MATERIAL SAFETY DATA SHEET

1. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS#</th>
<th>CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,6-Dinitro-2-sec-butyl phenol</td>
<td>88-85-7</td>
<td>≥ 70</td>
</tr>
<tr>
<td>Ethyl benzene</td>
<td>100-41-4</td>
<td>≥ 30</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Danger! Toxic. Flammable liquid. May be irritating to respiratory system, skin and eyes. Harmful by repeated inhalation of mists. Possible birth defect hazard. May cause birth defects based on animal data. Risk of explosion if heated under confinement.

3. FIRST AID MEASURES

INHALATION
Remove to fresh air. If breathing is difficult, administer oxygen. Obtain medical attention if symptoms persist.

SKIN CONTACT
Wash skin with water and soap. Obtain medical attention if irritation persists.

EYE CONTACT
Immediately flush eyes with water and continue washing for several minutes. Obtain medical attention if discomfort persists.

SWALLOW
Give water to drink. Induce vomiting. Obtain medical attention immediately.

4. FIRE FIGHTING MEASURES

FLASH POINT: 35 ℃ (Tag closed cup)
AUTOIGNITION TEMPERATURE: Not determined
NFPA CLASSIFICATION

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Special provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>1</td>
<td>ND</td>
</tr>
</tbody>
</table>

SPECIAL FIRE FIGHTING PROCEDURE
Do not discharge extinguishing waters into steams, rivers and lakes. Fires
involving this material should be fought with fixed automatic equipment only.

**SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS**

Body covering protective clothing, full "turn-out" gear. Self-contained breathing apparatus.

**EXTINGUISHING MEDIA**

*Suitable:*
- Large fires—alcohol-type foam or universal-type foams
- Small fires—CO₂, dry chemical

*Unsuitable:*
- Water jets

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Vapor may be ignited by static sparks. There is a potential for an explosive decomposition in a fire situation.

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5. **ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS**

Eliminate sources of ignition. Evacuate unnecessary personnel. Avoid all contact with material. Wear suitable protective equipment.

**ENVIRONMENTAL PRECAUTIONS**

Prevent from entering sewer system, surface water or soil.

**METHODS FOR CLEANING UP**

Observe government regulations.

*Small spills:* Absorb on inert material such as sand, earth, vermiculite.
  - Collect for disposal.

*Large spills:* Dike to contain spill.
  - Pump excess material into suitable container (metal drums, metal tank, or such).

6. **HANDLING AND STORAGE**

**HANDLING**

Wear recommended personal protection equipment. Warn personnel about the dangers of the product. Keep container tightly closed. Take precautionary measures against static discharges. Electrically bond and ground all containers and equipment.

**STORAGE**

Store in a cool, dry place. Keep away from heat, sparks and flame.

7. **EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**PERSONAL PROTECTION**

**RESPIRATORY PROTECTION**

Toxic vapors may be evolved. Respirator with gas-filter and specific cartridge.

**HANDS PROTECTION**
Chemical resistant protective gloves.

**EYE PROTECTION**
- Full face shield.

**SKIN AND BODY PROTECTION**
- Chemical resistant protective clothing and boot

**OTHER PROTECTIVE EQUIPMENT**
- Eye bath, safety shower.

**INDUSTRIAL HYGIENE MEASURES**
- Before eating, drinking or smoking, wash hands and face thoroughly with soap and water. Immediately remove contaminated clothing.

