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

Identification of the product

Product name : KURE/CRC Brakleen
Product classification : Cleaner for Metal Parts (Aerosol・CO₂)
Principal use : Cleaning for brakes or metal parts
Product number : 2010, 3010
Reference number : 2010-A

Company information

Company name : KURE Engineering Ltd.
Address : 1-16-13 Higashiyama, Meguro-ku, Tokyo, 153-0043, Japan
Department : Research and Development Department
Phone number : 81-3-5773-2344
Fax number : 81-3-5773-2392

Author : Research and Development Department
Creation date : April 8, 2015
Revision date :

2. Hazards identification

GHS classification

Physical hazards :
Explosives Exemption
Flammable gases Exemption
Aerosols Category 1
Oxidizing gases Exemption
Gases under pressure Exemption
Flammable liquids Exemption
Flammable solids Exemption
Self-reactive substances and mixtures Exemption
Pyrophoric liquids Exemption
Pyrophoric solids Exemption
Self-heating substances and mixtures Exemption
Substances and mixtures which, in contact with water, emit flammable gases Exemption
Oxidizing liquids Exemption
Oxidizing solids Exemption
Organic peroxides Exemption
Corrosive to metals Unclassifiable

Health hazards :
Acute toxicity (Oral) Unclassifiable
Acute toxicity (Dermal) Unclassifiable
Acute toxicity (Inhalation: Gases) Unclassifiable
Acute toxicity (Inhalation: Vapors) Unclassifiable
Acute toxicity (Inhalation: Dusts and Mists) Unclassifiable
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Respiratory sensitization Unclassifiable
Skin sensitization Unclassifiable
Germ cell mutagenicity Category 1B
Carcinogenicity Unclassifiable
Reproductive toxicity Category 1B
Specific target organ toxicity (Single exposure) Category 2 (blood vessel system)
Specific target organ toxicity (Repeated exposure) Category 1 (liver, nerve system)
Aspiration hazard Category 2

Environmental hazards :
Hazardous to the aquatic environment (Acute) Category 1
Hazardous to the aquatic environment (Chronic) Unclassifiable
Hazardous to the ozone layer Exemption
GHS label elements

Hazard pictograms:

Signal word: Danger

Hazard statements:
- Extremely combustible / flammable aerosol
- Pressurized container: may burst if heated
- May be harmful if swallowed and enters airways
- Causes skin irritation
- Causes serious eye irritation
- May cause respiratory irritation / May cause drowsiness or dizziness
- May cause genetic defects
- May damage fertility or the unborn child
- May cause damage to organs
- Causes damage to organs through prolonged or repeated exposure
- Very toxic to aquatic life

Precautionary statements

[Prevention]:
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat / sparks / open flames / hot surfaces. No smoking.
- Do not spray on an open flame or other ignition source.
- Do not pierce or burn, even after use.
- Do not breathe fume / gas / mist / vapors / spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves / eye protection / face protection.
- Use personal protective equipment as required.

[Response]:
- If swallowed: Immediately call a poison center, doctor etc.
- If on skin: Wash with plenty of water and soap.
- If inhaled: Remove person to fresh air and keep comfortable for breathing.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- If exposed or concerned: Get medical advice / attention.
- If exposed or if you feel unwell, call a doctor.
- Call a poison center or doctor / physician if you feel unwell.
- Get medical advice / attention if you feel unwell.
- Do not induce vomiting.
- If skin irritation occurs: Get medical advice / attention.
- If eye irritation persists: Get medical advice / attention.
- Take off contaminated clothing.
- Collect spillage.

[Storage]:
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.
- Protect from sunlight. Do not expose to temperatures exceeding 40 °C.

[Disposal]:
- Dispose of contents / container to comply with prefectural and city governments rules.
3. Composition/information on ingredients

Classification of the substance / mixture          : Mixture

Ingredients and contained amounts

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Proportion range (wt%)</th>
<th>CAS No.</th>
<th>Industrial Safety and Health Act *</th>
<th>PRTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>55~75</td>
<td>110-82-7</td>
<td>Applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Isohexane</td>
<td>5~25</td>
<td>107-83-5</td>
<td>Applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Ethanol</td>
<td>10~30</td>
<td>64-17-5</td>
<td>Applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Acetone</td>
<td>&lt;1</td>
<td>67-64-1</td>
<td>Applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>&lt;5</td>
<td>124-38-9</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

*Notifiable substances of Industrial Safety and Health Act

4. First-aid measures

Eye contact          : Immediately flush eyes with plenty of clean water more than 15 minutes. According to symptoms, get medical attention promptly.
Skin contact         : Flush enough with soapy water. If there are changes in appearance or pain, get medical attention promptly.
Inhalation           : If inhaled plenty of vapor or mist etc., immediately move victims to a place with fresh air. According to symptoms, get medical attention promptly.
Ingestion            : Flush mouth with water. Get medical attention promptly.

