

CASMOLY 1000 PASTE

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

A. Product Name : CASMOLY 1000 PASTE

B. Recommended Product Usage and Limited Use

Application : Lubrication for relaxation and screw of bolt/nut
(Inorganic and organic compounds in mineral oil)

Limited Use : No limited use

C. Manufacturer : CALS Corp.

Address. 123-63, Injusandan-ro, Inju-Myeon, Asan-Si, Chungcheongnam-Do, Korea

Tel. +82-41-541-9441

Fax. +82-41-541-9447

D. Supplier/Distributor : CALS Corp.

Address. 4th. Fl., Semi Bldg., 132, Yeongjung-ro, Yeongdungpo-gu, Seoul, Korea

Tel. +82-2-2632-9441

Fax. +82-2-2632-9580

E. Department In Charge : R&D Center (070-7864-5212)

2. HAZARDOUS IDENTIFICATION

A. Hazard Classification : Serious Eye Damage/Irritation: Category 2

Skin Corrosion/ skin irritation: Category 1

Germ Cell Mutagenicity: Category 2

Specific Target Organ Systemic Toxicity (Repeated Exposure): Category 1

Inhalation hazard: Category 1

Acute aquatic hazard: Category 1

Chronic aquatic hazard: Category 1

B. Label Elements Including Precautionary Statements :

Symbol:



Signal Word: Danger

Hazard Risk Statement:

H304 When it inhale, it would be fatal

- H317 Cause allergic dermoreaction
- H319 Cause severe eye irritation
- H341 Doubt for causing genetic defect
- H372 When exposure longterm and repeated, cause mutilation of (...) body
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

Precautionary Statement:

Prevention:

- P201 Get an instruction manual before using
- P202 Do not treat this materials before understanding all safety/precautionary statemnet
- P260 Do not inhale dust·fume·gas·mist·steam·(...)·spray
- P261 Avoid to inhale dust·fume·gas·mist·steam·(...)·spray
- P264 Wash with plenty of soap and water
- P270 Do not eat, drink and smoke
- P272 Do not take polluted clothing out of working area
- P273 Avoid release to the environment
- P280 Wear protective gloves·protective clothing·protective goggle·(...)·face mask
- P281 Wear proper personal protectors

Response:

- P301+P310 When it inhale, get medical examination by hospital(doctor)
- P301+P312 If feel uncomfortable when it inhale, get medical examination by hospital(doctor)
- P302+P352 Wash with plenty of soap and water, when it is stained for skin
- P305+P351+P338 If in eyes, Rinse cautiously ith water for several minutes.
Remove contact lenses, if present and eaxy to do. Continue rinsing.
- P308 + P313 Get medical attention if you worry about the exposure or already exposed.
- P314 Get medical attention
- P321 (...) Treat symptomatically
- P330 Wash out the mouth
- P331 Do not vomit
- P333+P313 Get medical attention once erythema
- P337+P313 Get medical attention
- P363 Take off the polluted clothes and wash it before wearing
- P391 Collect spillage

Storage:

- P405 Keep container closed

Disposal:

- P501 Dispose of contents/container (in accordance with the relevant statutory regulations)

C. Other Hazard. Risk which are not included in the classification criteria



| Chemical Components | Health | Fire | Reaction |
|-----------------------------|--------|------|----------|
| Copper | 2 | 3 | 0 |
| Calcium Phosphate, Tribasic | 2 | 0 | 0 |
| Graphite | 1 | 1 | 0 |
| Paraffin oil | 2 | 1 | 0 |

3. Composition / Information on Ingredients

| Component Name | Second Name | CAS Number | Wt% |
|-----------------------------|-----------------|------------|-----|
| Copper | — | 1317-33-5 | 15 |
| Calcium Phosphate, Tribasic | — | 7758-87-4 | 10 |
| Graphite | — | 7782-42-5 | 15 |
| Paraffin Oil | Liquid Paraffin | 8012-95-1 | 60 |

4. FIRST AID MEASURES

- A. Eyes : Immediately flush with water for 15 minutes, get medical attention
- B. Skin : Get medical attention, wash the clothes, when touched wash with flushing water
- C. Inhale : Get medical attention, do not vomit, get fresh air and relax with keeping warm
- D. Ingest: Get medical attention, do not vomit, do not use mouth to mouth resuscitation
Using proper medical facility for respiration
- F. Other Note to physicians : Treat symptomatically.
For further information, the medical practitioner should contact CALS Corp.

