identified.

C. Supplier's information

ILSIN CHEMICAL Co.,Ltd
278-50
851,sincheok-ri, Duksan-Eup, Jincheon-Gun, Chungcheongbuk-Do, Korea
Tel: +82-43-536-0162
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Section 2. Hazards identification

A. Hazard classification

Acute toxicity (percutaneous) - Category4
Acute Toxicity (Inhalation: Steam) - Category4
Chronic aquatic environment hazards - Category4
Carcinogenic - Category2
Reproductive toxicity - Category2
Severe eye damage/eye irritation - Category2
High Pressure Gas: Liquefied Gas
Flammable gas - Category1
Flammable liquid - Category2
Specific target organ toxicity (1 exposure) - Category2
Skin Corrosive/Skin Irritable - Category2
Aspiration Hazard - Category2

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	PGet 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 #	(%)
Oxybismethane	Dimethyl ether	115-10-6	30 ~ 40
Carbon Black	-	1333-86-4	1 ~ 5
Titanium dioxide	Titanium oxide (Tio2)	13463-67-7	1 ~ 3
Propane	Dimethylmethane	74-98-6	5 ~ 10
Toluene	Methylbenzene	108-88-3	10 ~ 15
Nitrocellulose	Pyroxylin	9004-70-0	1 ~ 5
Fattyacids,soyapolymerswithglycerol, pentaerythritolandphthalicanhydride	-	66070-98-2	15 ~ 25
Xylene	-	1330-20-7	6 ~ 12

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, CO_2 , 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
Toluene	**Domestic exposure standard** TWA - 50ppm STEL - 150ppm **ACGIH Exposure Criteria** TWA 20 ppm **Biological exposure criteria** 0.02 mg/L Medium: blood Time: prior to last shift of workweek Parameter: Toluene; 0.03 mg/L Medium: urine Time: end of shift Parameter: Toluene; 0.3 mg/g creatinine Medium: urine Time: end of shift Parameter: oCresol with hydrolysis (background)
Xylene	**Domestic exposure standard** TWA - 100ppm STEL - 150ppm **ACGIH Exposure Criteria** STEL 150 ppm TWA 100 ppm
Carbon Black	**Domestic exposure standard** TWA - 3.5mg/m3 **ACGIH Exposure Criteria** TWA 3 ㎎/㎥
Titanium dioxide	**Domestic exposure standard** TWA - 10 mg/m3 Carcinogenic 2 **ACGIH Exposure Criteria** TWA 10 ㎎/㎥

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 mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Gloves	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	Grey.
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	-80℃.
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	0.9 ~ 1.1(-20℃)
O. Partition coefficient: noctanol/water	Not available.
P. Auto-ignition temperature	Not available.
Q. Decomposition temperature	Not available.
R. Viscosity	95~100Ku.
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
Carbon Black	LD50 Oral	Rat	> 8000 ㎎/㎏	(No Death, OECD Guideline 401)
	LD50 Dermal	Rabbit	> 8000 ㎎/㎏	–
	LC50 Inhalation Vapor	Rat	Dust > 4.6 ㎎/㎥	4 hr (No dead animals at maximum concentration)
Oxybismethane	LC50 Inhalation Vapor	Rat	Gas 308.5 ㎎/ℓ	4 hr
Titanium dioxide	LD50 Oral	Rat	> 10000 ㎎/㎏	(HSDB)
	LC50 Inhalation Vapor	Rat	Dust > 3.43 ㎎/ℓ	(OECD TG 403, No Deaths))
Propane	LC50 Inhalation Vapor	Rat	Gas 800000 ppm	4 hr
Toluene	LD50 Oral	Rat	5580 ㎎/㎏	(EU Method B.1)
	LD50 Dermal	Rabbit	> 5000 ㎎/㎏	–
	LC50 Inhalation Vapor	Rat	Steam > 20 ㎎/ℓ	(OECD TG 403)
Nitrocellulose	LD50 Oral	Rat	5000 ㎎/㎏	–
Xylene	LD50 Oral	Rat	3523 ㎎/㎏	(EU Method B1)
	LC50 Inhalation Vapor	Rat	Steam 5922 ppm	4 hr (25.713 mg/LEPA OPP 81-3, GLP)

Conclusion/Summary

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

Sensitization

Skin : Not available.
Respiratory : Not available.

