

MATERIAL SAFETY DATA SHEET

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

A. GHS product identifier : FIRSTCLASS MULTI PURPOSE CLEANER

B. Recommended use of the chemical and restrictions on use

Recommended use : All purpose cleaning

Restrictions on use : Use only as intended

C. Manufacturers

Company name : BULLSONE

Address : Daechi-Dong 890-12 Da-Bong Tower 7th floor Bullsone CO., LTD., Seoul

Emergency phone number : 82 80 500 1479

Respondent : Han Dong Jin

2. Hazards identification

A. GHS classification of the substance/mixture

Hazardous to the aquatic environment (acute hazard) : Category 3

B. GHS label elements, including precautionary statements

Pictogram and symbol : Not applicable

Signal word : Not applicable

Hazard statements :

H402 Harmful to aquatic life.

Precautionary statements

Precaution

P273 Avoid release to the environment.

Treatment : Not applicable

Storage : Not applicable

Disposal

P501 Dispose the contents/container in accordance with local/regional/national/international regulations.

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

Health Not applicable

Flammability Not applicable

Reactivity Not applicable

3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
POYETHYLENE GLYCOL LAURYL ETHER				1~5 %
SODIUM TRIPOLYPHOSPHATE				1~5 %
Diethylene glycol mono-n-butyl ether				1~5 %
Dipropylene glycol monomethyl ether				1~5 %
Water				85~95 %

4. First aid measures

A. Eye contact

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

- Call emergency medical service.

B. Skin contact

- If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

- Wash contaminated clothing before reuse.

- For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.

- Call emergency medical service.

- Remove and isolate contaminated clothing and shoes.

- For minor skin contact, avoid spreading material on unaffected skin.

C. Inhalation

- Immediately call a poison center or doctor/physician.

- Give artificial respiration if victim is not breathing.

- Administer oxygen if breathing is difficult.

D. Ingestion

- If swallowed: Rinse mouth. Do not induce vomiting.

- Call emergency medical service.

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.

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

B. Environmental precautions and protective procedures

C. The methods of purification and removal

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**

Dipropylene glycol monomethyl ether TWA = 100 ppm (600 mg/m³) , STEL = 150 ppm (900 mg/m³)

ACGIH regulation

Diethylene glycol mono-n-butyl ether TWA 10 ppm

Dipropylene glycol monomethyl ether TWA 100 ppm STEL 150 ppm

Biological exposure index

Dipropylene glycol monomethyl ether

OSHA regulation

Dipropylene glycol monomethyl ether TWA= 100 ppm, STEL= 150 ppm

NIOSH regulation

Dipropylene glycol monomethyl ether TWA= 100 ppm, STEL= 150 ppm

EU regulation

Diethylene glycol mono-n-butyl ether TWA = 10 ppm, STEL = 15 ppm

Other

Diethylene glycol mono-n-butyl ether Austria: TWA = 10 ppm, STEL= 15 ppm France: TWA = 10 ppm, STEL= 15 ppm Spain: TWA = 10 ppm, STEL= 15 ppm U.K: TWA = 10 ppm, STEL = 20 ppm Belgium: TWA = 10 ppm, STEL= 15 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 Clear liquid
B. Odor lemon
C. Odor threshold Not available
D. pH 10 ~ 11
E. Melting point/freezing point ≤ 0 °C
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 1.014
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 = 64,830.01 mg/kg bw)

- **Dodecan-1-ol, ethoxylated** : Rat LD₅₀ = 1,000 mg/kg (female)
- **Pentasodium triphosphate** : Rat LD₅₀ > 2,000 mg/kg (OECD TG 401, GLP)
- **Diethylene glycol mono-n-butyl ether** : Mouse LD₅₀ = 5,530 mg/kg (OECD TG 401)
- **Dipropylene glycol monomethyl ether** : Rat LD₅₀ > 5,000 mg/kg (OECD TG 401)

Dermal [Not classified] (ATEmix = 63,076.22 mg/kg bw)

