MATERIAL SAFETY DATA SHEET
Date of Issue : 18 November 2008

1. Identification of the product and the company
   Product Name : CYPOXE
   Company Name : PT. Kawaguchi Kimia Indonesia
   Office Address : Jl. Hayam Wuruk no. 44 Lt. II / 2B, Jakarta 11160, Indonesia.
   Tel. No : (62 – 21) 6498693, 6263477
   Fax No : (62 – 21) 6260973
   Email : kawamia@bit.net.id
   Intended Use : Hardening agent for the polymerization of unsaturated polyester resins.

2. Hazard and Harm Identification
   Classification : Organic peroxide type D. Inflammable solid.
   Hazardous : Heating generates fire and explosion.
   Harmful : Harmful if swallowed. Skin, mucous membrane and eyes are irritated.

3. Composition and Ingredients Information
   Classification : Mixture
   Chemical Name : Cyclohexanone Peroxide

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Chemical Formula</th>
<th>CAS No.</th>
<th>Content (wt%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone Peroxide</td>
<td>C_{12}H_{22}O_{5}</td>
<td>12262-58-7</td>
<td>48</td>
</tr>
<tr>
<td>Dimethyl Phthalate</td>
<td>C_{10}H_{10}O_{4}</td>
<td>131-11-3</td>
<td>28</td>
</tr>
<tr>
<td>Triethyl Phosphate</td>
<td>(C_{2}H_{5}O)_{3}PO</td>
<td>78-40-0</td>
<td>5</td>
</tr>
<tr>
<td>Various Additives</td>
<td></td>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

4. First Aid Measures
   General : Call a physician immediately.
   Inhalation : Remove to fresh air space. If difficulty in breathing, keep warm and get medical treatment immediately.
   Skin : Immediately wash skin with water and soap. If be unusual, get medical check.
   Eye : Immediately wash eyes with water for at least 15 minutes. After that get medical treatment. In case eyes to do contact lenses, if don't stick eyes, remove lenses then wash eyes.
Swallow:

In case be consciousness, immediately rinses out mouth then give a cup of water. After that get medical treatment. And don't induce vomiting.

In case be unconsciousness, immediately get medical treatment. At the time if vomiting occurs, the patient should lie on their left side while vomiting to reduce the risk of aspiration.

5. Fire Fighting Measures

Extinguishing Media:

Water spray, Dry chemical powder, CO₂, Alcohol resistant foam.

Hazardous decomposition, combustion products:

Carbon monoxide and poisonous gas by decomposition reaction.

Method of extinguish a fire:

Extinguish a small fire with powder or carbon dioxide then apply water to cool. Extinguish a big fire with water bar or spray or foam or reinforced liquid then apply water to cool. Escape the fire with many water.

Protect for the fire fighter:

Must wear proper protective equipment.

Extinguish a fire from the windward for avoids inhalation poisonous gas. Keep the safety distance because there is an explosion hazard.

6. Accidental Release Measures

Caution for Human:

Must wear proper protective equipment and work from the windward.

Stretch rope at leaking area and keep out except person concerned. Ventilate at leaking area, if necessary.

Caution for environment:

Don't allow direct to enter drain or water courses.

Method for cleaning up:

In case small, wipe off with cloth then burns in safety space immediately. In case large, stop an outflow with earth and sand then collect. Adsorbs remainder with sawdust, diatomite or dry sand then disposes of proper. Soaks water if keeps for the time.

Prevention for secondary disaster
Remove the sources of ignition in neighborhood immediately. Use the safety tools as don't generate sparks.

7. Handling and Storage

Handling:

Handle well in ventilated area. Avoid dry because be sensitivity for rubbing and shock. Wear proper protective equipment for guard eyes and skin. Avoid strong rubbing and shock. Eliminate all sources of ignition, and don't generate flames or sparks. Keep away from reducing agents, amines, acids, alkalies and heavy metal compounds.

