

MATERIAL SAFETY DATA SHEET

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

- A. GHS product identifier** CAREJAM LEATHER CLEANER
B. Recommended use of the chemical and restrictions on use
 Recommended use detergents of leather surface
 Restrictions on use Limitation of use for other purpose
C. Manufacturers
 Company name Bullson
 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 (%)
Water		7732-18-5	231-791-2	80~90 %
GLYCEROL	Glycerine	56-81-5	200-289-5	1~10 %
Nonionic surfactant	Ethoxylated castor oil, hydrogenated	61788-85-0	500-147-5	<5 %
Propane-1,2-diol	Propylene glycol	57-55-6	200-338-0	<5 %

4. First aid measures

- A. Eye contact**
 - 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.

- Remove and isolate contaminated clothing and shoes.
- Wash contaminated clothing and shoes before reuse.
- Get immediate medical advice/attention.

C. Inhalation

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

D. Ingestion

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

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

B. Environmental precautions and protective procedures

- 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.
- 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.

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

GLYCEROL TWA = 10 mg/m³

ACGIH regulation

GLYCEROL TWA 10 mg/m³ (mist)

Biological exposure index : Not available

OSHA regulation

GLYCEROL TWA = 15 mg/m³(mist, total particulate), 5 mg/m³(mist, respirable fraction)

NIOSH regulation

GLYCEROL TWA = 10 mg/m³ (mist, as an 8-hour TWA)

EU regulation : Not available

Other

GLYCEROL Australia : TWA=10 mg/m³ Canada : TWA=10 mg/m³ France : TWA=10 mg/m³

Germany : TWA=100 mg/m³ Greece : TWA=10 mg/m³

Propane-1,2-diol Latvia: TWA = 7 mg/m³ Canada: TWA = 10 mg/m³ TWA = 50 ppm (aerosol and vapor), TWA = 155 mg/m³(aerosol and vapor) Ireland: TWA =150ppm(mg/m³), TWA = 10mg/m³(particulate), TWA = 10mg/m³ (particulate).

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**
- E. Melting point/freezing point** Not available
- F. Initial boiling point and boiling range**
- G. Flash point**
- 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**
- O. Partition coefficient: n-octanol/water** Not available
- P. Auto ignition temperature** Not available
- Q. Decomposition temperature** Not available
- R. Viscosity**
- 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 = 168,089.89 mg/kg bw)

- **GLYCEROL** : Rat LD₅₀ = 27,200 mg/kg (female)
- **Propane-1,2-diol** : Rat LD₅₀ = 22,000 mg/kg

Dermal [Not classified] (ATEmix = 567,500 mg/kg bw)

- **GLYCEROL** : Guinea pig LD₅₀ = 56,750 mg/kg
- **Propane-1,2-diol** : Rabbit LD₅₀ > 2,000 mg/kg

Inhalation [Not classified]

- **GLYCEROL** : Rat LC₅₀ > 2.75 mg/L/4hr (male)
- **Propane-1,2-diol** : Rabbit LC₅₀ > 158.5 mg/m³/4hr (LC50 > 317042 mg/m³ air/2h)

Skin corrosion/ irritation [Not available]

- **GLYCEROL** : In test on skin irritation with rabbits, skin irritations were not observed.
- **Nonionic surfactant** : In test on skin irritation with rabbits, skin irritations were not observed.(OECD TG 404)
- **Propane-1,2-diol** : In skin irritation test with rabbits, skin irritations were not observed(OECD TG 404).

Serious eye damage/ irritation [Not available]

- **GLYCEROL** : In test on eyes irritation with rabbits, eyes irritations were not observed.
- **Nonionic surfactant** : Mile eye irritation.
- **Propane-1,2-diol** : In eyes irritation test with rabbits, eyes irritations were not observed(OECD TG 405).

Respiratory sensitization [Not classified]

Skin sensitization [Not classified]

- **Propane-1,2-diol** : In skin sensitisation test with guinea pigs, skin sensitisations were not observed(OECD TG 406).

Carcinogenicity [Not classified]

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

GLYCEROL : In carcinogenicity test with rat, the result gave no evidence of a cancerogenic potential in rat.

Mutagenicity [Not classified]

- **GLYCEROL** : Negative reactions were observed in in vitro test(Chromosomal aberrations test(OECD TG 473), unscheduled DNA synthesis test(OECD TG 482), Ames test(OECD TG 471, GLP)).
- **Nonionic surfactant** : Negative reactions were observed in in Bacterial reverse mutation test and mutagenicity test with E-coli.
- **Propane-1,2-diol** : Negative reactions were observed in both in vitro-Mammalian Chromosome Aberration Test(OECD TG 473), bacterial reverse mutation assay and in vivo-mammalian bone marrow chromosome aberration test.

Reproductive toxicity [Not classified]

- **GLYCEROL** : In reproductive/developmental oral toxicity study, there were no significant adverse effects on reproductive parameters and no evidence of malformations at any doses.(NOAEL =8000-10000 mg/kg bw)
- **Propane-1,2-diol** : In reproductive/developmental toxicity study with mice, no test material-related adverse effects were observed(OECD TG 414, GLP).

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

- **GLYCEROL** : In acute oral toxicity test with rats, Muscle spasms and clonic convulsions were observed.
- **Propane-1,2-diol** : In acute oral toxicity study (doses: 15~25 mL/kg gw) with rats, hemorrhagic areas in the small intestine, microscopic changes in kidney and slight congestion of the liver were observed.

