



# Gamma Ray Standard, Thorium

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations  
Revision Date: 09/27/2018 Date of issue: 09/27/2018

Version: 2.0

### SECTION 1: IDENTIFICATION

#### 1.1. Product Identifier

**Product Form:** Mixture

**Product Name:** Gamma Ray Standard, Thorium

**Product Code:** 700-410-402

#### 1.2. Intended Use of the Product

**Use of the substance/mixture:** Calibration of Gamma Ray Sensors. For professional use only.

#### 1.3. Name, Address, and Telephone of the Responsible Party

##### Company

OFI Testing Equipment, Inc.

11302 Steeplecrest Drive

Houston, TX 77065

T (877) 837-8683

[www.ofite.com](http://www.ofite.com)

#### 1.4. Emergency Telephone Number

**Emergency Number** : 1-800-535-5053 (USA/Canada) 1-352-323-3500 (International)  
Infotrac

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

##### Classification (GHS-US)

Carc. 1A H350

STOT SE 3 H335

STOT RE 1 H372

Full text of H-phrases: see section 16

#### 2.2. Label Elements

##### GHS-US Labeling

##### Hazard Pictograms (GHS-US)



##### Signal Word (GHS-US)

: Danger

##### Hazard Statements (GHS-US)

: H335 - May cause respiratory irritation.  
H350 - May cause cancer (Inhalation).  
H372 - Causes damage to organs (Lungs) through prolonged or repeated exposure (Inhalation).

##### Precautionary Statements (GHS-US)

: P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P260 - Do not breathe dust.  
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P280 - Wear protective clothing, respiratory protection.  
P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
P308+P313 - If exposed or concerned: Get medical advice/attention.  
P312 - Call a POISON CENTER, a doctor if you feel unwell.  
P314 - Get medical advice/attention if you feel unwell.  
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, and international regulations.

#### 2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. This material emits ionizing radiation. This product should only be handled by trained personnel. Thorium can accumulate in the bones, lungs and lymph system. Thorium

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that is absorbed into the body can remain for long periods of time and increase the risk of radiation induced cancer in tissues where it is retained.

## 2.4. Unknown Acute Toxicity (GHS-US)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Quartz	(CAS No) 14808-60-7	99.98	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372
Thorium nitrate	(CAS No) 13823-29-5	0.02	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 STOT RE 2, H373 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First Aid Measures

**First-aid Measures General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**First-aid Measures After Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

**First-aid Measures After Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes.

**First-aid Measures After Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**First-aid Measures After Ingestion:** Rinse mouth. Do NOT induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/Injuries:** May cause respiratory irritation. May cause cancer. Causes damage to organs (Lungs) through prolonged or repeated exposure (Inhalation).

**Symptoms/Injuries After Inhalation:** Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis). Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid. Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

**Symptoms/Injuries After Skin Contact:** Skin contact with large amounts of dust may cause mechanical irritation.

**Symptoms/Injuries After Eye Contact:** Contact may cause irritation due to mechanical abrasion.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** May cause cancer by inhalation. Causes damage to organs through prolonged or repeated exposure.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Not flammable. The following hazardous combustion and decomposition products will be produced in a fire: Silicon oxides.

**Explosion Hazard:** Product is not explosive.

**Reactivity:** Reacts with strong oxidants causing fire and explosion hazard.

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## 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Avoid inhalation of material or combustion by-products.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Do not breathe dust. Avoid all unnecessary exposure.

#### 6.1.1. For Non-emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### 6.1.2. For Emergency Responders

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters.

### 6.3. Methods and Material for Containment and Cleaning Up

**For Containment:** Avoid generation of dust during clean-up of spills. Contain and collect as any solid.

**Methods for Cleaning Up:** Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8.

### 6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Do not breathe dust. Use care during processing to minimize generation of dust.

**Precautions for Safe Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use.

**Incompatible Products:** Strong acids. Strong bases. Strong oxidizers. Acetylene. Ammonia.

### 7.3. Specific End Use(s)

Calibration of Gamma Ray Sensors. For professional use only.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

Quartz (14808-60-7)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable fraction)
USA ACGIH	ACGIH chemical category	A2 - Suspected Human Carcinogen
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (respirable dust)
USA IDLH	US IDLH (mg/m <sup>3</sup> )	50 mg/m <sup>3</sup> (respirable dust)
USA OSHA	OSHA PEL (STEL) (mg/m <sup>3</sup> )	250 mppcf/%SiO <sub>2</sub> +5, 10mg/m <sup>3</sup> /%SiO <sub>2</sub> +2

### 8.2. Exposure Controls

#### Appropriate Engineering Controls

: Provide adequate ventilation to minimize dust concentrations. Ensure all national/local regulations are observed.

