

MATERIAL SAFETY DATA SHEET

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

A. GHS product identifier BULLSPOWER - ENGINE FLUSH SUPPLEMENTAL

B. Recommended use of the chemical and restrictions on use

Recommended use Engine flush

C. Manufacturers

Company name BULLSONE

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

Emergency phone number 82-2-2106-7777

Respondent Han Dong Jin

2. Hazards identification

A. GHS classification of the substance/mixture

Acute toxicity (oral) : Category 4

B. GHS label elements, including precautionary statements

Pictogram and symbol :



Signal word : Warning

Hazard statements :

H302 Harmful if swallowed.

Precautionary statements

Precaution

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Treatment

P301+P312 If swallowed: Call a poison center or doctor/physician if you feel unwell.

P330 Rinse mouth.

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 1

Flammability 1

Reactivity Not available

3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
Petroleum Hydrocarbon	Aceite de base sin especificar	64742-54-7	265-157-1	40~70 %
Calcium long-chain alkaryl sulfonate				< 30 %
dispersant	Mineral Oil			< 30 %

4. First aid measures

A. Eye contact

- Call emergency medical service.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

B. Skin contact

- Call emergency medical service.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.

C. Inhalation

- Move victim to fresh air.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Keep victim warm and quiet.

D. Ingestion

- If swallowed: Call a poison center or doctor/physician if you feel unwell.
- Rinse mouth.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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

- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.

B. Specific hazards arising from the chemical

- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Non-combustible, substance itself does not burn but may decompose upon heating, then produce corrosive and/or toxic fumes.
- Fire will produce irritating, corrosive and/or toxic gases.

C. Special protective equipment and precautions for fire-fighters

- Evacuate area and fight fire from a safe distance.
- Substance may be transported in a molten form.
- 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; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- 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.
- Fire involving Tanks; For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Please note that there are materials and conditions to avoid.

B. Environmental precautions and protective procedures

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

C. The methods of purification and removal

- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.

7. Handling and storage

A. Precautions for safe handling

- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Please note that there are materials and conditions to avoid.
- Please work with reference to engineering controls and personal protective equipment.

B. Conditions for safe storage

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.
- Keep away from food and drinking water.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Korea regulation

Petroleum Hydrocarbon TWA = 5 mg/m³ STEL = 10 mg/m³

ACGIH regulation

Petroleum Hydrocarbon TWA 5 mg/m³ STEL 5 mg/m³

Calcium long-chain alkaryl sulfonate Mineral oil;TWA: 5 mg/m³/CAS No.7778-18-9; TWA:10 mg/m³

dispersant Mineral oil;TWA: 5 mg/m³, STEL: 10 mg/m³

Biological exposure index : Not available

OSHA regulation

Petroleum Hydrocarbon TWA = 5 mg/m³

Calcium long-chain alkaryl sulfonate Mineral oil; TWA: 5 mg/m³ /CAS No.7778-18-9; TWA : 15 mg/m³ (total dust), TWA : 5 mg/m³ (respirable dust)

dispersant Mineral oil; TWA: 5 mg/m³

NIOSH regulation

Petroleum Hydrocarbon TWA = 5 mg/m³, STEL = 5 mg/m³

Calcium long-chain alkaryl sulfonate CAS No.7778-18-9; TWA : 10 mg/m³ (total dust), TWA : 5 mg/m³ (respirable dust)

EU regulation : Not available

Other

Calcium long-chain alkaryl sulfonate Mineral oil; Canada - TWA: 5 mg/m³, STEL: 10 mg/m³ EH40(UK)(Europe, 2002)-TWA: 5 mg/m³ (8 hour) NOHSC(Australia, 2003)-TWA: 5 mg/m³(8 hour)

dispersant Mineral oil; Canada - TWA: 5 mg/m³, STEL: 10 mg/m³ EH40(UK)(Europe, 2002)-TWA: 5 mg/m³ (8 hour) NOHSC(Australia, 2003)-TWA: 5 mg/m³(8 hour)

B. Appropriate engineering controls

- Facilities for storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

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

Body protection

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

9. Physical and chemical properties

A. Appearance

Description Liquid

Color Dark liquid

B. Odor

Characteristic

C. Odor threshold

Not available

D. pH

Not applicable

E. Melting point/freezing point

Not available

F. Initial boiling point and boiling range

300 °C ~ 580 °C

G. Flash point

> 200 °C

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)

Negligible

M. Vapor density

Not available

N. Specific gravity

0.85

O. Partition coefficient: n-octanol/water

Not available

P. Auto ignition temperature

Not available

Q. Decomposition temperature

Not available

R. Viscosity

45 cP

S. Molecular weight

Not available

10. Stability and reactivity

A. Chemical stability and Possibility of hazardous reactions:

- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Non-combustible, substance itself does not burn but may decompose upon heating, then produce corrosive and/or toxic fumes.
- Fire will produce irritating, corrosive and/or toxic gases.

