

MATERIAL SAFETY DATA SHEET

1. Identification of the substance or mixture and of the supplier

A. GHS product identifier FIRSTCLASS LIQUID WAX

B. Recommended use of the chemical and restrictions on use

Recommended use Polishing for Automobile

Restrictions on use Limitation of use for other purpose

C. Manufacturers

Company name Bullsone

Address 7F, Dabong Tower, 418, Teheran-ro Gangnam-gu, Seoul, 135-839, Korea

Emergency phone number 822-2106-7777

Respondent Han Dong Jin

Fax 822-2106-7911

2. Hazards identification

A. GHS classification of the substance/mixture

Not classified

B. GHS label elements, including precautionary statements

Pictogram and symbol : Not applicable

Signal word : Not applicable

Hazard statements : Not applicable

Precautionary statements

Precaution : Not applicable

Treatment : Not applicable

Storage : Not applicable

Disposal : Not applicable

C. Other hazard information not included in hazard classification (NFPA)

Health 0

Flammability 1

Reactivity Not available

3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
Poyethylene glycol lauryl ether	Poyethylene glycol lauryl ether DODECYL ALCOHOL, ETHOXYLATED	9002-92-0	500-002-6	< 1
Preservatives	5-Chloro-2-methyl-4-isothiazolin-3-one(CAS No. 26172-55-4) +2-Methyl-4-isothiazolin-3-one(CAS No. 2682-20-4) +2-Bromo-2-nitro-propane-1,3-diol(CAS No. 52-51-7) +Etcetera			< 0.2
silicone emulsion	Siloxanes and Silicones, di-Me(CAS No. 63148-			< 1

	62-9) +Water(CAS No. 7732-18-5) +Propylene glycol(CAS No. 57-55-6) +Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl)derivs.(CAS No. 9005-64-5)			
silicone emulsion	Organically Modified polydimethylsiloxane +Water(CAS No. 7732-18-5)			< 1
CARNAUBA WAX	브라질 밀랍(BRAZIL WAX);	8015-86-9	232-399-4	< 1
Ethanol	Ethyl alcohol Denatured alcohol Fermentation alcohol Grain alcohol Cologne spirits	64-17-5		1~10
Water	Dihydrogen oxide Ice Steam Oxidane Sterile purified water Dihydrogen oxide Ice Steam Oxidane Sterile purified water	7732-18-5	231-791-2	80~95

4. First aid measures

A. Eye contact

- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.
- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.

B. Skin contact

- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Remove and isolate contaminated clothing and shoes.
- Wash contaminated clothing and shoes before reuse.
- Wash contaminated clothing and shoes before reuse.
- Get immediate medical advice/attention.
- Get immediate medical advice/attention.

C. Inhalation

- Specific medical treatment is urgent.
- Specific medical treatment is urgent.
- Move victim to fresh air.
- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Administer oxygen if breathing is difficult.

D. Ingestion

- Do not let him/her eat anything, if unconscious.

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- Get immediate medical advice/attention.
- Get immediate medical advice/attention.

E. Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
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5. Fire fighting measures

A. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO₂
- Unsuitable extinguishing media: High pressure water streams

B. Specific hazards arising from the chemical

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Fire will produce irritating and/or toxic gases.
- If inhaled, may be harmful.

C. Special protective equipment and precautions for fire-fighters

- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

- Eliminate all ignition sources.
- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Stop leak if you can do it without risk.
- Please note that materials and conditions to avoid.
- Please note that materials and conditions to avoid.
- Ventilate the area.
- Ventilate the area.
- Do not touch or walk through spilled material.
- Do not touch or walk through spilled material.
- Prevent dust cloud.
- Prevent dust cloud.

B. Environmental precautions and protective procedures

- Prevent entry into waterways, sewers, basements or confined areas.
- Prevent entry into waterways, sewers, basements or confined areas.

