

# MATERIAL SAFETY DATA SHEET

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

- A. GHS product identifier** FIRSTCLASS PREMIUM CARNAUBA WAX  
**B. Recommended use of the chemical and restrictions on use**  
 Recommended use High-Gloss Car Wax  
 Restrictions on use Limitation of use for other purpose  
**C. Manufacturers**  
 Company name Bullstone  
 Address 7F, Dabong Tower, 418, Teheran-roGangnam-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**  
 Specific target organ toxicity (single exposure) : Category 3 (respiratory irritation)  
 Hazardous to the aquatic environment (chronic) : Category 1  
**B. GHS label elements, including precautionary statements**  
 Pictogram and symbol :



**Signal word :Warning**

**Hazard statements :**

H335 May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Precaution**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

**Treatment**

P304+P340 If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312 Call a poison center or doctor/physician if you feel unwell.

P391 Collect spillage.

**Storage**

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

**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 2**

**Flammability Not available**

**Reactivity Not available**

## 3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
CARNAUBA WAX	BRAZIL WAX	8015-86-9	232-399-4	10~30
Polysiloxane Wax	Silicone oil	63148-62-9	613-156-5	10~20
GLYCEROL	Glycerine	56-81-5	200-289-5	1~5
Antimony oxide calcium titanate	Antimony oxide calcium titanate silicate ceramic opacifier	66402-68-4	266-340-9	< 1
C10-14 ISOALKANES				40~45
C12-16 ISOALKANES				10~30

#### 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 a poison center or doctor/physician if you feel unwell.
- 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

- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

##### D. Ingestion

- 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

- 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

- Material may produce irritating and highly toxic gases from decomposition by heat and combustion during burning
- 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.

##### C. Special protective equipment and precautions for fire-fighters

- Rescuers should put on appropriate protective gear.
- Evacuate area and fight fire from a safe distance.
- Substance may be transported in a molten form.
- Some may be transported hot.
- 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

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- 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.
- Prevent dust cloud.
- Please note that there are materials and conditions to avoid.

### B. Environmental precautions and protective procedures

- Avoid release to the environment.
- Prevent entry into waterways, sewers, basements or confined areas.

### C. The methods of purification and removal

- Collect spillage.
- 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.
- 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.
- Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

## 7. Handling and storage

### A. Precautions for safe handling

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash ... thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Use carefully in handling/storage.
- Loosen closure cautiously before opening.
- Avoid prolonged or repeated contact with skin.
- Please note that there are materials and conditions to avoid.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

### B. Conditions for safe storage

- Store in a well-ventilated place. Keep container tightly closed.
- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

## 8. Exposure controls/personal protection

### A. Occupational Exposure limits

#### Korea regulation

GLYCEROL TWA = 10 mg/m<sup>3</sup>

**ACGIH regulation**

**GLYCEROL TWA 10 mg/m<sup>3</sup> (mist)**

**Biological exposure index : Not available**

**OSHA regulation**

**GLYCEROL TWA = 15 mg/m<sup>3</sup>(mist, total particulate), 5 mg/m<sup>3</sup>(mist, respirable fraction)**

**NIOSH regulation**

**GLYCEROL TWA = 10 mg/m<sup>3</sup> (mist, as an 8-hour TWA)**

**EU regulation : Not available**

**Other**

**GLYCEROL Australia : TWA=10 mg/m<sup>3</sup> Canada : TWA=10 mg/m<sup>3</sup> France : TWA=10 mg/m<sup>3</sup>**

**Germany : TWA=100 mg/m<sup>3</sup> Greece : TWA=10 mg/m<sup>3</sup>**

**B. Appropriate engineering controls**

- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the recommended exposure limit.
- 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 particulate material, the respiratory protective equipments as follow are recommended. ;facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use(dust, mist, fume)
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.oxygen

**Eye protection**

- Wear breathable safety goggles to protect from particulate 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 Solid**

**Color Yellow**

**B. Odor Solvent scent****C. Odor threshold Not available****D. pH Not available****E. Melting point/freezing point Not available****F. Initial boiling point and boiling range Not available****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 Not available****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:

- 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:

- Material may produce irritating and highly toxic gases from decomposition by heat and combustion during burning
- Corrosive and/or toxic fume
- Irritating and/or toxic gases

## 11. Toxicological information

### A. Information of Health Hazardous:

#### Acute toxicity

##### Oral [Not classified] (ATEmix = 244,800 mg/kg bw)

- Polysiloxane : Rat LD<sub>50</sub> > 5,000 mg/kg
- GLYCEROL : Rat LD<sub>50</sub> = 27,200 mg/kg (female)
- Antimony oxide calcium titanate : Rat LD<sub>50</sub> > 2,000 mg/kg (암컷, OECD TG 425, GLP, read-across; CAS No. 1305-78-8)

