Material Safety Data Sheet

According to Regulation (EU) No. 1907/2006, Annex II,
Amended by REGULATION (EU) No 453/2010
Regulation(EU) No. 1272/2008

Revision date: 24 / 05 / 2011

XZ-EFPX220

1 Identification of the substance/preparation and of the company

Product details

Chemical name: Phosphoric acid, esters, 1,4-phenylene tetraphenyl ester
Trade name: XZ-EFPX220
Application of the substance: EFPX220 is used as flame retardant in engineering plastic such as PC, PC/ABS, HIPS/PPO and ABS.

Manufacturer/Supplier: SHANDONG BROTHER SCI.&TECH. CO., LTD
Tel: +86-536-5268256
Fax: +86-536-5268259

Information in case of emergency:
Tel: +86-536-5456996

2 Composition/information on ingredients

Chemical characterization

Description: Mixture of substances listed below with additions.

<table>
<thead>
<tr>
<th>Components Number</th>
<th>CAS Number</th>
<th>Approximate (%) by Wt. Or Vol.</th>
<th>GHS-Classification</th>
<th>Workplace Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid, esters, 1,4-phenylene tetraphenyl ester</td>
<td>51732-57-1</td>
<td>&gt;95%</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Phosphoric acid, triphenyl ester</td>
<td>115-86-6</td>
<td>&lt;5%</td>
<td>-</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

3. Hazards identification

Potential Health Effects:

Eye: The product is not classified as harmful by eye contact.
Skin: The product is not classified as harmful by skin contact.
Ingestion: The product is not classified as harmful by ingestion.
Inhalation: The product is not classified as harmful by inhalation.

4 First aid measures

Persons using these products should consult a physician or other medical professional if an accident involving these products in injury. Specific first-aid measures are as follows:
.Eye Contact:
Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

.Skin Contact:
Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

.Inhalation:
In case of inhalation, remove person to fresh air Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

.Ingestion:
If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately. NOTE: Never give an unconscious person anything to drink.

5 Fire-fighting measures

.Extinguishing Media:
Use water, dry chemical, carbon dioxide or chemical foam.

.Special Fire Fighting Procedures:
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA). Contain fire fighting water to prevent entry into water or drainage systems.

.Unusual Fire and Explosion Hazards:
When heated to decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide and Phosphorus Oxides.


.Explosion Sensitivity to Static Discharge: Not available.

6 Accidental release measures

.Release Response:
Soak up with sand or other suitable absorbant and dispose of as solid waste. Collect in suitable and properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

.Measures for environmental protection: Prevent product from entering drains, ditches and rivers.

7 Handling and storage

.Handling:
..Information for safe handling:
Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

..Information about fire- and explosion protection:
Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Take precautionary measures against static discharges.

.Storage:
..Requirements to be met by storerooms and receptacles:
Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store in accordance with good industrial practices.

..Information about storage in one common storage facility:
Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.
Further information about storage condition: Not available.

8 Exposure controls/personal protection

**Engineering Controls:**
Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

**Personal Protective Equipment:**
- **Protection of Hands:** Neoprene gloves.
- **Protection of Eyes:** Chemical safety goggles.
- **Protection of Respiratory Tract:** In case of insufficient ventilation wear suitable respiratory equipment.
- **Protection of Body:** Use protective clothing impervious to this material.

**General protective and hygienic measures:**
Safety shower and eye bath should be provided. Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

**Material of Gloves:** None specific recommended.

9. Physical and chemical properties

**General Information**
- **Form:** Solid powder
- **Color:** White
- **Odor:** Nearly odorless

**Change in condition**
- **Melting point/Melting range:** >90°C
- **Boiling point/ Boiling range:** > 400°C at 1.013 hPa
- **Flash point:** Not available
- **Self-Igniting:** Not self-ignitable but Ignition temperature
- **Danger of explosion:** Not explosive/Not flammable
- **Vapour pressure:** Not available
- **Partition coefficient (n-octanol / water):** Not available

**Density:**
- **Relative density:** Not available
- **Vapor density:** Not available
- **Evaporation rate:** Not available

**Solubility in/Miscibility with Water:** Solubility in water 100 mg/l at 30°C

**PH-Value:** Not available

**Viscosity:** Not available

**Dynamic:** Not available

10 Stability and reactivity

**Chemical Stability:** Stable under normal conditions.

**Dangerous Decomposition Products:** Carbon dioxide and carbon monoxide Phosphorus oxides.

**Hazardous Polymerizations:** Not expected to occur.

**Conditions to Avoid:** Exposure to air and moisture.

11 Toxicological information
### Potential Health Effects:

- **Acute Effect:** Not available
- **Chronic Effects:** No evidence of adverse from available information.
- **Sensitization:** Not available.

### LD50:
- **LD50 (Oral, Rat):** > 6000 mg/kg
- **LD50 (Dermal, Rabbit):** > 3000 mg/kg
- **LC50 (Inhalation, Rat):** >4.5mg/l

### 12 Ecological information

- **Ecotoxicity:**
  A test for ready biodegradability was conducted complying with the Modified MITI (OECD TG 301C) and the results indicated that the chemical degraded very slowly under the testing conditions. Considering that the pass level for ready biodegradability is 70% removal of DOC production within 28 days set in OECD TG 301 (1992), it indicates that the PX220 is not readily biodegradable.

- **Effect of material on plants or animals:**
  - 96 Hour LC50, Fish > or = 2.0 mg/l (Rainbow Trout)
  - 96 Hour LC50, Fish > or = 1.0 mg/l (Sheepshead minnow)
  - 96 Hour LC50, Mysis shrimp > or = 0.33 mg/l

### 13 Disposal considerations

- **Waste Disposal Methods:** Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing use or contamination of this product may change the waste management options. According to local regulations, Federal and official regulations.

- **Recommendation Disposal must be made according to official regulations.**

### 14 Transport information

- **These products are not hazardous as defined by EU related Regulation and Directive.**
- **Proper shipping name:** Not available.
- **Hazard class number and description:** Not available.
- **Packing Group:** Not available.
- **UN Indentification:** Not available.
- **Marine Pollutant:** Not available.
- **Attentions:** Not available.

### 15 Regulatory information

- **Labeling according to the GHS (Globally Harmonized System of Classification and Labelling of Chemicals):**
  - **GHS label symbols:** No pictogram is used.
  - **Hazard Statement:** Not available
  - **Precautionary Statement:** Not available
- **Other National Regulations:**
  - **SARA:** Not available.
  - **ICAO/IATA:** Not available.
16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Emergency Telephone Number:

Department issuing MSDS:

※ Remark:

This MSDS is prepared by Product safety department of SHANDONG BROTHER.

Contact: +86-536-5268256 wyb@brotherindustry.com WWW.OCEANCHEMICAL.COM