C. The methods of purification and removal

- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

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7. Handling and storage

A. Precautions for safe handling

- Please note that materials and conditions to avoid.
- Wash thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

B. Conditions for safe storage

- Store in a closed container.
- Store in cool and dry place.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Korea regulation

Ethanol TWA = 1000 ppm (1900 mg/m³)

ACGIH regulation

Ethanol STEL 1000 ppm

Biological exposure index : Not available

OSHA regulation

Ethanol TWA = 1,000 ppm (1,900 mg/m³)

NIOSH regulation

Ethanol TWA = 1,000 ppm (1,900 mg/m³)

EU regulation : Not available

Other

Ethanol U.K: TWA = 1,000 ppm Spain: TWA = 1,000 ppm France: TWA = 1,000 ppm
Australia: TWA = 1,000 ppm Canada: TWA = 1,000 ppm

B. Appropriate engineering controls

- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

C. Personal protective equipment

Respiratory protection

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In case exposed to gaseous/liquid material, the respiratory protective equipments as follow are recommended. escape full facepiece gas mask (of use for acid gas, in case of acid gas for organic compounds) or escape half facepiece gas mask (of use for acid gas, in case of acid gas for organic compounds) or direct full facepiece gas mask (of use for acid gas, in case of acid gas for organic compounds) half facepiece gas mask (of use for acid gas, in case of acid gas for organic compounds) or powered air-purifying gas mask.
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.oxygen

Eye protection

- Wear facepiece with goggles to protect.
- An eye wash unit and safety shower station should be available nearby work place.
- Wear enclosed safety goggles to protect from gaseous state organic material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection

- Wear chemical resistant gloves.
- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate protective chemical resistant clothing.
- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. Physical and chemical properties

A. Appearance

Description Liquid

Color

B. Odor**C. Odor threshold** Not available**D. pH** 4 ~ 6**E. Melting point/freezing point** Not available**F. Initial boiling point and boiling range** 100 °C**G. Flash point** Not available**H. Evaporation rate** Not available**I. Flammability (solid, gas)** Not applicable**J. Upper/lower flammability or explosive limits** Not available**K. Vapor pressure** Not available**L. Solubility (ies)** Not available**M. Vapor density** Not available**N. Specific gravity** 0.993 +/- 0.005**O. Partition coefficient: n-octanol/water** Not available**P. Auto ignition temperature** Not available**Q. Decomposition temperature** Not available**R. Viscosity** Not available**S. Molecular weight** Not available

10. Stability and reactivity

A. Chemical stability and Possibility of hazardous reactions:

- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

B. Conditions to avoid:

- Heat, sparks or flames

C. Incompatible materials:

- Combustibles

D. Hazardous decomposition products:

- Irritating and/or toxic gases

11. Toxicological information

A. Information of Health Hazardous:**Acute toxicity****Oral** [Not classified] (ATEmix = 189,499.7 mg/kg bw)

- **Poyethylene glycol lauryl ether** : Rat LD₅₀ = 1,000 mg/kg (female)
- **Preservatives** : Rat LD₅₀ = 3,350 mg/kg (CTFA CIR Report)
- **Ethanol** : Rat LD₅₀ = 10,470 mg/kg (OECD TG 401)

Dermal [Not classified] (ATEmix = 19,585.47 mg/kg bw)

- **Poyethylene glycol lauryl ether** : Rat LD₅₀ = 2,000 mg/kg (OECD TG 402)
- **Preservatives** : LD₅₀ = 4.5 ~ 78.5 mg/kg 100% effective Heterocyclic N, S compounds based(CTFA CIR Report)
- **Ethanol** : Rabbit LD₅₀ = 17,100 mg/kg

Inhalation [Not classified] (ATEmix = 154.33 mg/L)

- **Preservatives** : Rat LC₅₀ = 0.33 mg/L/4hr 100% effective Heterocyclic N, S compounds based
- **Ethanol** : Rat LC₅₀ = 116.9 mg/L/4hr (OECD TG 403)

Skin corrosion/ irritation [null]

- **Poyethylene glycol lauryl ether** : By administration of Dodecan-1-ol,ethoxylated at dose concentration of 75 mg for 24 hrs showed mild irritation to skin of rabbits by Standard draize test.
- **Preservatives** : Corrosive.
- **silicone emulsion** : - Propylene glycol : Rabbit/OECD Guide-line 404: Not irritating to skin. Human/Skin(104 mg/2D): Mild irritation Male/Skin(10%/2D): Mild irritation Child/Skin(30%/96H): Mild irritation - Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. : Irritating
- **Ethanol** : In skin irritation test with rabbits, skin irritations were not observed. (OECD TG 404, GLP)

Serious eye damage/ irritation [null]

- **Poyethylene glycol lauryl ether** : By the Standard draize test administration of Dodecan-1-ol,ethoxylated in the dose of 100 mg was reported to be irritating to eye of rabbit.
- **Preservatives** : highly irritating.
- **silicone emulsion** : - Siloxanes and Silicones, di-Me : Eye standard Draize Test Rabbit Amount: 100mg/1H; Mildly irritating - Propylene glycol : Human/Eye: Slightly irritating Rabbit/Eye(100 mg): Slightly irritating - Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. : Irritating
- **Ethanol** : In eyes irritation test with rabbits, moderate irritations were observed. (OECD TG 405, GLP)