5. FIRE FIGHTING MEASURES

- A. Suitable (and Unsuitable) Extinguishing Media
Suitable: Alcohol foam, CO₂ or water spray
On extinguishment by smothering, dry sand or soil
- B. Specific Hazards Arising from the Chemical
Occur irritate and poisonous gas by pyrolysis and combustion when burning

Occur explosion when heating but not easy to ignition

As nonflammability materials, not burning but possible to occur corrosive and toxicity fume

C. Special Protective Equipment and Precautions for Firefighters :

Observe all personal protective equipment recommendations described in this MSDS

Using absorptive tissue for chemical materials and following related regulation

6. ACCIDENT RELEASE MEASURES

A. Personal Precautions and Protective Equipment :

Block the all source of ignition, keeping wearing protector, gloves, protective clothing

Wipe the spill it and following the section 8

Remove source of ignition

Stop the leakage, if it is not so dangerous situation

Wear the proper prevent clothes and do not touch the leakage or broken packing

B. Environmental Precautions :

Prevent from spreading or entering into drains, ditches or rivers

C. Methods for Cleaning up :

Observe all personal protective equipment recommendations described in this MSDS

Using absorptive tissue for chemical materials and following related regulation

7. HANDLING AND STORAGE

A. Handling Precautions :

Do not inhale dust-fume-gas-mist-steam-spray

Please refer to section 8 Engineering controls/personal protective equipment

B. Storage Conditions (including any incompatibilities) :

Avoid heating-spark-flame - nonsmoking

Note: Keep container closed

Store in a cool and dry place

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

A. Occupational Exposure Limit Values, Biological Limit Values :

* There is no standard for exposure limit, please refer to following data for individual materials

1) Copper

Local regulation : TWA - 1mg/m³ STEL - 2mg/m³ Copper (dusts and mists)

TWA - 0.1mg/m³ Copper (Fume)

ACGIH regulation : Copper(Fume), Copper(Dusts and mists, as Cu)

TWA - 0.2mg/m³, 1mg/m³

Biological limit standard : N/A

2) Calcium Phosphate, Tribasic

Local regulation : N/A

ACGIH regulation : N/A

Biological limit standard : N/A

3) Graphite

Local regulation : TWA - 2mg/m³ Graphite (natural, respiratory)TWA - 2mg/m³ Graphite (compound, respiratory)ACGIH regulation : TWA - 2mg/m³

Biological limit standard : N/A

4) Paraffin Oil

Local regulation : TWA - 0.8mg/m³ Mixing solvent extract (if using metal working fluids)

ACGIH regulation : Mineral oil [8012-95-1], excluding metal working fluids

- Pure, highly and severely refined

TWA 5mg/m³

Biological limit standard : N/A

B. Engineering Controls : Recommended

Using isolation process, local ventilation system and control the air under exposure limit

Setting up safety shower and washing face facilities

C. Personal Protective Equipment :

Using proper respirators by approved Korea Occupational Safety & Health Agency

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------------------|--------------------|
| Physical Form: | Paste |
| Color: | Dark Brown |
| Odor: | Slight odor |
| Odor Threshold: | Not determined |
| PH: | Not determined |
| Melting / Freezing point: | Not determined |
| Initial Boiling Point and | Not determined |
| Boiling Range: | Not determined |
| Flash point: | > 200°C (Open cup) |
| Evaporation Rate: | Not determined |
| Flammability (solid, gas): | Not applicable |
| Upper/Lower | Not determined |
| Flammability or Explosive | Not determined |
| Vapor pressure (25°C): | Not determined |

| | |
|--|----------------|
| Solubility in water: | Not determined |
| Vapour Density: | Not determined |
| Specific gravity (25°C): | 1.3 |
| N-octanol/water partition coefficient: | Not determined |
| Autoignition Temp.: | Not determined |
| Decomposition Temp.: | Not determined |
| Viscosity: | Not determined |
| Molecular Weight: | Not determined |

10. STABILITY AND REACTIVITY

- A. Chemical stability: Stable
- B. Hazardous polymerization: Hazardous polymerization will not occur.
- C. Conditions to avoid: Heat, flame, spark and other source of ignition
- D. Materials to avoid: Oxidizing agent, Combustible materials
- E. Hazardous Decomposition Products:
Carbon Oxides, Formaldehyde, Traces of incompletely burned carbon compounds

11. TOXICOLOGICAL INFORMATION

- A. Information on the likely Routes of Exposure
- Respiratory: N/A
Graphite: Irritation, lack of appetite, Chest trouble, difficulty in breathing, headache, lung abnormality, heart problems, cancer, allergy
- Oral: N/A
- Skin: N/A
- Eye: N/A
- B. Information on the Health Hazards
- 1) Copper
- Acute Toxicity:
- Oral : N/A
- Percutaneous : N/A
- Inhalation : N/A
- Skin Corrosion/Irritation: N/A

