

Material Safety Data Sheet

- **1 Identification of substance**

- **Product details**
- **Trade name Erbium (III) oxide**

- **2 Composition/Data on components:**

- **Chemical characterization:**
 - **Designation: (CAS#)**
Erbium (III) oxide (CAS# 12061-16-4), 100%
 - **Identification number(s):**
 - **EINECS Number:** 235-045-7

- **3 Hazards identification**

- **Hazard designation:** - void
- **Information pertaining to particular dangers for man and environment**
Not applicable

- **4 First aid measures**

- **After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. Seek immediate medical advice.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly. Seek immediate medical advice.
- **After eye contact**
Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing** Seek medical treatment.

- **5 Fire fighting measures**

- **Suitable extinguishing agents**

Use fire fighting measures that suit the environment.

- **Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

- **6 Accidental release measures**

- **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

- **Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

- **Measures for cleaning/collecting:** Collect mechanically.

- **Additional information:**

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

- **7 Handling and storage**

- **Handling**

- **Information for safe handling:**

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

No special precautions necessary if used correctly.

- **Information about protection against explosions and fires:**

The product is not flammable

- **Storage**

- **Requirements to be met by storerooms and containers:**

No special requirements.

- **Information about storage in one common storage facility:**

Do not store together with acids.

- **Further information about storage conditions:**

This product is hygroscopic.

Protect from carbon dioxide.

Avoid contact with air / oxygen.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

- **8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

- **Components with critical values that require monitoring at the workplace:**

Not required.

- **Additional information:** No data

- **Personal protective equipment**

- **General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

- **Breathing equipment:** Use breathing protection with high concentrations.

- **Protection of hands:** Impervious gloves

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing.

- **9 Physical and chemical properties:**

- **General Information**

- **Form:** Powder

- **Colour:** Pink

- **Smell:** Odourless

- **Value/Range Unit Method**

- **Change in condition**

- **Melting point/Melting range:** 2400 ° C

- **Boiling point/Boiling range:** Not determined

- **Sublimation temperature / start:** Not determined

- **Flash point:** Not applicable

- **Inflammability (solid, gaseous)** Product is not inflammable.

- **Ignition temperature:** Not determined

- **Decomposition temperature:** Not determined

- **Danger of explosion:** Product is not explosive.

- **Critical values for explosion:**

- **Lower:** Not determined

- **Upper:** Not determined

- **Steam pressure:** Not determined
- **Density** at 20 ° C 8.64 g/cm³
- **Solubility in / Miscibility with**
- **Water:** Insoluble

- **10 Stability and reactivity**
 - **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
 - **Materials to be avoided:**
Acids
Air
Carbon dioxide
 - **Dangerous reactions:** No dangerous reactions known
 - **Dangerous products of decomposition:** Metal oxide

- **11 Toxicological information**
 - **Acute toxicity:**
LD/LC50 values that are relevant for classification:
Oral: LD50: >5000 mg/kg (rat)
Irritation of eyes: mild: 100 mg (rbt)
 - **Primary irritant effect:**
 - **on the skin:** Powder: irritant effect
 - **on the eye:** Powder: irritant effect
 - **Sensitization:** No sensitizing effect known.
 - **Additional toxicological information:**
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

- **12 Ecological information:**
 - **General notes:**
Do not allow material to be released to the environment without proper governmental permits.
Generally not hazardous for water.

- **13 Disposal considerations**

- **Product:**
- **Recommendation**
Consult state, local or national regulations for proper disposal.
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.

- **14 Transport information**

- **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**
- **ADR/RID-GGVS/E Class:** None
- **Maritime transport IMDG/GGVSea:**
- **IMDG/GGVSea Class:** None
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** None
- **Transport/Additional information:**
Not dangerous according to the above specifications.

- **15 Regulatory information**

- **Designation according to EC guidelines:**
Observe the normal safety regulations when handling chemicals
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **National regulations**
- **Information about limitation of use:**
For use only by technically qualified individuals.
- **Water hazard class:** Generally not hazardous for water.

- **16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Recent Research & Development for Erbium Oxide

- The erbium laser: the "Star Wars" of dentistry.
Alpha Omegan. 2006;99(3):128-31. No abstract available.
- Cavity-ringdown molecular spectroscopy based on an optical frequency comb at 1.45-1.65 μm .
Opt Lett. 2007 Feb 1;32(3):307-9.
- Fractional Photothermolysis: Treatment of Facial and Nonfacial Cutaneous Photodamage with a 1,550-nm Erbium-Doped Fiber Laser.
Dermatol Surg. 2007 Jan;33(1):23-8.
- Marginal quality in enamel and dentin after preparation and finishing with an Er:YAG laser.
Am J Dent. 2006 Dec;19(6):337-42.
- [Preparation and photoluminescence investigation of erbium-doped zinc oxide nanocrystalline]
Guang Pu Xue Yu Guang Pu Fen Xi. 2006 Oct;26(10):1806-9. Chinese.
- Treatment of gingival hyperpigmentation by erbium-doped:yttrium, aluminum, and garnet laser for esthetic purposes.
J Periodontol. 2007 Jan;78(1):177-84.
- Clinical and radiological course in apicoectomies with the Erbium:YAG laser.
Med Oral Patol Oral Cir Bucal. 2007 Jan 1;12(1):E65-9.
- Treatment of periungual vitiligo with Erbium-YAG-laser plus 5-fluorouracil: a left to right comparative study.
J Cosmet Dermatol. 2006 Jun;5(2):135-9.
- Generation of 47-fs pulses directly from an erbium-doped fiber laser.
Opt Lett. 2007 Jan 1;32(1):41-3.
- 10-W-level diode-pumped compact 2.78 μm ZBLAN fiber laser.
Opt Lett. 2007 Jan 1;32(1):26-8.