- **Dodecan-1-ol, ethoxylated** : Rat LD₅₀ = 2,000 mg/kg (OECD TG 402)
- **Pentasodium triphosphate** : Rabbit LD₅₀ > 4,640 mg/kg
- **Diethylene glycol mono-n-butyl ether** : Rabbit LD₅₀ = 2,764 mg/kg (OECD TG 402)
- **Dipropylene glycol monomethyl ether** : Rat LD₅₀ > 20 mg/kg (19,000 mg/kg) (OECD TG 402)

Inhalation [Not classified]

- **Pentasodium triphosphate** : Rat LD₅₀ > 0.39 mg/L/4hr (EPA OPP 81-3, GLP)
- **Dipropylene glycol monomethyl ether** : Rat LC₅₀ > 275 ppm/4hr (1.67 mg/L) (OECD TG 403)

Skin corrosion/ irritation [Not classified]

- **Dodecan-1-ol, ethoxylated** : 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.

- **Pentasodium triphosphate** : In test on skin irritation with rabbits, skin irritations were not observed. (OECD TG 404, GLP)
- **Diethylene glycol mono-n-butyl ether** : In skin irritation test with rabbits, slight irritations were observed. (OECD TG 404, GLP)
- **Dipropylene glycol monomethyl ether** : In test on skin irritation with rabbits, skin irritations were not observed. (OECD TG 404)

Serious eye damage/ irritation [Not available]

- **Dodecan-1-ol, ethoxylated** : 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.
- **Pentasodium triphosphate** : In test on eyes irritation with rabbits, eyes irritations were not observed. (OECD TG 405, GLP)
- **Diethylene glycol mono-n-butyl ether** : In eyes irritation test with rabbits, irritations were observed.
- **Dipropylene glycol monomethyl ether** : Eyes irritations were not observed when exposed to human.

Respiratory sensitization [Not classified]

Skin sensitization [Not classified]

- **Dodecan-1-ol, ethoxylated** : Administration 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.
- **Pentasodium triphosphate** : In test on skin sensitization with mice, skin sensitization were not observed. (OECD TG 429, GLP)
- **Diethylene glycol mono-n-butyl ether** : In maximisation test with guinea pigs, the study showed no evidence that 2-(2-butoxyethoxy)ethanol causes adverse skin sensitisation reactions. (OECD TG 406)
- **Dipropylene glycol monomethyl ether** : Skin sensitization were not observed when exposed to human.

Carcinogenicity [Not classified]

KOREA-ISHL, IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008: not listed

Pentasodium triphosphate : No carcinogenic effects were observed in the oral study with rats. (OECD TG 453, GLP)

Mutagenicity [Not classified]

- **Dodecan-1-ol, ethoxylated** : Negative reactions were observed in vitro test (mammalian chromosome aberration test and bacterial reverse mutation assay).
- **Pentasodium triphosphate** : Negative reactions were observed in, in vitro (In vitro mammalian chromosome aberration test; Bacterial reverse mutation assay) and in vivo (Chromosome aberration assay, OECD TG 475).
- **Diethylene glycol mono-n-butyl ether** : Negative reactions were observed in both in vitro (mammalian cell gene mutation assay (OECD TG 476, GLP), chromosome aberration assay (OECD TG 473), bacterial reverse mutation assay (OECD TG 471)) and in vivo (micronucleus assay (OECD TG 475)).
- **Dipropylene glycol monomethyl ether** : Negative reactions were observed in vitro (Bacterial gene mutation test (OECD TG 471, GLP), Chromosomal aberrations test (OECD TG 473, GLP)).