##### Dermal [Not classified] (ATEmix = 510,750 mg/kg bw)

- Polysiloxane : Rabbit LD<sub>50</sub> > 10,000 mg/kg Acute toxicity is very low
- GLYCEROL : Guinea pig LD<sub>50</sub> = 56,750 mg/kg
- Antimony oxide calcium titanate : Rabbit LD<sub>50</sub> > 2,500 mg/kg (OECD TG 402, read-across; CAS No. 7719-01-9)

##### Inhalation [Not classified]

- Polysiloxane : Rat LC<sub>50</sub> > 535 mg/L Acute toxicity is very low
- GLYCEROL : Rat LC<sub>50</sub> > 2.75 mg/L/4hr (male)
- Antimony oxide calcium titanate : Rat LC<sub>50</sub> > 3.5 mg/L/4hr (OECD TG 403, GLP, read-across ; CAS No. 1302-67-6)

#### Skin corrosion/ irritation [null]

- Polysiloxane : In test on skin irritation with rabbits, skin irritations were not observed.
- Wax : Major irritation is not expected in a single, short-term exposure event.
- GLYCEROL : In test on skin irritation with rabbits, skin irritations were not observed.
- Antimony oxide calcium titanate : In test on skin irritation with rabbits, skin irritations were not observed.(OECD TG 431,GLP)
- C10-14 ISOALKANES : C10-13 ISOALKANES : Skin irritations were observed.
- C12-16 ISOALKANES : - C12-14 ISOALKANES: Probability of MOD/SEV=0.290 - C13-16 ISOALKANES: Probability of MOD/SEV=1.000 (Estimated) Causes skin irritation.

#### Serious eye damage/ irritation [null]

- Polysiloxane : In test on eyes irritation with rabbits, eyes irritations were not observed.
- Wax : Direct contact may cause temporary redness and discomfort.
- GLYCEROL : In test on eyes irritation with rabbits, eyes irritations were not observed.
- Antimony oxide calcium titanate : In test on eyes irritation with rabbits, eyes irritations were not observed. (OECD TG 405)
- C10-14 ISOALKANES : - C10-13 ISOALKANES : eyes irritations were observed. - C10-14 ISOALKANES : Probability of MLD=0.007(TOPKAT 6.2)

#### Respiratory sensitization [Not available]

**Skin sensitization [Not classified]**

- **Polysiloxane** : In skin sensitisation test with animals, skin sensitization were not observed.
- **Antimony oxide calcium titanate** : In test on skin sensitization mouse , skin sensitization were not observed.(OECD TG 429, GLP)

**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.

**Antimony oxide calcium titanate**: In test on carcinogenicity with guinea pigs, carcinogenicity was not observed.(OECD TG 413)

**Mutagenicity [Not classified]**

- **Polysiloxane** : Ames test results negative
- **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)).
- **Antimony oxide calcium titanate** : Negative reactions were observed in, in vitro (Bacterial reverse mutation assay, OECD TG 471, GLP, read-across; CAS No. 1302-67-6, 1305-78-8; in vitro mammalian chromosome aberration test, read-across; CAS No. 1305-62-0; mammalian cell gene mutation assay, OECD TG 476, GLP, read-across; CAS No. 21645-51-2; Neutral comet assay(without metabolic activation), read-across; CD4+T cells). Positive reactions were observed in, in vitro(in vitro mammalian chromosome aberration test(without metabolic activation), OECD TG 473, read-across; CAS No. 7466-70-0; in vitro mammalian cell micronucleus test(without metabolic activation), OECD TG 487, read-across; Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>) and in vivo(female, Mammalian Erythrocyte Micronucleus Test(for the nano-sized materials (30 and 40 nm) with evidence of a dose-response relationship for MN), OECD TG, 474, read-across; 1344-28-1; female, chromosome aberration assay(for the nano-sized materials with evidence of a positive dose-response relationship for CAs), OECD TG 475, read-across; 1344-28-1).
- **C12-16 ISOALKANES** : - C12-14 ISOALKANES : Computed probability of Mutagenicity=0.000

**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)
- **Antimony oxide calcium titanate** : In reproductive toxicity test(OECD TG 426 and 452, GLP, read-across; CAS No. 31142-56-0; OECD TG 422, GLP, read-across; 1327-41-9) and developmental toxicity test(OECD TG 414, read-across; CAS No. 1305-78-8; OECD TG 426 and 452, GLP, read-across; CAS No. 31142-56-0) with rats, there were no significant effects.