Respiratory sensitization [Not classified]**Skin sensitization** [Not classified]

- **Poyethylene glycol lauryl ether** : Administartion of the test substance Dodecan-1-ol, ethoxylated for 24 hrs. in adult male guinea pigs when injected intracutaneously did not produced direct or delayed sensitization reactions.
- **Preservatives** : In skin sensitisation test with guinea pigs, skin sensitization were observed.
- **silicone emulsion** : - Propylene glycol : Human/Draize Test: No sensitization.
- **Ethanol** : In skin sensitisation test with guinea pigs, skin sensitisation reactions were not observed.

Carcinogenicity [Not classified]**IARC**

- **Ethanol** : Group 1 (in alcoholic beverages)

ACGIH

- **Ethanol** : A3

KOREA-ISHL

- **Ethanol** : 1A

Mutagenicity [Not classified]

- **Poyethylene glycol lauryl ether** : Negative reactions were observed in vitro test(mammalian chromosome aberration test and bacterial reverse mutation assay).
- **silicone emulsion** : - Propylene glycol : In vitro - Salmonella typhimurium/TA 98, TA100, TA1535, TA1537 (Reverse mutation test; Ames test): Negative,Human/Sister chromatid exchange test: Negative
- **Ethanol** : Negative reactions were observed in vitro(bacterial reverse mutation assay (OECD TG 471), mammalian cell gene mutation assay (OECD TG 476)) and in vivo(micronucleus assay (OECD TG 474)).

Reproductive toxicity [Not classified]

- **Poyethylene glycol lauryl ether** : Human(female) was treated by endoscopic intravasal injection sclerotherapy using polidocanol. No adverse effects were detected in the newborn.
- **silicone emulsion** : - Propylene glycol : In 10-day administration of 1230 mg/kg in pregnant

rabbits, there were no effects in fertilization rate, and in fetal or maternal survival rate. For fetal developmental toxicity without maternal toxicity, skeletal system and malformation was the main indicator, and the observed levels were ≥ 500 mg/kg/day in mice, and $\geq 1,000$ mg/kg/day in rabbits. Effects on fetal weight and survival rate were occurred at higher concentrations.

- **Ethanol** : In reproductive toxicity test with mice, there was no significant evidence for reproductive toxicity. (OECD TG 416)

Specific target organ toxicity (single exposure) [null] [null]

- **Poyethylene glycol lauryl ether** : No deaths or signs of toxicity were observed.(OECD TG 402)

- **silicone emulsion** : - Propylene glycol : Non-toxic symptoms are suppression of central nerves under anaesthesia. There is no specifically targeted organ.

- **Ethanol** : In acute inhalation toxicity with rats, very low acute toxicity effects were observed. (OECD TG 403)

Specific target organ toxicity (repeat exposure) [Not classified]

- **Poyethylene glycol lauryl ether** : The average systolic blood pressure of rats medicated at the top dose level was not significantly different from that of the controls 2 hours after the last medication. No gross or microscopic pathologic lesions attributable to medication were noted at autopsy.

- **silicone emulsion** : - Propylene glycol : 90-day exposure in rats, weight and food consumption decreased but clinical chemistry and haematological values were unchanged. No toxicological effects in organs (liver, kidney, pancreas, lung)and blood.

- **Ethanol** : In repeated oral toxicity study with rats for 14 weeks, repeated toxicity related effects were not observed. (OECD TG 408, GLP)

Aspiration Hazard [Not classified]

12. Ecological information

A. Ecological toxicity

- Acute toxicity : [Not classified] (ATEmix = 146.97846mg/l)

- Chronic toxicity : [Not classified]

Fish

- **Poyethylene glycol lauryl ether** : 96hr-LC₅₀ (other) = 1.5 mg/L (Salmo salar)

- **Ethanol** : 96hr-LC₅₀ = 14200 mg/L

crustacean

- **Poyethylene glycol lauryl ether** : 48hr-LC₅₀ (*Daphnia magna*) = 4.780 ~ 7.580 mg/L

- **Ethanol** : 48hr-LC₅₀ = 5012 mg/L , 48hr-NOEC(*Daphnia magna*) = 9.6 mg/L

Algae

- **Ethanol** : 96hr-LC₅₀ (*Chlorella vulgaris*) = 675 mg/L (OECD TG 201)

B. Persistence and degradability

Persistence

- **Poyethylene glycol lauryl ether** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 1.937) (23 °C)

- **Preservatives** : Light and easily decomposed by autolysis up so rarely persistent.