#### Personal Protective Equipment

: Dust formation: dust mask. Protective clothing.



#### Materials for Protective Clothing

: Wear suitable protective clothing.

#### Hand Protection

: Wear chemically resistant protective gloves.

#### Eye Protection

: Chemical goggles or safety glasses.

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**Respiratory Protection** : Use NIOSH-approved dust mask if dust has the potential to become airborne.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: White powder
Odor	: None
Odor Threshold	: No data available
pH	: N/A
Evaporation Rate	: No data available
Melting Point	: 1710 °C (3110 °F)
Freezing Point	: No data available
Boiling Point	: 2230 °C (4046 °F)
Flash Point	: N/A
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20 °C	: No data available
Relative Density	: No data available
Specific Gravity	: 2.65 g/cm <sup>3</sup>
Solubility	: Water: N/A
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: N/A

9.2. **Other Information** No additional information available

## SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Reacts with strong oxidants causing fire and explosion hazard.
- 10.2. Chemical Stability:** Stable under normal temperature and pressure.
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Avoid creating or spreading dust.
- 10.5. Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Acetylene. Ammonia.
- 10.6. Hazardous Decomposition Products:** Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C, it can change to a form of crystalline silica known as trypidite, and if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trypidite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Toxicological Effects

**Acute Toxicity:** Not classified

<b>Quartz (14808-60-7)</b>	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
<b>Thorium nitrate (13823-29-5)</b>	
ATE (Oral)	500.00 mg/kg body weight

**Skin Corrosion/Irritation:** Not classified

pH: N/A

**Serious Eye Damage/Irritation:** Not classified

pH: N/A

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** May cause cancer (Inhalation).

<b>Quartz (14808-60-7)</b>	
IARC group	1

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<b>National Toxicology Program (NTP) Status</b>	Known Human Carcinogens.
<b>OSHA Hazard Communication Carcinogen List</b>	In OSHA Hazard Communication Carcinogen list.

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** May cause respiratory irritation.

**Specific Target Organ Toxicity (Repeated Exposure):** Causes damage to organs through prolonged or repeated exposure (Inhalation).

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis). Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid. Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

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**Symptoms/Injuries After Eye Contact:** Contact may cause irritation due to mechanical abrasion.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** May cause cancer by inhalation. Causes damage to organs through prolonged or repeated exposure.

## SECTION 12: ECOLOGICAL INFORMATION

**12.1. Toxicity** No additional information available

**12.2. Persistence and Degradability**

<b>Gamma Ray Standard, Thorium</b>	
<b>Persistence and Degradability</b>	Not established.

**12.3. Bioaccumulative Potential**

<b>Gamma Ray Standard, Thorium</b>	
<b>Bioaccumulative Potential</b>	Not established.

**12.4. Mobility in Soil** No additional information available

**12.5. Other Adverse Effects**

**Other Information** : Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, and international regulations.

## SECTION 14: TRANSPORT INFORMATION

**14.1. In Accordance with DOT** Not regulated for transport

**14.2. In Accordance with IMDG** Not regulated for transport

**14.3. In Accordance with IATA** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

**15.1 US Federal Regulations**

<b>Gamma Ray Standard, Thorium</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Immediate (acute) health hazard Delayed (chronic) health hazard

**Quartz (14808-60-7)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>SARA Section 311/312 Hazard Classes</b>	Immediate (acute) health hazard Delayed (chronic) health hazard

**Thorium nitrate (13823-29-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory	
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**15.2 US State Regulations**

<b>Quartz (14808-60-7)</b>	
<b>U.S. - California - Proposition 65 - Carcinogens List</b>	WARNING: This product contains chemicals known to the State of California to cause cancer.
<b>Quartz (14808-60-7)</b>	

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U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## Thorium nitrate (13823-29-5)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Revision Date** : 09/27/2018 (Review only. No changes required.)  
**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### GHS Full Text Phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 1A	Carcinogenicity Category 1A
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Ox. Sol. 2	Oxidizing solids Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H272	May intensify fire; oxidizer
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

SDS US (GHS HazCom)