**Specific target organ toxicity (single exposure) [Category 3 (respiratory irritation)]**

- **Wax** : Inhalation : No major effects in short-term, single exposure event. Ingestion : Low ingestion hazard in general uses.
- **GLYCEROL** : In acute oral toxicity test with rats, Muscle spasms and clonic convulsions were observed.
- **Antimony oxide calcium titanate** : In acute inhalation toxicity with rats, slight respiratory distress effect was observed; all signs had resolved within 14days.(OECD TG 403)
- **C10-14 ISOALKANES** : C10-13 ISOALKANES : Causes a respiratory tract irritation when inhaled.
- **C12-16 ISOALKANES** : - C12-14 ISOALKANES : Causes a respiratory tract irritation when inhaled.

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

- **Wax** : Ingestion : Repeated ingestion or intake of large quantities may cause internal damage.
- **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.
- **Antimony oxide calcium titanate** : In an oral repeated dose toxicity study with rats during the postnatal period, clinical signs(mild alopecia and porphyrin staining, slight dehydration, diarrhoea) were observed.

**Aspiration Hazard [Not available]**

## 12. Ecological information

### A. Ecological toxicity

- Acute toxicity : [Not classified] (ATEmix = 1955.00000mg/l)
- Chronic toxicity : [Category 1]

#### Fish Not available

- **GLYCEROL** : 96hr-LC<sub>50</sub> (*Salmogairdneri*) = 54000 mg/L
- **C12-16 ISOALKANES** : C12-14 ISOALKANES : LC50 0.011mg/l 96hr

#### crustacean

- **GLYCEROL** : 48hr-EC<sub>50</sub> (*Daphnia magna*) = 1955 mg/L
- **C12-16 ISOALKANES** : C12-14 ISOALKANES : LC50 0.013mg/l 48hr

#### Algae Not available

### B. Persistence and degradability

#### Persistence

- **GLYCEROL** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -1.75) (25 °C)(OECD TG 107)
- **C10-14 ISOALKANES** : C10-13 ISOALKANES : log Kow = 5.31(Estimated) / C10-14 ISOALKANES : log Kow = 5.18(Estimated)
- **C12-16 ISOALKANES** : C12-14 ISOALKANES: log Kow = 6.65 (Expected to bioaccumulate as it is non-biodegradable.) / C13-16 ISOALKANES: log Kow = 6.67 (Estimated)

#### Degradability

- **Wax** : Environmental movements and migration : The product is solid and concentration of its soluble components that may be dissolved is not high. Therefore it is not likely to be hazardous to soil organisms. Water quality : Solid substance insoluble in water.

### C. Bioaccumulative potential

#### Bioaccumulation

- **Wax** : No potential for bioaccumulation. The product is an insoluble solid, therefore it is not absorbed when ingested.
- **GLYCEROL** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (Estimated)
- **C10-14 ISOALKANES** : C10-13 ISOALKANES : BCF = 2453 / C10-14 ISOALKANES : BCF = 1210(Potential to bioaccumulate.)
- **C12-16 ISOALKANES** : C12-14 ISOALKANES: BCF = 480.6 / C13-16 ISOALKANES: BCF = 11760(Estimated, Potential to bioaccumulate.)

#### Biodegradation

- **GLYCEROL** : As well-biodegraded, it is expected to have low accumulation potential in living organisms (= 60% biodegradation was observed after 2 hrs)
- **Antimony oxide calcium titanate** : This substance is not considered to be biodegradable.
- **C10-14 ISOALKANES** : C10-14 ISOALKANES :No existing useful studies on the biodegradation. Bioaccumulation is expected to be high as it is non-biodegradable.
- **C12-16 ISOALKANES** : C12-14 ISOALKANES: Cut-off value=3.8508 Rapidly biodegrades. (BIOWIN4) / C13-16 ISOALKANES: Bioaccumulation is expected to be high as it is non-biodegradable.(Estimated)

### D. Mobility in soil

- **GLYCEROL** : Low potency of mobility to soil. (Koc = 0.1345) (estimated)
- **C10-14 ISOALKANES** : C10-13 ISOALKANES : Koc = 1417 / C10-14 ISOALKANES : Koc = 31280
- **C12-16 ISOALKANES** : C12-14 ISOALKANES: Koc = 590400 (Can be adsorbed on the soil) / C13-16 ISOALKANES: Koc = 614500 (estimated, Can be adsorbed on the soil)

### E. Other hazardous effect

- **Wax** : Acute effects : No adverse effects are expected in aquatic organisms. Chronic : Concerns for harmful effects on aquatic organisms due to long-term effects. Based on physical properties and insolubility of the product bioavailability can be ignored. Effects at wastewater treatment plant : No adverse effects expected for bacteria.

