

# MATERIAL SAFETY DATA SHEET

Product: X-Ray Phosphor XRG-644

Chemical Type: **GADOLINIUM OXYSULFIDE**

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## HAZARDOUS INGREDIENTS

### MATERIAL

### OSHA PEL ACGHI TLV

Gadolinium oxysulfide CAS # 68609-43-8

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**NOTE: This material is activated with less than 5.0 % Terbium as part of its structure. No PEL or TLV has been established. Gadolinium is a member of the Lanthanide series of elements and these compounds are generally considered to be Toxic. The time-weighted average for materials of this type is 1.0 mg/m<sup>3</sup>**

## PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point: NA

Specific Gravity: NA

Vapor Pressure (mm Hg): NA

Melting Point: NA

Vapor Density (Air=1): NA

Evaporation Rate: NA

Solubility in Water: INSOLUBLE

Appearance and Odor WHITE, ODORLESS POWDER

## FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA

Flammable Limits: NA LEL: NA UEL: NA

**Extinguishing Media:** USE EXTINGUISHING MEDIA SUITABLE FOR THE SURROUNDING FIRE.

**Special Fire Fighting Procedures:** WEAR SELF-CONTAINED BREATHING APPARATUS

**Unusual Fire and Explosion Hazards:** WHEN MATERIAL IS EXPOSED TO HIGH TEMPERATURES IT MAY PRODUCE OXIDES OF SULFUR AND/OR HYDROGEN SULFIDE.

## REACTIVITY DATA

**Stability:** MATERIAL IS UNSTABLE AT HIGH TEMPERATURES IN AIR

**Conditions to Avoid:** NA

**Incompatibility (Materials to Avoid):** CONTACT WITH MINERAL ACIDS CAN PRODUCE HYDROGEN SULFIDE.

**Hazardous Polymerization:** WILL NOT OCCUR.

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## HEALTH AND SAFETY DATA

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**Routes of Entry:** THE MATERIAL CAN BE INHALED, SWALLOWED OR ENTER THE BODY THROUGH AN OPEN WOUND OF THE SKIN.

**Health Hazards:** EXPOSURE TO GADOLINIUM COMPOUNDS MAY CAUSE LUNG AND/OR LIVER DAMAGE.

**Signs and Symptoms:** INGESTION MAY CAUSE NAUSEA, VOMITING, DIARRHEA AND ABDOMINAL PAINS. INHALATION OF DUST MAY RESULT IN LUNG INJURY. SKIN CONTACT MAY CAUSE A RASH, REDNESS OR DERMATITIS. EYE CONTACT MAY CAUSE REDNESS AND IRRITATION.

**Medical Conditions Generally Aggravated by exposure:** PERSONS SUFFERING FROM LUNG DYSFUNCTION SHOULD AVOID EXPOSURE TO DUST.

**Emergency and First Aid Procedures:**

**INHALATION:** IF SYMPTOMS OF PULMONARY INVOLVEMENT DEVELOP (COUGHING, LABORED BREATHING, ETC.) REMOVE FROM EXPOSURE IMMEDIATELY AND OBTAIN MEDICAL AID.

**INGESTION:** GIVE PERSON LARGE QUANTITIES OF WATER TO DRINK, INDUCE VOMITING AND OBTAIN MEDICAL AID.

**SKIN CONTACT:** WASH AFFECTED AREA WITH MILD SOAP AND WATER. IF IRRITATION OCCURS, OBTAIN MEDICAL AID.

**EYE CONTACT:** FLUSH WITH LARGE AMOUNTS OF WATER FOR 15 MINUTES. IF IRRITATION OCCURS OBTAIN MEDICAL AID.

**Carcinogenic Assessment:** NA

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## PRECAUTIONS FOR SAFE HANDLING AND USE

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**Steps to be taken in case Material is Released or Spilled:** IF AIRBORNE DUST IS GENERATED, USE AN APPROPRIATE NIOSH APPROVED RESPIRATOR. CLEAN UP SPILLS USING METHODS WHICH AVOID DUST GENERATION SUCH AS VACUUMING (WITH A VACUUM THAT HAS AN APPROPRIATE FILTER TO PREVENT AIRBORNE DUST LEVELS WHICH EXCEED THE PEL OR TLV). WET DUST MOPPING OR WET CLEAN-UP IS PREFERRED TO REDUCE DUSTING.

**Waste Disposal Method:** DISPOSE OF IN ACCORDANCE WITH APPROPRIATE GOVERNMENT REGULATIONS.

**Precautions to be Taken in Handling and Storage:** STORE AWAY FROM MINERAL ACIDS, STRONG OXIDIZERS AND FLAMMABLE MATERIALS. USE AN APPROVED RESPIRATOR IF EXPOSURE TO DUST COULD OCCUR. GLOVES ARE RECOMMENDED WHEN SKIN CONTACT IS LIKELY.

**Other Precautions:** MAINTAIN GOOD HOUSE KEEPING PROCEDURES TO PREVENT ACCUMULATION OF DUST. USE CLEAN-UP METHODS WHICH MINIMIZE DUST GENERATION SUCH AS VACUUMING WITH AN APPROVED VACUUM OR WET CLEAN-UP. IF AIRBORNE DUST IS GENERATED USE AN APPROPRIATE NIOSH APPROVED RESPIRATOR.

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**CONTROL MEASURES**

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**Respiratory Protection:** USE AN APPROVED NIOSH DUST MASK OR EQUIVALENT IF AIRBORNE DUST CONCENTRATIONS EXCEED THE PEL OR TLV. ALL REQUIREMENTS SET FORTH IN 29 CFR 1910.134 SHOULD BE FOLLOWED.

**Ventilation:** LOCAL EXHAUST TO MEET THE DUST EXPOSURE LEVEL IS RECOMMENDED TO MINIMIZE AIRBORNE DUST EXPOSURE.

**Protective Gloves:** GLOVES OF A NON-PERVIOUS TYPE ARE RECOMMENDED WHEN SKIN CONTACT IS LIKELY.

**Eye Protection:** SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES ARE RECOMMENDED.

**Other Protective Equipment:** PROTECTIVE CLOTHING SUCH AS APRONS, COVERALLS, ETC. SHOULD BE USED AND WASHED REGULARLY, DO NOT SHAKE TO REMOVE DUST. PERIODIC MEDICAL EXAMINATIONS ARE RECOMMENDED FOR INDIVIDUALS REGULARLY EXPOSED TO DUST.

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**END OF MATERIAL SAFETY DATA SHEET**