Use materials of equipment stainless steel, glass lining, polyethylene. Don't use irons, copper compounds, leads, and rubbers. Take measures for static electricity as ground. Use explosion protected equipment. Wash empty container with water at once, after then soak in water and avoid the direct sunlight.

Storage:

Store in accordance with local and national regulations. Keep in the cool dark place of less than 30°C. Don't use fire. Keep away from other chemicals, and especially amines, acids, alkalies, heavy metal compounds and reduction agents. Take measures for the fall and the fall prevention. Must not put the horizontal and the reverse.

Container:

Use materials stainless steel, glass lining, polyethylene for avoids decomposition.

8. Exposure Controls and Human Protection

Equipment:

Set the local exhaust ventilation when gas and mist are generated. Set the washing tool for eyes and body. Use explosion protected equipments. Take measures the static electricity.

Allowable Concentration
Short Term Exposure Limit (STEL):

Don't establish.

Time Weighted Average (TWA):


Human Protection

Respiration Organs:

Wear the organic gas proof mask.

Hand:

Wear the unpermeation gloves.

Eyes:

Wear the glasses or goggles.

Skin and body:

Wear the shirt with long sleeves and safety shoes.

9. Physical and Chemical Properties

Appearance:

Yellow Paste

Color:

Yellow

Odor:

Characteristic odor

Melting point:

No data

Coagulating point:

No data

Boiling point:

No data

Flash point:

36°C (closed cup, Seta direct vent type)

Ignition point:

360°C (ASTM E 659)

Specific gravity:

1.10 at 20°C

Insoluble:

Water
Soluble

Ketones, Alcohols, Esters

10. Stability and Reactivity

Stability:

Instability to heat. Strat decomposition at 115°C. Avoid the direct sunlight and strong rubbing and shock. Keep away fire and heat.

Reactivity:

Self reactiveness. Promoted decomposition with amines, acid, alkalies, heavy metal compounds and reduction agents. Avoid using materials of iron, copper compound and rubber.

11. Toxicological Information

Acute toxicity:

The following data are the diluted to 60% solution with dimethyl phthalate.

Oral:

Cyclohexanone peroxide Rat
LD50 1.08g/Kg

Triethyl phosphate Mouse
LD50 1.6g/Kg

Dimethyl phthalate Mouse
LD50 6.8g/Kg

Ethyl acetoacetate Mouse
LD50 5.1g/Kg

Ethyl acetate Rat
LD50 5.6g/Kg
12. Ecological Information

Toxicity to ecology: No data

Remain / Decomposition: No data

Accumulation: No data

13. Disposal Consideration

General: It disposes properly according to the law in each country and the region.

Incinerate: Use proper incinerator. When the incinerator is done, it incinerates little by little mixing it with an inert high boiling point solvent. Or, the diatom soil and the vermiculite, etc. are made to adsorb it and it burns. If there is no proper incinerator, the consignment disposal is done to the industrial waste trader who obtains permission.

Contaminated packing: Removed contents completely after then incinerated.

14. Transport Information

General: It disposes properly according to the law in each country and the region.

Classification: 5.2 Organic Peroxide

UN Number: 3106 Organic Peroxide type D solid

Sea transport: 
Follow method of transport, be provided in IMDG.

**Air transport**

Follow method of transport, be provided in IATA.

**Safety measures**

Take measures for the fall and the fall prevention, for prevent leakage. The top of container turned upward, must not put the horizontal and the reverse. When transport, keep out inflammable. Avoid direct sunlight and heat.

15. Application of Regulations

**Fire Defense Law**

Classification 5.2 self reactivity

**Industrial Safety and Health Law**

Dangerous substances

**Safety of Vessel law**

Oxidized material. Organic peroxide

**Aviation law**

Organic Peroxide. (It is forbided to air transportation).

16. Other Information

Handle with care because the evaluation isn't necessarily entirety for hazard and harmful.