


Plasmaterials, Inc.  
 2268 Research Drive  
 Livermore, CA 94550  
 Ph: (925) 447-4030 Fx: (925) 447-4031  
 http://plasmaterials.com

## SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION <b>Y2O3</b>		PRODUCT NAME <b>Yttrium Oxide</b>
SUPPLIER: <b>Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030</b>	RECOMMENDED USE: <b>Laboratory Chemicals Scientific Research</b>	EMERGENCY TELEPHONE NUMBERS <b>US: 001-800-424-9300 Europe: 001-703-527-3887</b>

Section 2- HAZARD(S) IDENTIFICATION	
<b>Physical Hazards:</b> Not Classified	
<b>Serious Eye Irritation/Eye Damage:</b> Category 2A (H319)	<b>Environmental Hazards:</b> Not Classified
<b>Skin Corrosion/Irritation:</b> Category 2 (H315)	<b>OSHA Defined Hazards:</b> Not Classified
<b>Specific Target Organ Toxicity – single exposure:</b> Category 3 (H335) Respiratory Tract Irritation	
<b>LABEL ELEMENTS: Signal Word: Warning</b>	
	
<b><u>HAZARD STATEMENTS</u></b>	
-H315: Causes skin irritation -H319: Causes serious eye irritation -H335: May cause respiratory irritation	
<b><u>PRECAUTIONARY STATEMENTS</u></b>	
-P261: Avoid breathing dust/fume/gas/mist/vapors/spray -P264: Wash face, hands and any exposed skin thoroughly after handling -P271: Use only outdoors or in a well-ventilated area -P280: Wear protective gloves, protective clothing, eye protection and face protection -P302+P352: IF ON SKIN: Wash with plenty of water -P304+P340: IF INHALED: Remove victim to fresh air and keep comfortable for breathing -P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. -P312: Call a poison center/doctor if you feel unwell -P332+P313: IF SKIN IRRITATION OCCURS: Get medical advice/attention -P337+P313: IF EYE IRRITATION PERSISTS: Get medical advice/attention -P362+P364: Take off contaminated clothing and wash it before reuse -P403+P233: Store in a well-ventilated place. Keep container tightly closed. -P405: Store locked up -P501: Dispose of contents/container in accordance with local/regional/national/international regulations	
<b>Hazards not otherwise classified (HNOC):</b>	
-None identified	

### Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Yttrium Oxide	1314-36-9	225.81 g/mol

### Section 4- FIRST AID MEASURES

**GENERAL ADVICE:** If exposed or concerned, get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Move out of dangerous area.

**INHALATION:** Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Consult a physician if symptoms develop or persist.

**SKIN CONTACT:** Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing before reuse.

**EYE CONTACT:** Immediately flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**INGESTION:** Rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

**MOST IMPORTANT SYMPTOMS/EFFECTS:** The most important known symptoms and effects are described in the labeling (see section 2). Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin Irritation. May cause redness and pain.

#### INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

**NEEDED:** No data available

### Section 5- FIREFIGHTING MEASURES

#### Suitable Extinguishing Media:

Water Fog, Foam, Dry Chemical Powder, Carbon Dioxide

#### Unsuitable Extinguishing Media:

No data available

#### Specific Hazards Arising from the Chemical:

During fire, gases hazardous to health may be formed.

#### Protective Equipment & Precautions for Firefighters:

As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

#### Firefighting Instructions/Specific Methods:

Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to cool unopened containers.

#### General Fire Hazards:

No unusual fire or explosion hazards noted.

### Section 6- ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid dust formation. Avoid breathing vapors, mist or gas. Local authorities should be advised if significant spillages cannot be contained. For personal protection see Section 8.

**Environmental Precautions:** Avoid discharge into drains, water courses or onto the ground.

**Methods for Containment & Clean Up:** Prevent entry into waterways, sewer, basements or confined areas.

-Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

-Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  
 -Never return spills to original containers for re-use.  
 -For disposal see Section 13.

## Section 7- HANDLING AND STORAGE

**Handling:** Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. Ensure good ventilation/exhaustion at the workplace. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment.

**Storage:** Store locked up. Store in original tightly closed container in a dry, well-ventilated place. Store away from incompatible materials (see Section 10).

## Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

Component	CAS-No.	Value	Control Parameters	Basis
Yttrium Oxide	1314-36-9	TWA	1 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pulmonary Fibrosis		
		TWA	1 mg/m <sup>3</sup>	USA. NIOSH Pocket Guide to Chemical Hazards Materials
		PEL	1 mg/m <sup>3</sup>	USA. California Code of Regulations, Title 8, Section 5155, Airborne Contaminants
		PEL	1 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### Biological Limit Values:

No biological exposure limits noted for ingredient(s).