Reproductive toxicity [Not classified]

- **Dodecan-1-ol, ethoxylated** : Human (female) was treated by endoscopic intravascular injection sclerotherapy using polidocanol. No adverse effects were detected in the newborn.
- **Pentasodium triphosphate** : In reproductive/developmental (OECD TG 414, GLP) toxicity test with rats, there were no significant effects.
- **Diethylene glycol mono-n-butyl ether** : In reproductive/developmental toxicity with rats, there was no significant evidence for developmental toxicity. (OECD TG 414/415)
- **Dipropylene glycol monomethyl ether** : In reproductive toxicity study with rats, decreased body weights, decreased fertility, decreased ovary weights, increased incidence of histologic ovarian atrophy were observed. (OECD TG 416, GLP)

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

- **Dodecan-1-ol, ethoxylated** : No deaths or signs of toxicity were observed. (OECD TG 402)
- **Pentasodium triphosphate** : In acute oral toxicity with rats, the only clinical signs noted were abdominal staining, decreased locomotion, and diarrhea; all signs had resolved within 24

hour post dosing.(OECD TG 401, GLP)

- **Diethylene glycol mono-n-butyl ether** : In acute inhalation toxicity with rats, no signs of mortality or adverse clinical signs. (OECD TG 403)
- **Dipropylene glycol monomethyl ether** : In acute inhalation toxicity with rats, adverse effects were not observed related to acute toxicity. (OECD TG 403)

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

- **Dodecan-1-ol, ethoxylated** : 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.
- **Pentasodium triphosphate** : In an oral repeated dose toxicity study(0.05%, 0.5% and 5%) with rats during 2 years, mortalities were high as a result of intercurrent epidemics of infections. The highest mortality (80%) over the 2 year period was observed in females in the 5% dose group. Respiratory infection and pericarditis-peritonitis were the most prominent causes of death.
- **Diethylene glycol mono-n-butyl ether** : In repeated inhalation toxicity study with rats for 90 days, no adverse effects were seen in any dose group. (OECD TG 413, GLP)
- **Dipropylene glycol monomethyl ether** : In repeated oral toxicity study with rats for 13 weeks, no adverse effects were observed. (OECD TG 413, GLP)

Aspiration Hazard [Not classified]

12. Ecological information

A. Ecological toxicity

- Acute toxicity : [Category 3] (ATEmix = 11.95860mg/ℓ)
- Chronic toxicity : [Not classified]

Fish

- **Dodecan-1-ol, ethoxylated** : 96hr-LC₅₀ (other) = 1.5 mg/L (Salmo salar)
- **Pentasodium triphosphate** : 24hr-LC₅₀ > 1850 mg/L (pH 8)
- **Diethylene glycol mono-n-butyl ether** : 96hr-LC₅₀ = 1300 mg/L (OECD TG 203)
- **Dipropylene glycol monomethyl ether** : 96hr-LC₅₀ > 1000 mg/L (OECD TG 203, GLP)

crustacean

- **Dodecan-1-ol, ethoxylated** : 48hr-LC₅₀ (*Daphnia magna*) = 4.780 ~ 7.580 mg/L
- **Pentasodium triphosphate** : 48hr-EC₅₀ > 100 mg/L (TSCA guideline: 40 CFR 797.1930, GLP)
- **Diethylene glycol mono-n-butyl ether** : 48hr-EC₅₀ > 100 mg/L (GLP)
- **Dipropylene glycol monomethyl ether** : 48hr-LC₅₀ = 1919 mg/L (OECD TG 202, GLP)

Algae

- **Pentasodium triphosphate** : 96hr-EC₅₀ (*Scenedesmus subspicatus*) = 69.2 mg/L (surface under growth curve) (ISO/TC147/SC5/WG5 N84)
- **Diethylene glycol mono-n-butyl ether** : 96hr-EC₅₀ > 100 mg/L (OECD TG 201, GLP)
- **Dipropylene glycol monomethyl ether** : 96hr-EC₅₀ > 969 mg/L (OECD TG 201, GLP)

B. Persistence and degradability

Persistence

- **Dodecan-1-ol, ethoxylated** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 1.937) (23 °C)
- **Pentasodium triphosphate** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -13.26) (Estimated)
- **Diethylene glycol mono-n-butyl ether** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 1) (OECD TG 117, GLP)
- **Dipropylene glycol monomethyl ether** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 0.0043) (OECD TG 107, GLP)

