Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name: Benzoyl Peroxide, For Synthesis

Manufacturer: EM Science
A Division of EM Industries
P.O. Box 70
480 Democrat Road
Gibbstown, N.J. 08027

For More Information Call
856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

Synonym: DIBENZOYL PEROXIDE
Material Uses: Analytical reagent.
Chemical Family: Organic peroxide.

Product Code: BX0470
Effective Date: 10/29/2001

In Case of Emergency Call
800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Section 2. Composition and Information on Ingredients

Component: BENZOYL PEROXIDE
CAS #: 94-36-0
% by: 100

Section 3. Hazards Identification

Physical State and Appearance: Solid. (Insoluble solid is moistened with water.)

Emergency Overview:
DANGER!
MAY CATCH FIRE AND EXPLODE.
FLAMMABLE SOLID.
OXIDIZER.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: RESPIRATORY TRACT, SKIN, EYES, EYE, LENS OR CORNEA.
Inhalation. Ingestion.

Routes of Entry

Potential Acute Health Effects:
Eyes: Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.
Skin: Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Inhalation: Hazardous in case of inhalation (lung irritant).
Ingestion: Ingestion can cause nausea and vomiting.

Potential Chronic Health Effects
Carcinogenic Effects: This material is not known to cause cancer in animals or humans.

Medical Conditions Aggravated by Overexposure:
Additional information See Toxicological Information (section 11)
Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4. First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Section 5. Fire Fighting Measures

Flammability of the Product: Product will burn.
Auto-Ignition Temperature: 80.05°C (176.1°F)
Flash Points: CLOSED CUP: 79.9°C (175.8°F).
Flammable Limits: Not available.
MSDS

Products of Combustion
These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances
Highly flammable in presence of open flames, sparks and static discharge, of shocks, of heat.

Explosion Hazards in Presence of Various Substances
Risks of explosion of the product in presence of static discharge:
Highly flammable in presence of open flames, sparks and static discharge.
Highly explosive in presence of open flames, sparks and static discharge.

Risks of explosion of the product in presence of mechanical impact:
Highly flammable in presence of shocks.
Highly explosive in presence of shocks.

Explosive Flammable solid. Oxidizing Material
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog. Do not use water jet. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Do not fight fire. Evacuate surrounding areas. Use flooding quantities of water. Avoid contact with organic materials.

Be sure to use an approved/certified respirator or equivalent.

Fire Fighting Media and Instructions
Not available.

Protective Clothing (Fire)
Extremely explosive when dry.

Section 6. Accidental Release Measures
Small Spill and Leak
Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Stop leak if without risk. Do not touch damaged container or spilled material. Do not clean-up or dispose except under supervision of a specialist. Do not operate radio transmitters within 100 m of an electric detonator. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
No specific spill kit required for this product.

Large Spill and Leak

Spill Kit Information

Section 7. Handling and Storage
Handling
Keep away from heat, sparks and flame. Store in tightly closed container. Avoid contact with combustible materials.
Avoid shock and friction. Keep moist to reduce explosive properties.
Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles.

Storage

Section 8. Exposure Controls/Personal Protection
Engineering Controls
Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection
Eyes Splash goggles.
Body Lab coat.
Respiratory Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hands Gloves.
Feet Not applicable.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name
BENZOYL PEROXIDE

Exposure Limits
Austria (Austria, 1995).
PEAK: 10 mg/m³ 8 times per shift, Period: 5 minute(s).
MAK: 5 mg/m³
Belgium Minister of Labour (Belgium, 1998).
VL: 5 mg/m³
BAUA (Germany, 1997).
PEAK: 5 mg/m³
MAK: 5 mg/m³
DK-Arbejdstyksinet (Denmark, 1996).
GV: 5 mg/m³
Tyterveyslaitos (Finland, 1998).
STEL: 10 mg/m³
TWA: 5 mg/m³
INRS (France, 1996).
VME: 5 mg/m³
National Authority for Occupational Safety/Health (Ireland, 1999).
OEL: 5 mg/m³


12/17/02
Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Physical State and Appearance</td>
<td>Solid. (Insoluble solid is moistened with water.)</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>242.24 g/mole</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C14-H10-O4</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling/Condensation Point</td>
<td>Decomposes.</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>Decomposes.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.334 (Water = 1)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>LogKow</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Very slightly soluble in water.</td>
</tr>
</tbody>
</table>

Section 10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and Reactivity</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Incompatibility with Various Substances</td>
<td>Reactive with reducing agents, acids.</td>
</tr>
<tr>
<td>Rem/Incompatibility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Not available.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
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</table>

Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTECS Number</td>
<td>DM8575000</td>
</tr>
<tr>
<td>Toxicity</td>
<td>Benzoyl Peroxide, For Synthesis.</td>
</tr>
<tr>
<td>Chronic Effects on Humans</td>
<td>Acute oral toxicity (LD50): 5700 mg/kg [Mouse].</td>
</tr>
<tr>
<td>Acute Effects on Humans</td>
<td>Not available.</td>
</tr>
<tr>
<td>Synergetic Products</td>
<td>Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation (lung irritant).</td>
</tr>
<tr>
<td>(Toxicologically)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Draize Test (Rabbit):</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Eye: 500mg/24h. Reaction: Mild.</td>
</tr>
<tr>
<td>Carcinogenic Effects</td>
<td>Hazardous in case of skin contact (sensitizer).</td>
</tr>
<tr>
<td>Toxicity to Reproductive System</td>
<td>This material is not known to cause cancer in animals or humans.</td>
</tr>
<tr>
<td>Teratogenic Effects</td>
<td>Not available.</td>
</tr>
<tr>
<td>Mutagenic Effects</td>
<td>Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS).</td>
</tr>
</tbody>
</table>

Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotoxicity</td>
<td>Not available.</td>
</tr>
<tr>
<td>BOD5 and COD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Toxicity of the Products of Biodegradation</td>
<td>The product itself and its products of degradation are not toxic.</td>
</tr>
</tbody>
</table>
Section 13. Disposal Considerations
EPA Waste Number: D001 D003
Specified Technology - Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14. Transport Information
DOT Classification
TDG Classification
IMO/IMDG Classification
ICAO/IATA Classification

Section 15. Regulatory Information
U.S. Federal Regulations
TSCA 8(b) inventory: BENZOYL PEROXIDE
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: BENZOYL PEROXIDE
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: BENZOYL PEROXIDE: Fire Hazard, reactive, Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: BENZOYL PEROXIDE
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.
CLASS B-4: Flammable solid.
CLASS C: Oxidizing material.
Class D-2B: Material causing other toxic effects (TOXIC).
CEPA DSL: BENZOYL PEROXIDE
This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

WHMIS (Canada)

International Regulations
EINECS
202-327-6
DSCL (EEC)
R2- Risk of explosion by shock, friction, fire or other sources of ignition.
R36- Irritating to eyes.
R43- May cause sensitization by skin contact.

International Lists
Australia (NICNAS): BENZOYL PEROXIDE
Japan (MITI): BENZOYL PEROXIDE
Korea (TCCL): BENZOYL PEROXIDE
Philippines (RA6969): BENZOYL PEROXIDE
China: No products were found.
Pennsylvania RTK: BENZOYL PEROXIDE: (environmental hazard, generic environmental hazard)
Massachusetts RTK: BENZOYL PEROXIDE
New Jersey: BENZOYL PEROXIDE
California prop. 65: No products were found.

Section 16. Other Information
National Fire Protection Association (U.S.A.)
Health 4
Fire Hazard 4
Reactivity OXY
Specific Hazard

Changed Since Last Revision +

Notice to Reader
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