Serious Eye Damage/Irritation: N/A

Carcinogenicity: N/A

Reproductive Toxicity: N/A

Specific Target Organ Systemic Toxicity (Single Exposure)

Central Nervous System: N/A

Respiratory System: Irritation when respiratory exposure

Specific Target Organ Systemic Toxicity (Repeated Exposure): N/A

Aspiration Hazard: N/A

2) Calcium Phosphate, Tribasic

Acute Toxicity:

Oral : LD50 > 1000 mg/kg Rat

Percutaneous : LD50 > 5000 mg/kg Rabbit

Inhalation : Mist LC50 2.18mg/l 4hr Rat

Skin Corrosion/Irritation: No irritation to human

Serious Eye Damage/Irritation: No irritation to human

Carcinogenicity: N/A

Reproductive Toxicity: 2.5mg/egg concentration

(No teratogenic effect at development of embryo of chicken)

Specific Target Organ Systemic Toxicity (Single Exposure)

Central Nervous System: N/A

Respiratory System: N/A

Specific Target Organ Systemic Toxicity (Repeated Exposure): N/A

Aspiration Hazard: Occur the chemical pneumonia when aspiration or inhalation

3) Graphite

Acute Toxicity

Oral : LD50 > 34600 mg/kg Rat

Percutaneous : LD50 > 10250 mg/kg Rabbit

Inhalation : Steam LC50 > 0.85 mg/l Rat

Skin Corrosion/Irritation: Irritation

Serious Eye Damage/Irritation: Irritation

Carcinogenicity: N/A

Reproductive Toxicity: N/A

Specific Target Organ Systemic Toxicity (Single Exposure)

Central Nervous System: N/A

Respiratory System: N/A

Specific Target Organ Systemic Toxicity (Repeated Exposure): N/A

Aspiration Hazard: When long term dust exposure, affect the lung like pneumoconiosis

4) Paraffin Oil

Acute Toxicity

Oral : LD50 22000 mg/kg Mouse

Percutaneous : N/A

Inhalation : N/A

Skin Corrosion/Irritation: Slight irritation(rabbit,STANDARD DRAIZE TEST,100mg/24H)

Serious Eye Damage/Irritation: Irritation(rabbit,STANDARD DRAIZE TEST,500mg)

Carcinogenicity: N/A

Reproductive Toxicity: N/A

Specific Target Organ Systemic Toxicity (Single Exposure)

Central Nervous System: N/A

Respiratory System Irritation: There is no death in case of oral injection as 5g/kg by rat.
Observed hypoactivity and ataxia

Specific Target Organ Systemic Toxicity (Repeated Exposure):

Reported lipid pneumonia and lipogranuloma of lung to the person exposed
mineral oil longtermly

Reported lipid pneumonia to the person exposed mist strongly

Aspiration Hazard:

When it aspirate to lung, it would be bronchopneumonia as following oral exposure

12. ECOLOGICAL INFORMATION

- 1) Copper
Fish : LC50 0.37 mg/l 96 hr
Crustacea : EC50 0.0318 mg/l 48 hr
Bird : LC50 0.092 mg/l 15 hr
- 2) Calcium Phosphate, Tribasic
Fish : N/A
Crustacea : N/A
Bird : N/A
- 3) Graphite
Fish : N/A
Crustacea : N/A
Bird : N/A
- 4) Paraffin Oil
Fish : LC50 > 100 mg/l 96 hr *Lepomis macrochirus*
Crustacea : N/A
Bird : N/A

Persistence and Degradability

- 1) Copper
Persistence : N/A
Degradability : N/A
- 2) Calcium Phosphate, Tribasic
Persistence : N/A
Degradability : N/A
- 3) Graphite
Persistence : N/A
Degradability : N/A
- 4) Paraffin Oil
Persistence : log Kow 6.1
Degradability : N/A

Bioaccumulative Potential

- 1) Copper
Condensability : BCF 5830
Biodegradability : N/A
- 2) Calcium Phosphate, Tribasic
Condensability : N/A
Biodegradability : N/A

3) Graphite

Condensability : N/A

Biodegradability : N/A

4) Paraffin Oil

Condensability : BCF 314.1

Biodegradability : N/A

Mobility in Soil

1) Copper : N/A

2) Calcium Phosphate, Tribasic : N/A

3) Graphite : N/A

4) Paraffin Oil : N/A

Additional Environmental Information : N/A

13. DISPOSAL CONSIDERATIONS

- A. This product falls under Industrial Waste based on Wastes Disposal and Public Cleansing Law, Dispose of in accordance with local regulations
- B. Disposal Method: Dispose of in accordance with local regulations
- C. Disposal Precaution: Observe Wastes Disposal and Public Cleansing Law