## 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 3082
- B. UN Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
- C. Transport Hazard class 9
- D. Packing group III
- E. Marine pollutant YES
- F. Special precautions
  - in case of fire F-A
  - in case of leakage S-F

## 15. Regulatory information

- A. Occupational Safety and Health Regulation
  - GLYCEROL :Occupational exposure limits listed
- B. Toxic Chemical Control Act
  - CARNAUBA WAX :Existing Chemical Substance (KE-04879)
  - Polysiloxane :Existing Chemical Substance (KE-31068)
  - Wax :Existing Chemical Substance ; CAS No. 131459-42-2: KE-00611
  - GLYCEROL :Existing Chemical Substance (KE-29297)
  - Antimony oxide calcium titanate :Existing Chemical Substance (KE-05377)
  - C10-14 ISOALKANES :Existing Chemical Substance ; CAS No. 68551-17-7: KE-00531/CAS No. 68551-18-8: KE-00532
  - C12-16 ISOALKANES :Existing Chemical Substance ; CAS No. 68551-19-9: KE-00534/CAS No. 68551-20-2: KE-005353
- C. Dangerous Material Safety Management Regulation
  - CARNAUBA WAX :Dangerous Material Safety Management Regulation
  - GLYCEROL :Dangerous Material Safety Management Regulation 4000f
- 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)
      - CARNAUBA WAX :Classification Not classified
      - GLYCEROL :Classification Not classified
      - Antimony oxide calcium titanate :Classification Not classified
    - EU classification(risk phrases)
      - CARNAUBA WAX :Hazard statements Not applicable
      - GLYCEROL :Hazard statements Not applicable
      - Antimony oxide calcium titanate :Hazard statements Not applicable
    - EU classification(safety phrases)
      - CARNAUBA WAX :Precautionary statements Not applicable
      - GLYCEROL :Precautionary statements Not applicable
      - Antimony oxide calcium titanate :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**

**Polysiloxane**

U.S.A management information Section 8(b) Inventory (TSCA): Present [XU]  
 Japan management information Existing and New Chemical Substances (ENCS): (7)-476  
 China management information Inventory of Existing Chemical Substances (IECSC): Present 08512  
 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): Inventory of Chemicals (NZIoC):  
 HSNO Approval: HSR003036  
 Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

**Wax**

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 Domestic Substances List (DSL): Present  
 Australia management information Inventory of Chemical Substances (AICS): Present  
 New Zealand management information Inventory of Chemicals (NZIoC): HSNO Approval: Present  
 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

**Antimony oxide calcium titanate**

## 16. Other information

### A. Information source and references

**TOPKAT**

American Conference of Governmental Industrial Hygienists TLVs and BEIs.  
 EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>  
 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>  
 Korea Occupational Health & Safety Agency; <http://www.kosha.net>  
 NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>  
 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>  
 National Toxicology Program; [http://ntp-apps.niehs.nih.gov/ntp\\_tox/index.cfm](http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm)  
 The Chemical Database -The Department of Chemistry at the University of Akron;  
<http://ull.chemistry.uakron.edu/erd/> (Color) , (Odor) , (Melting point/freezing point) , (Flash point) ,  
 (Solubility (ies)) , (Specific gravity)  
 The Chemical Database, The Department of Chemistry at the University of  
 Akron(<http://ull.chemistry.uakron.edu/erd>)  
 Waste Control Act enforcement regulation attached [1]  
 American Conference of Governmental Industrial Hygienists TLVs and BEIs.  
 EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>  
 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>  
 Korea Occupational Health & Safety Agency; <http://www.kosha.net>  
 Momentive Performance materials MSDS (Initial boiling point and boiling range) , (Vapor pressure) ,  
 (Solubility (ies)) , (Vapor density)