GERM CELL MUTAGENICITY

Carbon Black: Analysis of sister chromatin exchange using mammals in vitro shows negative (OECD Guideline 479), genetic mutation test using mammals in vitro shows negative (OECD Guideline 476), return mutation test using microorganisms in vitro shows negative (OECD Guideline 471) and sex waveform.

Oxybismethane: Negative results of microbial return mutation test.

Titanium dioxide: Returning mutation test using microorganisms in the test tube OECD TG 471, Mammal Cell Genetic mutation test OECD TG 476, Chromosome aberration test OECD TG 473

results of negative, in vivo chromosome aberration test, and sintering test results, regardless of metabolic activity.
Toluene: Genetic mutation using mammalian culture cells in the test tube OECD TG 476, Returning mutation using microorganisms EU Method B.13/14, Negative chromosome aberration test results with or without metabolic activators.
Xylene: Return mutation test using in vitro bacteria OECD TG471 results negative, small nucleation test using in vivo mouse bone marrow cells OF 474, GLP results negative.

Carcinogenicity

Carbon Black: Ministry of Employment and Labor Notice - 2, IARC - Group 2B, OSHA - Applicable, ACGIH - A3
Titanium dioxide: Ministry of Employment and Labor Notice - 2, IARC - Group 2B, ACGIH - A4
Toluene: IARC - 3, ACGIH - A4
Xylene: IARC - 3, ACGIH - A4

Reproductive toxicity

Carbon Black: No reproductive toxicity occurs as a result of the optimal formation/polytoxicity/developmental toxicity test using rats (OECD Guideline 414).
Titanium dioxide: No effects such as clinical symptoms or weight changes were observed as a result of reproductive development toxicity test using rats. NOAEL= 1000 mg/kg bw/day(OECD TG 210).
Oxybismethane: Reportedly affecting fetuses and embryos in laboratory animals.
Toluene: As a result of the reproductive toxicity test using rats, NOAEC(P) 600 ppm (2261 mg/m3) was found to reduce sperm count and obituary at 2000 ppm (7537 mg/m3).
Xylene: No toxic effects related to reproduction and development were observed until the highest concentration (500 ppm) tested in the second generation of rat reproductive toxicity (absorption repeated exposure, EPA OPPTS870.3800). NOAEC (Production/Development/Parent Toxicity) = Developmental Suction Toxicity Test using 500 ppm rats (OECD TG414) results in BMCL10 (Development) = 5761 mg/m3 due to weight loss in newborns, and BMCL10 (Parent Toxicity) = 2675 mg/m3 due to weight loss.

Specific target organ toxicity (single exposure)

Name	Result
Toluene	In humans, the central nervous system is affected, fatigue, sleepiness, dizziness, irritation, excitement, vomiting, suppression of the central nervous system, mental disorder, walking abnormalities, etc. Stimulates eyes, nose, and throat. causing anesthesia in experimental animals. Target organs: central nervous system.
Nitrocellulose	classified as acute toxicity and not applied to classification in this topic.
Titanium dioxide	As a result of acute oral toxicity test using rats, no death, no significant lesions were observed during weight changes and autopsy. OECD TG 425.
Oxybismethane	Impacts the central nervous system, resulting in lower consciousness upon exposure.
Xylene	Dizziness reported in humans, significant awakening, progression, and anesthesia in the experimental animals. Exposure to 100 ppm442 mg/£ in humans weak irritation to the eyes and upper airway and slight central nervous system effects.

Specific target organ toxicity (repeated exposure)

Name	Result
Oxybismethane	Mice inhalation did not reveal significant differences in behavior, health conditions, food intake and food rates during repeated exposure for 13 weeks.
Propane	No data (EU Directive 67/548/EEC). Central nervous system:Nervous system impact (TOMES).
Carbon Black	Reduced airway resistance and exhalation flow when the body is repeatedly exposed for more than 10 years, coughing, phlegm, chronic bronchitis, pulmonary dysfunction, pneumothorax, emphysema, pulmonary perfusion, obstruction of gout, etc. are not applied to this category due to carcinogenic effects.
Titanium dioxide	As a result of repeated oral toxicity test using rats, no death and no significant impact was observed. NOAEL= 24,000 mg/kg bw/dayOECD