Degradability

- **Pentasodium triphosphate** :

C. Bioaccumulative potential

Bioaccumulation

- **Dodecan-1-ol, ethoxylated** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 120) (estimated)
- **Pentasodium triphosphate** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (Estimated)

- **Diethylene glycol mono-n-butyl ether** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3) (estimated)

- **Dipropylene glycol monomethyl ether** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF < 100)

Biodegradation

- **Dodecan-1-ol, ethoxylated** : This substance is ready biodegradability.

- **Pentasodium triphosphate** :

- **Diethylene glycol mono-n-butyl ether** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 85% biodegradation was observed after 28 days) (OECD TG 301C)

- **Dipropylene glycol monomethyl ether** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 96% biodegradation was observed after 28 days) (OECD TG 301F, GLP)

- **Water** :

D. Mobility in soil

- **Dodecan-1-ol, ethoxylated** : Low potency of mobility to soil. (Koc = 87.36)

- **Pentasodium triphosphate** : Low potency of mobility to soil. (Koc = 142.44)

- **Diethylene glycol mono-n-butyl ether** : Low potency of mobility to soil. (Koc = 48)

- **Dipropylene glycol monomethyl ether** : Low potency of mobility to soil. (Koc = 1.377) (estimated)

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 regulated

B. UN Proper shipping name Multi-purpose cleaner

C. Transport Hazard class Non-hazardous

D. Packing group Not applicable

E. Marine pollutant No

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

Dodecan-1-ol, ethoxylated : Existing Chemical Substance (KE-12935)

Pentasodium triphosphate : Existing Chemical Substance KE-34753

Diethylene glycol mono-n-butyl ether : Existing Chemical Substance (KE-10466)

Water : Existing Chemical Substance (KE-35400)

C. Dangerous Material Safety Management Regulation

Pentasodium triphosphate : Dangerous Material Safety Management Regulation

Diethylene glycol mono-n-butyl ether : Dangerous Material Safety Management Regulation 4000ℓ

Dipropylene glycol monomethyl ether : Dangerous Material Safety Management Regulation

D. Wastes Control Act

Diethylene glycol mono-n-butyl ether : Wastes Control Act Controlled wastes

E. Other regulation (internal and external)**Internal information****Persistent Organic Pollutants Acts Not regulated****External information****EU classification(classification)****Dodecan-1-ol, ethoxylated : Classification Not classified****Diethylene glycol mono-n-butyl ether : Classification Xi; R36****Dipropylene glycol monomethyl ether : Classification Not classified****Water : Classification Not classified****EU classification(risk phrases)****Dodecan-1-ol, ethoxylated : Hazard statements Not applicable****Diethylene glycol mono-n-butyl ether : Hazard statements R36****Dipropylene glycol monomethyl ether : Hazard statements Not applicable****Water : Hazard statements Not applicable****EU classification(safety phrases)****Dodecan-1-ol, ethoxylated : Precautionary statements Not applicable****Diethylene glycol mono-n-butyl ether : Precautionary statements S2 S24 S26****Dipropylene glycol monomethyl ether : Precautionary statements Not applicable****Water : Precautionary statements Not applicable****EU SVHC list Not regulated****EU Authorisation List Not regulated****EU Restriction list****Diethylene glycol mono-n-butyl ether : EU Restriction list Regulated****U.S.A management information (OSHA Regulation) Not regulated****U.S.A management information (CERCLA Regulation)****Pentasodium triphosphate : CERCLA RQ 5000 lb****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 Roterdame Protocol Not regulated****Substance of Stockholme Protocol Not regulated****Substance of Montreal Protocol Not regulated****16. Other information****A. Information source and references**AKRON; <http://ull.chemistry.uakron.edu/erd>**B. Issuing date 25. Dec. 2013.****C. Revision number and date**

revision number

date of the latest revision

D. Others