B. Conditions to avoid:

- Heat, sparks or flames

C. Incompatible materials:

- Combustibles, reducing agents

D. Hazardous decomposition products:

- Corrosive and/or toxic fume
- Irritating, corrosive and/or toxic gases

11. Toxicological information

A. Information of Health Hazardous:**Acute toxicity**

Oral [Category 4] (ATEmix = 709.32 mg/kg bw)

- **Petroleum Hydrocarbon** : Mouse LD₅₀ > 5,000 mg/kg
- **Calcium long-chain alkaryl sulfonate** : Rat LD₅₀ = 25,000 mg/kg
- **dispersant** : Rat LD₅₀ = 39,400 mg/kg

Dermal [Not classified]

- **Petroleum Hydrocarbon** : Rabbit LD₅₀ > 5,000 mg/kg (Chronic – irritating, skin diseases)
- **Calcium long-chain alkaryl sulfonate** : Rabbit LD₅₀ > 10,000 mg/kg
- **dispersant** : Rabbit LD₅₀ > 10,000 mg/kg

Inhalation [Not classified]

Skin corrosion/ irritation [Not available]

- **Petroleum Hydrocarbon** : Slightly irritating in prolonged, repeated contact
- **Calcium long-chain alkaryl sulfonate** : If the mixture comes in contact with skin repeatedly or for a prolonged time, natural fat in the skin may be removed which induces non-allergic contact dermatitis and may be absorbed through the skin.
- **dispersant** : If the mixture comes in contact with skin repeatedly or for a prolonged time, natural fat in the skin may be removed which induces non-allergic contact dermatitis and may be absorbed through the skin.

Serious eye damage/ irritation [Not available]

- **Petroleum Hydrocarbon** : Stimulus
- **Calcium long-chain alkaryl sulfonate** : Irritating to eyes Not applicable to the classification EU R41 or R36.
- **dispersant** : Not irritating to eyes.

Respiratory sensitization [Not available]

Skin sensitization [Not available]

Carcinogenicity [Not classified]

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

Petroleum Hydrocarbon : Highly refined mineral oil is classified to Category 3 by International Agency for Research on Cancer (IARC) (Findings in humans : data lacking, Findings in animals : data lacking)

Mutagenicity [Not available]

Reproductive toxicity [Not available]

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

- **Calcium long-chain alkaryl sulfonate** : Inhalation : Breathing oil mists or vapors at high temperatures may cause respiratory diseases.
- **dispersant** : Inhalation : Breathing oil mists or vapors at high temperatures may cause respiratory diseases.

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

Aspiration Hazard [Not available]

12. Ecological information

A. Ecological toxicity

- Acute toxicity : [Not classified]
- Chronic toxicity : [Not classified]
- Fish** Not available

- **Petroleum Hydrocarbon** : NOEC - 7d, > 5000 mg/ℓ
crustacean
 - **Petroleum Hydrocarbon** : NOEC - 7d, 552 mg/ℓ
Algae Not available
- B. Persistence and degradability**
- Persistence**
- **Calcium long-chain alkaryl sulfonate** : This product contains components that can be persistent in the environment
 - **dispersant** : This product contains components that can be persistent in the environment
- Degradability**
- **Petroleum Hydrocarbon** : Does not degrade immediately but has inherent biodegradability as in OECD Guidelines.
- C. Bioaccumulative potential**
- Bioaccumulation** Not available
Biodegradation Not available
- D. Mobility in soil**
- **Petroleum Hydrocarbon** : After floating for a while, oil components may move to the soil.
- E. Other hazardous effect**
- **Petroleum Hydrocarbon** : Prolonged exposure in water may affect aquatic organisms. - **Calcium long-chain alkaryl sulfonate** : German Water quality(class): 1 - **dispersant** : German Water quality(class): 1

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**
 - Petroleum Hydrocarbon** : Occupational exposure limits listed
 - Calcium long-chain alkaryl sulfonate** : Occupational exposure limits listed ;CAS No. 7778-18-9
- B. Toxic Chemical Control Act**
 - Petroleum Hydrocarbon** : Existing Chemical Substance KE-12546
 - Calcium long-chain alkaryl sulfonate** : Existing Chemical Substance ; CAS No. 115733-10-3: KE-02613/CAS No. 7778-18-9: KE-04614
- C. Dangerous Material Safety Management Regulation**
 - Calcium long-chain alkaryl sulfonate** : Dangerous Material Safety Management Regulation
- 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)

Petroleum Hydrocarbon : Classification Carc. Cat. 2; R45

EU classification(risk phrases)

Petroleum Hydrocarbon : Hazard statements R45

EU classification(safety phrases)

Petroleum Hydrocarbon : Precautionary statements S53, S45

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

Calcium long-chain alkaryl sulfonate

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

Japan management information Existing and New Chemical Substances (ENCS): Present

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

Canada management information Substances List : Present

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

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

dispersant

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

Japan management information Existing and New Chemical Substances (ENCS): Present

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

Canada management information Substances List : Present

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

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

U.S. SARA Title III Section 311/312 hazard classification: SARA 311/312 annoying mist / only dust

16. Other information

A. Information source and references

Waste Control Act enforcement regulation attached [1]

Kukdong oil & Chemicals Co, Ltd MSDS (Color) , (Odor) , (Flash point) , (Solubility (ies)) , (Specific gravity) , (Viscosity) , (Oral) , (Dermal) , (Skin corrosion/ irritation) , (Serious eye damage/ irritation) , (Carcinogenicity) , (Fish) , (crustacean) , (Degradability) , (Mobility in soil) , (Other hazardous effect)

Korea Occupational Health & Safety Agency; <http://www.kosha.net>

National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>

National Emergency Management Agency-Korea dangerous material inventory management system; <http://www.nema.go.kr/hazmat/main/main.jsp>

Waste Control Act enforcement regulation attached [1]

Korea Occupational Health & Safety Agency; <http://www.kosha.net>

National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>

National Emergency Management Agency-Korea dangerous material inventory management system; <http://www.nema.go.kr/hazmat/main/main.jsp>

Waste Control Act enforcement regulation attached [1]

B. Issuing date 11. Nov. 2013

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.