	TG 407.
Toluene	EU method B.26 results of 90-day repeat oral toxicity test with rats NOAEL 625 mg/kg bw/day due to absolute or relative weight gain, 103 weeks inhalation carcinogenicity test with rats OECD TG453, GLP results show NOAEC 600 ppm 2250 mg/m3, and 90 days EU method with rat. 2.
Xylene	103 weeks carcinogenicity test with rats showed no effect on systemic toxicity or carcinogenicity due to mixed xylene administration; 90 days repeated oral toxicity test with rats showed limited weight loss, increased inter-relative weight and elongation, but no histopathic effects were observed (NOAEL=150 mg/kg day),

Aspiration hazard

Name	Result
Toluene	Aspirational hazard: hydrocarbons, tied at 40℃ or below 20.5 mm2 / s.
Xylene	Hydrocarbon, equivalence rate 0.603 mPa s 25℃

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
Carbon Black	LC50 > 1000 ㎎/ℓ (Tribolodon hakonensis)	Fish	96 hours
	EC50 > 5600 ㎎/ℓ	Crustaceans	24 hours

	Daphnia magna (OECD Guideline 202, GLP) ErC50 > 10000 ㎎/ℓ (Desmodesmus subspicatus, OECD Guideline 201, GLP)	Bird	72 hours
Titanium dioxide	LL50 > 100 ㎎/ℓ Oryzias latipes (OECD Guideline 203) EC50 > 100 ㎎/ℓ Daphnia magna (48h-EL50Daphnia magna>100 mg/L, 48h-EC50>100, 48h-EC10=91.2 mg/L, OECD TG 202) ErL50 > 100 ㎎/ℓ (Pseudokircneriella subcapitata, Growth Rate, Exponential Expression, 72h-EyL50 >100 mg/L Exponential Expression, OECD TG 201)	Fish Crustaceans Bird	96 hours 48 hours 72 hours
Propane	LC50 > 100 ㎎/ℓ Other ((Species : Fish TLm)) LC50 52.157 ㎎/ℓ LC50 32.252 ㎎/ℓ	Fish Crustaceans Bird	96 hours 48 hours 96 hours
Toluene	LC50 5.5 ㎎/ℓ Oncorhynchus kistutch	Fish	96 hours
Nitrocellulose	EC50 579 ㎎/ℓ (Pseudokirchneriella subcapitata)	Bird	-
Xylene	LC50 2.6 ㎎/ℓ (OECD Guideline 203) LC50 3.6 ㎎/ℓ (OECD TG202) ErC50 4.06 ㎎/ℓ (OECD TG201, GLP)	Fish Crustaceans Bird	96 hours 24 hours 73 hours

B. Persistence

Product/ingredient name	Result
Oxybismethane	log Kow 0.1
Propane	log Kow 2.36
Xylene	log Kow 3.15
Nitrocellulose	log Kow -4.56 (Estimate)
Toluene	log Kow 2.73

degradability

Product/ingredient name	Result
No data.	

C. Bioaccumulative potential

Product/ingredien name	condenasability	biodegradable
Oxybismethane	BCF 13	5 (%) 28 day
Propane	-	65.7 (%) 35 day
Xylene	BCF 25.9 (Oncorhynchus mykiss)	90 % 28 day (Disoluble, OECD TG301F, GLP)
Toluene	BCF 90	80% 20 day (Disoluble)

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:
Toluene
2-butoxyethanol

Exposure Standards established for Harmful Factors	: None of the components are listed.
Harmful Factors Subject to Work Environment Measurement	: The following components are listed: Toluene 2-Butoxyethanol
Harmful Factors Subject to Special Health Check-up	: The following components are listed: Toluene; 2-Butoxyethanol
Hazardous Substances Subject to Control	: The following components are listed: Toluene; 2-Butoxyethanol

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	530ml	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	: This MSDS is based on Article 110 of the Occupational Safety and Health Act (such as the beach of material safety and health data) and the Ministry of Employment and Labor Notice No. 2016-19 (the standard for classification and display of chemical substances and material safety and health data).
B. Date of issue/Date of revision	: 2018.07.17./2021.02.23
C. Version	: 2
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 ILSIN CHEMICAL, 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.