**Section 1 - General Information**

Chemical Name: 4-Keto all-trans-Retinoic Acid  
CAS Reg. Number: 38030-57-8  
Preparation Date/Revision Date: 5/1/2009  
Manufacturer's Name: Toronto Research Chemicals Inc., 2 Brisbane Rd., North York, ON Canada, M3J 2J8  
Telephone Number: 416-665-9696  
Fax Number: 416-665-4439

**Section 2 - Hazardous Ingredients/Identity Information**

Target Organ(s): Eyes. Nerves. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. Do Not Breathe Dust.

**Section 3 - Physical/Chemical Characteristics**

Boiling Point: N/A  
Appearance and Odor: yellow to orange crystalline powder  
Vapor Pressure: N/A  
Specific Gravity (H2O=1): N/A  
Solubility in Water: N/A  
Melting Point: N/A  
Evaporation Rate (ButylAcetate=1): N/A  
Vapor Density: N/A

**Section 4 - Reactive Data**

Stability: stable, light and moisture sensitive store under inert gas  
Incompatibility (Materials to Avoid): strong oxidizing agents  
Conditions to Avoid: protect from light  
Hazardous Decomposition or Byproducts: carbon monoxide, carbon dioxide  
Hazardous Polymerization: will not occur

**Section 5 - Control Measures**

Respiratory Protection: Niosh/Msha approved respirator  
Ventilation: hood  
Protective Gloves: Chemical-resistant gloves  
Eye Protection: safety goggles  
Other Protective Clothing: lab coat or apron  
Other Protection: eye safety wash

**Section 6 - First Aid Measures**
**Inhalation:**
Remove to fresh air. If breathing becomes difficult, call a Physician.

**Skin:**
Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

**Ingestion:**
If swallowed, wash out mouth with water provided person is conscious. Call a Physician.

**Eyes:**
flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a Physician.

**Section 7 - Health Hazard Data**

**Health Hazards (Acute and Chronic):**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Exercise due care. **ROUTE OF EXPOSURE Skin Contact:** May cause skin irritation. **Skin Absorption:** May be harmful if absorbed through the skin. **Eye Contact:** May cause eye irritation. **Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. **Ingestion:** May be harmful if swallowed. A metabolite of all-trans-Retinoic Acid, a ligand for both the retinoic acid receptor (RAR) and the retinoid X receptor (RXR).

**Medical Conditions Generally Aggravated by Exposure:**
Gastrointestinal; Musculo-Skeletal; Skin & Appendages; Immunological including Allergic; Paternal effects; Effects on Fertility; Effects on Embryo or Fetus; Specific Development abnormalities; Effects on Newborn.

**Section 8 - Precautions for Safe Handling and Use**

**Steps to be Taken in Case Material is Released or Spilled:**
wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. sweep up, place in a bag and hold for waster disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

**Waste Disposal Method:**
dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations

**Precautions to Be Taken in Handling and Storage:**
wear appropriate NIOSH/MSHA-approved respirator. Chemical-resistant gloves, safety goggles, other protective clothing. use only in a chemical fume hood. Oxidizes in the presence of air, store under nitrogen.

**Section 9 - Fire and Explosion Hazard Data**

**Extinguishing Media:**
water spray. Carbon Dioxide, dry chemical powder or appropriate foam.

**Special Fire Fighting Procedures:**
wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Unusual Fire and Explosion Hazards:**

**Section 10 - Transportation Information and regulatory information**

**DOT Proper Shipping Name:** None Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport. **IATA Non-Hazardous for Air Transport:** Non-hazardous for air transport.