5. Fire-fighting measures

Extinguishing media : Carbon dioxide, Foam, Dry chemicals, Sand
Method              : Remove flammable goods from environment immediately.
                      If there are aerosols in a scene of fire, they have a risk of bursting.
                      Wear protective equipment from a windward position when performing fire-fighting.
                      Use a frothy extinguisher in the case of a large scale fire.
Protection for those who extinguish : Wear appropriate protective equipment (Heat-resistant clothings, gloves and respiratory protective mask, etc.).

6. Accidental release measures

Personal precaution : 1) Perform by wearing protective clothing. Be careful of skin contact.
                     2) Unauthorized people should not enter the surrounding dangerous area.
                     3) Ventilate enough if leakage happens indoor.

Environmental precaution : Take notice of prevention to dumping solution that is washed around the spillage area into public water areas like drainages.
Removing method       : 1) Quickly remove ignition sources, high-temperature substances, and combustible materials if they are in the near distance.
                       2) For small amounts: Absorb in sand, such as those that are non-combustible; gather using tools that do not generate sparks and in sealed containers.
                       3) For large amounts: Prevent run off by a sandbag etc., carry it to a safe place and take up in sealed containers. Then move to a safe place.
                       4) Salvaged materials have to be cleaned up by your company or an entrusted licensed industrial waste contractor.

7. Handling and storage (Work according to the law concerned)

Precautions for handling : Work according to Industrial Safety and Health Act etc. and those relative regulations.
                          1) If used in a closed room, place a local ventilation equipment and use appropriate protection.
                          2) Do not use near fire, spark and high-temperature substance.
                          3) Electrical equipments must be explosion-proof.
                          4) Take precaution to prevent injuries by electrification or short if used near energizing electrical products & electrical equipment.

Precautions for storage : 1) Do not store in near water, in humid place, over 40°C, under direct sunlight.
                        2) Store avoiding fire, spark and high-temperature materials.
                        3) Conform to related storage law.
8. Exposure controls/personal protection

Hazard and exposure level criteria of component material

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Permissible concentration</th>
<th>Japan Society for Occupational Health</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>150 ppm</td>
<td>100 ppm</td>
<td>(TWA)</td>
</tr>
<tr>
<td>Isohexane</td>
<td>-</td>
<td>500 ppm</td>
<td>(TWA)</td>
</tr>
<tr>
<td>Ethanol</td>
<td>-</td>
<td>1,000 ppm</td>
<td>(TWA)</td>
</tr>
<tr>
<td>Acetone</td>
<td>200 ppm</td>
<td>500 ppm</td>
<td>(TWA)</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>5,000 ppm</td>
<td>5,000 ppm</td>
<td>(TWA)</td>
</tr>
</tbody>
</table>

- No information: Defined value and Recommendations

Engineering Controls: Place a local ventilation equipment if used indoor.
Place a safety shower, a hand-wash station and an eyewash station near the place of use.

Protective equipment:
- For respirator: As needed, use a gas mask or dust protective mask (for organic gas).
- For eyes: As needed, use protective glasses.
- For skins: As needed, use an oil resistant glove and protector.
- Other: As needed, use conductive safety shoes.

9. Physical and chemical properties (Except propellant)

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Content fluid</th>
<th>Appearance</th>
<th>Odor</th>
<th>pH</th>
<th>Melting point</th>
<th>Boiling point</th>
<th>Flash point</th>
<th>Ignition point</th>
<th>Explosive range</th>
<th>Vapor pressure</th>
<th>Vapor density</th>
<th>Density</th>
<th>Solubility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>liquid</td>
<td>Clear colorless</td>
<td>Characteristic odor</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>≤−18°C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.76 g/cm³ (20°C, Representative value)</td>
<td>Insoluble in water</td>
</tr>
</tbody>
</table>