**ENGINEERING CONTROLS**

**VENTILATION**
- Provide local exhaust or process enclosure ventilation system.

### 8. PHYSICAL AND CHEMICAL PROPERTIES

**FORM**
- Liquid

**COLOR**
- Yellow to brown

**ODOR**
- Characteristic Solvent

**BOILING POINT**
- 136°C at STP unless specified below.

**FLASH POINT**
- 35°C

**AUTOIGNITION TEMP.**
- Not determined

**EXPLOSIVE LIMIT**
- Not determined

**VAPOR PRESSURE**
- 13.3hPa (10.00mmHg)

**VAPOR DENSITY**
- 3.7

**DENSITY**
- 1.15g/cm³

**SOLUBILITY IN ORGANIC SOLVENT**
- Soluble

**VISCOSITY**
- 6.66 cps at 20°C

### 9. STABILITY AND REACTIVITY

**STABILITY**
- This product is stable under normal storage and handling conditions.

**STABILITY—CONDITIONS TO AVOID**
- Exothermic decomposition may occur at elevated temperatures.

**INCOMPATIBLE MATERIALS**
- Strong acids.
- Strong bases.
- Oxidizing agents.

**HAZARDOUS COMBUSTION PRODUCTS**
- Irritating fumes.
- Oxides of carbon.
Oxides of nitrogen.
Toxic gases/vapors.

**HAZARDOUS POLYMERIZATION**
Will not occur.

**10. TOXICOLOGICAL INFORMATION**

**ACUTE TOXICITY**
Swallowing: LD50-Rat  Result: 40mg/kg
Skin absorption: LD50-Rabbit  Result: 50mg/kg
Inhalation: Not determined

**CHRONIC TOXICITY**
Swallowing: Chronic-Rabbit
  Result: 1-10mg/kg
  Exposure time: 24h
  Remark: May cause birth defects.
NOEL-Rabbit
  Result: 3mg/kg
  Exposure time: 24h

**SKIN IRRITATION**
Skin contact: Species-Rabbit
  Result: slight irritation

**EYE IRRITATION**
Eye contact: Species-Rabbit
  Result: Severe eye irritant

**TEST RESULT**
Sensitization: Non sensitizing

**11. ECOLOGICAL INFORMATION**

**ACUTE TOXICITY FISH**
-LC50-Fathcad Minnow
  Result: <0.01 mg/l
  Exposure time: 96h
-LC50-Rainbow trout
  Result: <0.01 mg/l
  Exposure time: 96h

**12. DISPOSAL CONSIDERATIONS**

**GENERAL**
Prevent waste from contaminating surrounding environment. Keep personnel away. Discard any product residue, disposable container or liner in an
environmentally acceptable manner in full compliance with national and local regulations.

**NON-CLEANED PACKAGES**
DO NOT REUSE CONTAINER! Dispose of in the same way as product. Do not cut or weld on or near any container. Do not pressurize drums.

**13. TRANSPORT INFORMATION**

<table>
<thead>
<tr>
<th>UN NO.</th>
<th>2929</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>6.1</td>
</tr>
<tr>
<td>PACKING GROUP</td>
<td>II</td>
</tr>
<tr>
<td>IMDG GRADE</td>
<td>6.1</td>
</tr>
</tbody>
</table>

**14. REGULATION**

**E.E.C:** According to the standard of E.E.C.

<table>
<thead>
<tr>
<th>EINECS Nr.</th>
<th>4,6-Dinitro-2-sec-butyl phenol 201-861-7</th>
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<tbody>
<tr>
<td></td>
<td>Ethyl benzene 202-849-4</td>
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</table>

**FRENCH STANDARD:** ND

**HAZARD SYMBOLS:** T (Toxic) N (Environmentally dangerous)

**RISK PHRASES**
- **R61:** May cause harm to the unborn child.
- **R62:** Possible risk of impaired fertility.
- **R24/25:** Toxic in contact with skin and if swallowed.
- **R36:** Irritating to eyes.
- **R44:** Risk of explosion if heated under confinement.
- **R50/53:** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**SAFETY PHRASES**
- **S53:** Avoid exposure—obtain special instructions before use.
- **S45:** In case of accident or if you feel unwell, seek medical advice immediately.
- **S60:** This material and its container must be disposed of as hazardous wasted.
- **S61:** Avoid release to the environment. Refer to Special Instructions/Safety Data Sheets.

**15. OTHER INFORMATION**

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make
their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.