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

- **GLYCEROL** : In repeated oral toxicity test with rats, In the male rats was an increase in the final liver/body weight ratio and upon microscopic examination generalized cloudy swelling and hypertrophy of the parenchymal cells was observed. The only effect in the female rats on this level was some generalized cloudy selling upon microscopic examination of the liver.
- **Propane-1,2-diol** : In subchronic inhalation toxicity study with rats, nasal haemorrhagings were observed.

Aspiration Hazard [Not classified]

12. Ecological information

A. Ecological toxicity

- Acute toxicity : [Not classified] (ATEmix = 3712.14702mg/ℓ)
- Chronic toxicity : [Not classified]

Fish

- **GLYCEROL** : 96hr-LC₅₀ (*Salmo gairdneri*) = 54000 mg/L
- **Propane-1,2-diol** : 96hr-LC₅₀ = 40613 mg/L

crustacean

- **GLYCEROL** : 48hr-EC₅₀ (*Daphnia magna*) = 1955 mg/L
- **Nonionic surfactant** : 48hr-EC₅₀ > 100 mg/L (OECD TG 202)
- **Propane-1,2-diol** : 48hr-LC₅₀ = 18340 mg/L ,7d-NOEC(*Ceriodaphnia* sp) = 13020 mg/L

Algae

- **Nonionic surfactant** : 72hr-EC₅₀ (*Scenedesmus subspicatus*) > 100 mg/L (OECD TG 201)
- **Propane-1,2-diol** : 72hr-EC₅₀ = 19300 mg/L (OECD TG 201, GLP)

B. Persistence and degradability

Persistence

- **GLYCEROL** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -1.75) (25 °C)(OECD TG 107)
- **Nonionic surfactant** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -0.76)
- **Propane-1,2-diol** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -1.07) (EU Method A.8, GLP)

Degradability Not available

C. Bioaccumulative potential

Bioaccumulation

- **GLYCEROL** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (Estimated)
- **Propane-1,2-diol** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 0.09)

Biodegradation

- **GLYCEROL** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 60% biodegradation was observed after 2 hrs)
- **Nonionic surfactant** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (80% ~ 90% biodegradation was observed after 2 hrs) (OECD TG 301)
- **Propane-1,2-diol** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 106.8% biodegradation was observed after 28 days) (OECD TG 301F, GLP)

D. Mobility in soil

- **GLYCEROL** : Low potency of mobility to soil. (Koc = 0.1345) (estimated)
- **Propane-1,2-diol** : Low potency of mobility to soil. (Koc = 2.9)

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

GLYCEROL : Occupational exposure limits listed

B. Toxic Chemical Control Act

Water : Existing Chemical Substance (KE-35400)

GLYCEROL : Existing Chemical Substance (KE-29297)

Nonionic surfactant : Existing Chemical Substance (KE-05137)

Propane-1,2-diol : Existing Chemical Substance (KE-29267)

C. Dangerous Material Safety Management Regulation

GLYCEROL : Dangerous Material Safety Management Regulation 4000L

Propane-1,2-diol : Dangerous Material Safety Management Regulation 4000L

D. Wastes Control Act Not regulated

E. Other regulation (internal and external)

Internal information

Persistent Organic Pollutants Acts Not regulated

External information

EU classification(classification)

Water : Classification Not classified

GLYCEROL : Classification Not classified

Nonionic surfactant : Classification Not classified

Propane-1,2-diol : Classification Not classified

EU classification(risk phrases)

Water : Hazard statements Not applicable

GLYCEROL : Hazard statements Not applicable

Nonionic surfactant : Hazard statements Not applicable

Propane-1,2-diol : Hazard statements Not applicable

EU classification(safety phrases)

Water : Precautionary statements Not applicable

GLYCEROL : Precautionary statements Not applicable

Nonionic surfactant : Precautionary statements Not applicable

Propane-1,2-diol : 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 Roterdame Protocol Not regulated

Substance of Stockholme Protocol Not regulated

Substance of Montreal Protocol Not regulated

Foreign Inventory Status

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

GLYCEROL

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

Japan management information Existing and New Chemical Substances (ENCS): (2)-242

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): May be used as a single component chemical under an appropriate group standard.

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

Nonionic surfactant

U.S.A management information Section 8(b) Inventory (TSCA): Present [XU]
 Japan management information Existing and New Chemical Substances (ENCS): (7)-1443; (8)-603
 China management information Inventory of Existing Chemical Substances (IECSC): Present 40175
 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

Propane-1,2-diol
 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
 U.S.A management information Section 8(b) Inventory (TSCA): Present
 Canada management information Domestic Substances List (DSL): Present
 Australia management information Inventory of Chemical Substances (AICS): Present
 Japan management information Existing and New Chemical Substances (ENCS) : (2)-234
 Japan management information Industrial Safety and Health Law Substances (ISHL): 2-(8)-321,2-(8)-323

16. Other information

A. Information source and references

EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm>
 National Emergency Management Agency-Korea dangerous material inventory management system; <http://www.nema.go.kr/hazmat/main/main.jsp>
 BJ CEHM MSDS
 Korea Occupational Health & Safety Agency; <http://www.kosha.net>
 OECD SIDS; <http://webnet.oecd.org/hpv/ui/Search.aspx>
 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>
 AKRON; <http://ull.chemistry.uakron.edu/erd>
 BJ CHEM MSDS
 National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>
 TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>
 SIGMA-ALDRICH; <http://www.sigmaaldrich.com/united-states.html>
 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
 American Conference of Governmental Industrial Hygienists TLVs and BEIs.
 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>
 EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>

B. Issuing date 2014.09.17.

C. Revision number and date

revision number

date of the latest revision

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.