- **silicone emulsion** : Water : log Kow = -1.38/ Propylene glycol : log Kow = -1.4/ Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. : log Kow = -2.03 (Estimates)

- **Ethanol** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -0.35) (24 °C) (OECD TG 107)

Degradability Not available

C. Bioaccumulative potential

Bioaccumulation

- **Poyethylene glycol lauryl ether** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 120) (estimated)

- **Preservatives** : Bioaccumulation is unlikely.

- **silicone emulsion** : Propylene glycol : BCF < 1/ Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. : BCF = 3.16 (Estimates)

- **Ethanol** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF < 10)

Biodegradation

- **Poyethylene glycol lauryl ether** : This substance is ready biodegradabililty.
- **silicone emulsion** : Propylene glycol : Biodegradability > 60 (%) 10 day
- **Ethanol** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 96% biodegradation was observed after 20 days)

D. Mobility in soil

- **Poyethylene glycol lauryl ether** : Low potency of mobility to soil. (Koc = 87.36)
- **silicone emulsion** : Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. : Koc = 239700000 (Can be adsorbed in the soil, Estimates)
- **Ethanol** : Low potency of mobility to soil. (Koc = 0.13 ~ 0.61)

E. **Other hazardous effect** Not available

13. Disposal considerations

A. Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

B. Disposal precaution

Consider the required attentions in accordance with waste treatment management regulation.

14. Transport information

- A. **UN Number** Not applicable
- B. **UN Proper shipping name** Not applicable
- C. **Transport Hazard class** Not applicable
- D. **Packing group** Not applicable
- E. **Marine pollutant** Not applicable
- F. **Special precautions**
 - in case of fire Not applicable
 - in case of leakage Not applicable

15. Regulatory information

A. **Occupational Safety and Health Regulation** Not regulated

B. Toxic Chemical Control Act

- Poyethylene glycol lauryl ether** : Existing Chemical Substance (KE-12935)
- Preservatives** : Toxic Chemicals ; CAS No. 26172-55-4: (2012-1-664 and mixed with substances containing over 1%); CAS No. 2682-20-4: (2012-1-645 and mixed with substances containing over 1%); CAS No. 52-51-7: (97-1-106 and mixed with substances containing over 1%)
- silicone emulsion** : Existing Chemical Substance ; CAS No. 63148-62-9: KE-31068/CAS No. 7732-18-5: KE-35400/CAS No. 57-55-6: KE-29267/CAS No. 9005-64-5: KE-31681
- silicone emulsion** : Existing Chemical Substance ; CAS No. 7732-18-5: KE-35400
- CARNAUBA WAX** : Existing Chemical Substance (KE-04879)
- Ethanol** : Existing Chemical Substance (KE-13217)
- Water** : Existing Chemical Substance (KE-35400)

C. Dangerous Material Safety Management Regulation

- Preservatives** : Dangerous Material Safety Management Regulation ; CAS No. 52-51-7
- silicone emulsion** : Dangerous Material Safety Management Regulation
- CARNAUBA WAX** : Dangerous Material Safety Management Regulation
- Ethanol** : Dangerous Material Safety Management Regulation 400ℓ

D. Wastes Control Act

- Preservatives** : Wastes Control Act CAS No. 26172-55-4; Controlled wastes/ CAS No. 2682-20-4; Controlled wastes/ CAS No. 52-51-7; Controlled wastes
- silicone emulsion** : Wastes Control Act CAS No. 63148-62-9; Controlled wastes
- Ethanol** : Wastes Control Act Controlled Wastes