**Engineering Measures:** Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Avoid contact with eyes and skin. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

### Personal Protective Equipment:

**Eye/Face Protection:** Wear safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin and Body Protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Wear suitable protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of Environmental Exposure:** No information available

## Section 9- PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid  
**Appearance:** No data available  
**Odor:** No data available  
**Odor Threshold:** No data available  
**pH:** No data available  
**Melting Point/Range:** No data available  
**Boiling Point/Range:** No data available  
**Flash Point:** No data available  
**Evaporation Rate:** No data available  
**Flammability (solid,gas):** No data available  
**Flammability or Exposure Limits:**  
    **Upper:** No data available  
    **Lower:** No data available  
**Vapor Pressure:** No data available  
**Vapor Density:** No data available  
**Density:** 5.01 g/cm<sup>3</sup> at 20°C (68°F)  
**Relative Density:** No data available  
**Solubility:** No data available  
**Partition coefficient; n-octanol/water:** No data available  
**Auto Ignition Temperature:** No data available  
**Decomposition Temperature:** No data available  
**Viscosity:** No data available  
**Explosive Properties:** No data available  
**Oxidizing Properties:** No data available

## Section 10- STABILITY AND REACTIVITY

**Reactive Hazard:** Stable and non-reactive under normal conditions of use, storage and transport.

**Stability:** Stable under recommended storage conditions.

**Conditions to Avoid:** Keep away from heat, hot surfaces, spark, open flames and other ignition sources. Contact with incompatible materials

**Incompatible Materials:** Strong acids, carbon dioxide, ammonium salts, water

**Hazardous Decomposition Products:**

Hazardous decomposition products formed under fire conditions – Yttrium Oxide  
Other decomposition products - No data available

**Hazardous Polymerization:** No data available

**Hazardous Reactions:** No data available

## Section 11- TOXICOLOGICAL INFORMATION

**Information on likely Routes of Exposure:**

**Inhalation:** May cause irritation to the respiratory system. Prolonged inhalation may be harmful

**Skin Contact:** Causes skin irritation

**Eye Contact:** Causes serious eye irritation

**Ingestion:** Due to lack of data the classification is not possible

**Symptoms related to the physical, chemical and toxicological characteristics:** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

**Information on Toxicological Effects:**

**Acute Toxicity:** No information available

**Inhalation:** No information available

**Skin Corrosion/Irritation:** Causes skin irritation  
**Serious eye damage/irritation:** Causes serious eye irritation  
**Respiratory or Skin Sensitization:** Due to lack of data the classification is not possible  
**Carcinogenicity:** This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA  
**Germ Cell Mutagenicity:** Due to lack of data the classification is not possible  
**Reproductive Effects:** Due to lack of data the classification is not possible  
**Development Effects:** Due to lack of data the classification is not possible  
**Specific Target Organ Toxicity – single exposure:** May cause respiratory irritation  
**Specific Target Organ Toxicity – repeated exposure:** Due to lack of data the classification is not possible  
**Aspiration Hazard:** Due to lack of data the classification is not possible  
**Chronic Effects:** Prolonged inhalation may be harmful  
**Additional Information:**  
**RTECS: ZG3850000:** Rare earth compounds may cause delayed blood clotting leading to hemorrhages. Inhalation of rare earths may cause sensitivity to heat, itching and increased awareness of odor and taste. Coagulation abnormalities. Gastrointestinal disturbance. Skin contactor Inhalation may result in asthma, cough, muscles, damage to the lungs.  
**-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.**

## Section 12- ECOLOGICAL INFORMATION

**Toxicity:** Not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.  
**Persistence and Degradability:** No information available  
**Bioaccumulation/Accumulation:** No information available  
**Mobility in Soil:** No information available  
**Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.  
**Other Adverse Effects:** No information available

## Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Collect and reclaim or dispose in sealed containers to a licensed disposal company. Dispose of contaminated packaging as unused product. Dispose of contents/container in accordance with local/regional/national/international regulations.

## Section 14- TRANSPORT INFORMATION

**DOT:** Not regulated as dangerous goods  
**IATA:** Not regulated as dangerous goods  
**IMDG/IMO:** Not regulated as dangerous goods

## Section 15- REGULATORY INFORMATION

**US Federal Regulations:**  
-All components are on the US EPA TSCA Inventory List.  
-This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
-CERCLA/SARA Hazardous Substances – Not Applicable  
**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D):** Not Regulated  
**U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):** Not Regulated  
**CERCLA Hazardous Substance List (40 CFR 302.4):** Not Listed  
**SARA 302:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302  
**SARA 313:** This material does not contain any chemical components with known CAS numbers that exceed

the threshold (De Minimis) reporting levels established by SARA Title III, Section 313

**SARA 311/312 Hazards:** Yes

**SARA 304 Emergency Release Notification:** Not Regulated

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:** No information available

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** No information available

**Safe Drinking Water Act (SDWA):** No information available

**US Massachusetts Right to Know:** No information available

**US New Jersey Right to Know:**

Component	CAS No.	Revision Date
Yttrium Oxide	1314-36-9	1993-02-16

**US Pennsylvania Right to Know:**

Component	CAS No.	Revision Date
Yttrium Oxide	1314-36-9	1993-02-16

**US California Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

**US California Candidate Chemicals List Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3 subd. (a)):** No information available

## Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

The information in this SDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

REVISION: 05-01-19