Momentive Performance materials MSDS (Odor) , (Oral) , (Dermal) , (Inhalation) , (Skin corrosion/irritation) , (Serious eye damage/irritation) , (Skin sensitization) , (Mutagenicity)  
 NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html>  
 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>  
 National Toxicology Program; [http://ntp-apps.niehs.nih.gov/ntp\\_tox/index.cfm](http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm)  
 TOMES-LOLI@; <http://www.rightanswerknowledge.com/loginRA.asp>  
 The Chemical Database -The Department of Chemistry at the University of Akron; <http://ull.chemistry.uakron.edu/erd/> (Description) , (Color) , (Melting point/freezing point) , (Flash point) , (Specific gravity) , (Auto ignition temperature) , (Decomposition temperature)  
 Waste Control Act enforcement regulation attached [1]  
 DOW CORNING MSDS (Description) , (Color) , (Odor) , (Flash point) , (Flammability (solid, gas)) , (Specific gravity) , (Skin corrosion/irritation) , (Serious eye damage/irritation) , (Specific target organ toxicity (single exposure)) , (Specific target organ toxicity (repeat exposure)) , (Degradability) , (Bioaccumulation) , (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]  
 American Conference of Governmental Industrial Hygienists TLVs and BEIs.  
 EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm> (Bioaccumulation) , (Mobility in soil)  
 EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>  
 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>  
 Korea Occupational Health & Safety Agency; <http://www.kosha.net>  
 NIOSH Pocket Guide; <http://www.cdc.gov/niosh/npg/npgdcas.html> (OSHA regulation) , (NIOSH regulation)  
 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>  
 National Toxicology Program; [http://ntp-apps.niehs.nih.gov/ntp\\_tox/index.cfm](http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm)  
 OECD SIDS; <http://webnet.oecd.org/hpv/ui/Search.aspx> (Molecular weight)  
 REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx> (Description) , (Color) , (Melting point/freezing point) , (Initial boiling point and boiling range) , (Flash point) , (Flammability (solid, gas)) , (Upper/lower flammability or explosive limits) , (Vapor pressure) , (Solubility (ies)) , (Specific gravity) , (Partition coefficient: n-octanol/water) , (Auto ignition temperature) , (Viscosity) , (Oral) , (Dermal) , (Inhalation) , (Skin corrosion/irritation) , (Serious eye damage/irritation) , (Carcinogenicity) , (Mutagenicity) , (Reproductive toxicity) , (Specific target organ toxicity (single exposure)) , (Fish) , (crustacean) , (Persistence) , (Biodegradation)  
 TOMES-LOLI@; <http://www.rightanswerknowledge.com/loginRA.asp> (Other)  
 The Chemical Database -The Department of Chemistry at the University of Akron; <http://ull.chemistry.uakron.edu/erd/> (Odor) , (Vapor density)  
 Waste Control Act enforcement regulation attached [1]  
 International Uniform Chemical Information Database(IUCLID); <http://esis.jrc.ec.europa.eu/> (Initial boiling point and boiling range) , (Solubility (ies)) , (Specific gravity) , (Molecular weight)  
 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>  
 REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx> (Color) , (Odor) , (Melting point/freezing point) , (Oral) , (Dermal) , (Inhalation) , (Skin corrosion/irritation) , (Serious eye damage/irritation) , (Skin sensitization) , (Carcinogenicity) , (Mutagenicity) , (Reproductive toxicity) , (Specific target organ toxicity (single exposure)) , (Specific target organ toxicity (repeat exposure))  
 Waste Control Act enforcement regulation attached [1]  
 EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm>  
 Ecological Structure Activity Relationships

KOREX MSDS (Description) , (Color) , (Melting point/freezing point) , (Initial boiling point and boiling range) , (Flash point) , (Evaporation rate) , (Upper/lower flammability or explosive limits) , (Vapor pressure) , (Vapor density) , (Specific gravity) , (Auto ignition temperature) , (Viscosity) , (Skin corrosion/ irritation) , (Serious eye damage/ irritation) , (Specific target organ toxicity (single exposure)) , (Persistence) , (Bioaccumulation) , (Biodegradation) , (Mobility in soil)

KOSHANET

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>

Quantitative Structure Activity Relation

Seton compliance resource center

TOPKAT 6.2

U.S. National library of Medicine(NLM) ChemIDplus; <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>

Waste Control Act enforcement regulation attached [1]

EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm>

Ecological Structure Activity Relationships

European Chemical Substances Information System

KOREX MSDS (Description) , (Color) , (Melting point/freezing point) , (Initial boiling point and boiling range) , (Flash point) , (Evaporation rate) , (Upper/lower flammability or explosive limits) , (Vapor pressure) , (Vapor density) , (Specific gravity) , (Auto ignition temperature) , (Viscosity) , (Molecular weight) , (Skin corrosion/ irritation) , (Mutagenicity) , (Specific target organ toxicity (single exposure)) , (Persistence) , (Bioaccumulation) , (Biodegradation) , (Mobility in soil)

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>

Quantitative Structure Activity Relation

TOPKAT

Waste Control Act enforcement regulation attached [1]

**B. Issuing date Nov 07, 2013**

**C. Revision number and date**

**revision number 1**

**date of the latest revision 2014.07.16**

**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.