E. Other regulation (internal and external)**Internal information****Persistent Organic Pollutants Acts** Not regulated**External information****EU classification(classification)****Polyethylene glycol lauryl ether** : Classification Not classified**CARNAUBA WAX** : Classification Not classified**Ethanol** : Classification F; R11**Water** : Classification Not classified**EU classification(risk phrases)****Polyethylene glycol lauryl ether** : Hazard statements Not applicable**CARNAUBA WAX** : Hazard statements Not applicable**Ethanol** : Hazard statements R11**Water** : Hazard statements Not applicable**EU classification(safety phrases)****Polyethylene glycol lauryl ether** : Precautionary statements Not applicable**CARNAUBA WAX** : Precautionary statements Not applicable**Ethanol** : Precautionary statements S2 S7 S16**Water** : Precautionary statements Not applicable**EU SVHC list** Not regulated**EU Authorisation List** Not regulated**EU Restriction list** Not regulated**U.S.A management information (OSHA Regulation)** Not regulated**U.S.A management information (CERCLA Regulation)** Not regulated**U.S.A management information (EPCRA 302 Regulation)** Not regulated**U.S.A management information (EPCRA 304 Regulation)** Not regulated**U.S.A management information (EPCRA 313 Regulation)** Not regulated**Substance of Rotterdame Protocol** Not regulated**Substance of Stockholme Protocol** Not regulated**Substance of Montreal Protocol** Not regulated**Foreign Inventory Status****Polyethylene glycol lauryl ether**

U.S.A management information Section 8(b) Inventory (TSCA): XU

Japan management information Existing and New Chemical Substances (ENCS): (7)-97

China management information Inventory of Existing Chemical Substances (IECSC): Present30614

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): HSNO Approval: HSR003168

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

Ethanol

U.S.A management information Section 8(b) Inventory (TSCA): Present

Japan management information Existing and New Chemical Substances (ENCS): (2)-202

China management information Inventory of Existing Chemical Substances (IECSC): Present

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): HSNO Approval: HSR001144

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

Water

U.S.A management information Section 8(b) Inventory (TSCA): Present

Japan management information Industrial Safety and Health Law Substances (ISHL): 2-(4)-1220

China management information Inventory of Existing Chemical Substances (IECSC): Present 32224

Canada management information Domestic Substances List (DSL): Present
 Australia management information Inventory of Chemical Substances (AICS): Present
 New Zealand management information Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.
 Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

16. Other information

A. Information source and references

EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm>
 The Chemical Database, The Department of Chemistry at the University of Akron(<http://ull.chemistry.uakron.edu/erd>)
 National Emergency Management Agency-Korea dangerous material inventory management system; <http://www.nema.go.kr/hazmat/main/main.jsp>
 Korea Occupational Health & Safety Agency; <http://www.kosha.net>
 ECOTOX; <http://cfpub.epa.gov/ecotox/>
 National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>
 American Conference of Governmental Industrial Hygienists TLVs and BEIs.
 National Institute of Technology and Evaluation(NITE); <http://www.safe.nite.go.jp/english/db.html>
 EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>
 KCC MSDS
 Emergency Response Guidebook 2008;
http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/erg2008_eng.pdf
 U.S. National library of Medicine(NLM) Hazardous Substances Data Bank(HSDB);
<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
 U.S. National library of Medicine(NLM) ChemIDplus; <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>
 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
 OECD SIDS; <http://webnet.oecd.org/hpv/ui/Search.aspx>
 AKRON; <http://ull.chemistry.uakron.edu/erd>
 International Programme on Chemical Safety(IPCS) Concise International Chemical Assessment Documents (CICADs); <http://www.inchem.org/>
 U.S. National library of Medicine(NLM); <http://toxnet.nlm.nih.gov/cgi-bin/sis>
 CDI MSDS
 TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>
 Waste Control Act enforcement regulation attached [1]
 The Chemical Database -The Department of Chemistry at the University of Akron;
<http://ull.chemistry.uakron.edu/erd/>
 National Toxicology Program; http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm
 NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>
 REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx#search>
 REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx>
 Jo-Eun Chemical industry MSDS
 UN Recommendations on the transport of dangerous goods 17th
 International Uniform Chemical Information Database(IUCLID); <http://esis.jrc.ec.europa.eu/>

B. Issuing date March 24, 2014

C. Revision number and date

revision number 1

date of the latest revision November 7, 2014

D. Others

- Revised Material Safety Data Sheet based on the amendments made on the Ministry of Employment and Labor Public Notice on Standard for Classification Labeling of Chemical Substance and Material Safety Data Sheet.
- This MSDS is authored in pursuant to the Article 41 of the Occupational Safety and Health Act.
- The content is based on the latest information and knowledge that we currently possess.

- This MSDS was authored to aid buyer, processor or any other third person who handles the chemical of subject in the MSDS; additionally, it does not warrant suitability of the chemical for special purposes or the commercial use of statements that approves the use of it in combination with other chemicals as well as technical or legal liabilities.

- The content of the MSDS may vary depending on the country or the region and may not coincide with the actual regulations. Therefore, the buyer or the processor of the chemical is responsible for observing responsible government's or the region's regulations.