14. TRANSPORT INFORMATION

- A. Transport information
DOT Road shipment information(49 CFR 172.101)
Not subject to DOT.
- Sea shipment(IMDG)**
Not subject to IMDG code
- B. Transportation Precautions: No precautions
- C. Other International Transportation Regulations
Air shipment(IATA)
Not subject to IATA regulations

15. REGULATORY INFORMATION

1) Copper

Industrial Safety and Health Act : Substances of management control

Substances of Working Environment Measurement (period: 6 month)

Substances of Special Medical Examination (period: 24 month)

Substances of Exposure Limits Setting

Toxic Chemical Control Act : N/A

Dangerous Material Safety Control Act : N/A

Wastes Management Act : Specified waste

Other requirements in domestic and other countries :

Domestic regulation

- Persistent Organic Pollutants Control Act : N/A

EU classification information

- Fixed classification result : N/A

- Hazard statement : N/A

- Safety statement : N/A

USA regulation

- OSHA regulation (29CFR1910.119) : N/A

- CERCLA regulation (40CFR302.4) : 2267.995 kg 5000 lb

- EPCRA 302 regulation (40CFR355.30) : N/A

- EPCRA 304 regulation (40CFR355.40) : N/A

- EPCRA 313 regulation (40CFR372.65) : N/A

- Rotterdam Convention(PIC) : N/A

- Stockholm Convention on Persistent Organic Pollutants (POPs) : N/A

2) Calcium Phosphate, Tribasic

Industrial Safety and Health Act : N/A

Toxic Chemical Control Act : N/A

Dangerous Material Safety Control Act : N/A

Wastes Management Act : Specified waste

Other requirements in domestic and other countries :

Domestic regulation

- Persistent Organic Pollutants Control Act : N/A

EU classification information

- Fixed classification result : N/A

- Hazard statement : N/A

- Safety statement : N/A

USA regulation

- OSHA regulation (29CFR1910.119) : N/A

- CERCLA regulation (40CFR302.4) : N/A

- EPCRA 302 regulation (40CFR355.30) : N/A

- EPCRA 304 regulation (40CFR355.40) : N/A

- EPCRA 313 regulation (40CFR372.65) : N/A

- Rotterdam Convention(PIC) : N/A

- Stockholm Convention on Persistent Organic Pollutants (POPs) : N/A

3) Graphite

Industrial Safety and Health Act : Substances of Special Medical Examination (period: 24 month)

Toxic Chemical Control Act : N/A

Dangerous Material Safety Control Act : N/A

Wastes Management Act : Specified waste

Other requirements in domestic and other countries :

Domestic regulation

- Persistent Organic Pollutants Control Act : N/A

EU classification information

- Fixed classification result : N/A

- Hazard statement : N/A

- Safety statement : N/A

USA regulation

- OSHA regulation (29CFR1910.119) : N/A

- CERCLA regulation (40CFR302.4) : N/A

- EPCRA 302 regulation (40CFR355.30) : N/A

- EPCRA 304 regulation (40CFR355.40) : N/A

- EPCRA 313 regulation (40CFR372.65) : N/A

- Rotterdam Convention(PIC) : N/A

- Stockholm Convention on Persistent Organic Pollutants (POPs) : N/A

4) Paraffin Oil

Industrial Safety and Health Act : Substances of Exposure Limits Setting

Toxic Chemical Control Act : N/A

Dangerous Material Safety Control Act : 4rd petroleum type 6000ℓ

Wastes Management Act : Specified waste

Other requirements in domestic and other countries :

Domestic regulation

- Persistent Organic Pollutants Control Act : N/A

EU classification information

- Fixed classification result : N/A

- Hazard statement : N/A

- Safety statement : N/A

USA regulation

- OSHA regulation (29CFR1910.119) : N/A

- CERCLA regulation (40CFR302.4) : N/A

- EPCRA 302 regulation (40CFR355.30) : N/A

- EPCRA 304 regulation (40CFR355.40) : N/A

- EPCRA 313 regulation (40CFR372.65) : N/A

- Rotterdam Convention(PIC) : N/A

- Stockholm Convention on Persistent Organic Pollutants (POPs) : N/A

16. OTHER INFORMATION

A. Information Source: CALS Corp. R&D, MSDS reference by Raw materials manufacturing, Occupation Safety and Health Acts, Korea Occupational Safety & Health Agency Material Safety Data Sheets GHS/MSDS education text

B. First Issuing Date : 2001. 06. 01

C. Revision No. and Latest Revision Date : 1st, 2012. 07. 06

D. Others : These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed by to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.