- Not applicable or No information

10. Stability and reactivity (Except propellant)

<table>
<thead>
<tr>
<th>Stability</th>
<th>Stable under normal condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity (Self-reactive)</td>
<td>No oxidation, no self-reactivity, not pyrophoric</td>
</tr>
<tr>
<td>Reactivity (Mixed contact of hazardous)</td>
<td>Strong oxidizing, Strong alkali</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td>Other hazardous information</td>
<td>No information is available</td>
</tr>
</tbody>
</table>
11. Toxicological information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Acute toxicity (oral)</th>
<th>Acute toxicity (dermal)</th>
<th>Acute toxicity (gases)</th>
<th>Acute toxicity (vapors)</th>
<th>Acute toxicity (mists)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Exemption</td>
<td>Not classified</td>
<td>Unclassifiable</td>
</tr>
<tr>
<td>Isohexane</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Exemption</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Exemption</td>
<td>Not classified</td>
<td>Unclassifiable</td>
</tr>
<tr>
<td>Acetone</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Exemption</td>
<td>Not classified</td>
<td>Unclassifiable</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Not classified</td>
<td>Exemption</td>
<td>Unclassifiable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Skin corrosion /irritation</th>
<th>Serious eye damage/eye irritation</th>
<th>Respiratory sensitization</th>
<th>Skin sensitization</th>
<th>Germ cell mutagenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>Category 2</td>
<td>Category 2A-2B</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Not classified</td>
</tr>
<tr>
<td>Isohexane</td>
<td>Category 2</td>
<td>Category 2</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Not classified</td>
<td>Category 2B</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Acetone</td>
<td>Not classified</td>
<td>Category 2B</td>
<td>Unclassifiable</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Carcinogenicity</th>
<th>Reproductive toxicity</th>
<th>Specific target organ toxicity (single exposure)</th>
<th>Specific target organ toxicity (repeated exposure)</th>
<th>Aspiration hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>Not classified</td>
<td>Category 2</td>
<td>Category 2 (blood vessel system)</td>
<td>Not classified</td>
<td>Category 2</td>
</tr>
<tr>
<td>Isohexane</td>
<td>Unclassifiable</td>
<td>Category 2</td>
<td>Category 3 (Respiratory tract irritation, Narcotic effects)</td>
<td>Category 1 (Nervous system)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Unclassifiable</td>
<td>Category 1A</td>
<td>Category 3 (Respiratory tract irritation, Narcotic effects)</td>
<td>Category 1 (Liver)</td>
<td>Unclassifiable</td>
</tr>
<tr>
<td>Acetone</td>
<td>Not classified</td>
<td>Category 2</td>
<td>Category 3 (Respiratory tract irritation, Narcotic effects)</td>
<td>Category 2 (blood)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Category 3 (Narcotic effects)</td>
<td>Unclassifiable</td>
<td>Exemption</td>
</tr>
</tbody>
</table>

12. Ecological information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous to the aquatic environment (Acute)</th>
<th>Hazardous to the aquatic environment (Chronic)</th>
<th>Hazardous to the ozone layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>Category 1</td>
<td>Not classified</td>
<td>Exemption</td>
</tr>
<tr>
<td>Isohexane</td>
<td>Category 2</td>
<td>Unclassifiable</td>
<td>Exemption</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Exemption</td>
</tr>
<tr>
<td>Acetone</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Exemption</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Unclassifiable</td>
<td>Unclassifiable</td>
<td>Exemption</td>
</tr>
</tbody>
</table>
13. Disposal considerations
   Waste from residues : 1) Discard according to regulation of local government.
                        2) Business operator must dispose industrial waste by themselves or through an allowed industrial waste disposal company.

   Polluted container and package : After the content is completely used and the package is confirmed empty, dispose properly according to local and related disposal laws.

14. Transport information
   1) When transporting, confirm that the container is without leaks, take measures to avoid load collapse.
   2) “Keep fire away” for flammable aerosol.

   In common : According to the sections of the note on the handling and storage.
   Land transportation : According to Fire service act and Load act.
   Marine transportation : According to Ship safety act.
   Air transportation : According to Civil aeronautics act.

   Hazardous class and UN number
   UN number : 1950 (Aerosols, Flammable)
   Hazardous class : Class 2.1

   Emergency Response Guidebook
   Guide No. : 126 (Gases-Compressed or Liquefied (Including Refrigerant Gases))

15. Regulatory information
   Fire service act : Category IV, Class I petroleum (non-aqueous liquid), Hazard class II
   Industrial Safety and Health Act : Dangerous goods
                                    Inflammable substance
                                    Notifiable substances
                                    Cyclohexane
                                    Hexane
                                    Ethanol
                                    Acetone

   Ordinance on Prevention of Organic Solvent Poisoning : Not applicable

   PRTR : Not applicable
   Poisonous and Deleterious Substances Control Law : Not applicable
   High Pressure Gas Safety Act : Exemption

16. Other information including information on preparation and revision of the SDS
               Hazard communication of chemicals based on GHS-Labeling and Safety Data Sheet(SDS).
               (JIS Z 7253:2012)
               Raw material manufacturer's SDS.
               Mixture classification system based on the contents of two GHS revision(GHS version. METI).

*Note
Because we cannot control usage environment and conditions, we do not assume any responsibility for any losses or damages directly or indirectly caused from the use of this information. The contents of this data sheet are prepared based on currently available information and materials, therefore we do not guarantee data and evaluations of any kind. Furthermore it may be revised by new knowledge. All chemicals may have unknown hazards, therefore careful handling is recommended. Proper usage and decisions based on this product are at the user's own risk. This SDS is written according to Japanese local laws.