



SHOWA DENKO K.K.

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Minato-Ku, Tokyo 105-8518  
Japan

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## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SHOROX A (Rare earth oxide polishing compound)

Company name : SHOWA DENKO K.K.  
Address : 1, Soga Shiojiri, Nagano 399-6461 Japan  
Section : Marketing Department , Ceramics Division, Inorganic Sector  
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TOHOKU METAL CHEMICAL Co.,Ltd 81-246-34-2112

MSDS number : CE-3536

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance or mixture : Mixture  
Common chemical name (generic name) : Rare earth oxide  
Content : Combined rare earth oxide levels are greater than 85%

Chemical formula	:	CeO <sub>2</sub>	La <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
CAS number	:	1306-38-3	1312-81-8	12037-29-5
Concentration	:	45wt%	20wt%	Trade Secret
Chemical formula	:	Nd <sub>2</sub> O <sub>3</sub>	CeF <sub>3</sub>	LaF <sub>3</sub>
CAS number	:	1313-97-9	7758-88-5	13709-38-1
Concentration	:	Trade Secret	Trade Secret	Trade Secret

### 3. HAZARDS IDENTIFICATION

Most important hazards : If caused to dust above the TLV or PEL limits, personal protective equipment is required. Read above ingredient limits. Prolonged overexposure to dusts may cause lung damage.

Adverse human health effects :

Inhalation: Breathing dust may result in irritation of the nose and throat, coughing, shortness of breath and bronchitis. Existing respirable disorders may be aggravated by exposure.

Skin: Not absorbed through skin. Dust may be abrasive and mildly irritating.

Eye: Dust may irritate eyes. Contact with dust or slurry may be abrasive and irritating causing tearing and redness.

Ingestion: All accidental ingestion of dust or slurry may cause irritation of the digestive tract.

Environmental effects : No data available

Specific hazards : Stable in the atmosphere

Classification of chemical product : Not applicable

#### 4 . FIRST-AID MEASURES

- Inhalation : Remove immediately to fresh air.
- Skin contact : Wash the affected area with soap and running water. If necessary, call a Physician.
- Eye contact : Flush eyes with clean running water for at least 15 minutes.If necessary, call a physucian.
- Ingestion : Vomit.If nessesary, call a physician.

#### 5 . FIRE-FIGHTING MEASURES

- Extinguishing media : Use water, foam, dry chemical, CO<sub>2</sub>
- Specific methods of fire-fighting and special equipment : This product is incombustible and stable, except the container.
- Fire fighting instructions : Use sufficient local exhaust to reduce the dust.
- Protection of firefighters : Use self-contained breathing apparatus to avoid dust or fumes generated during fire fighting efforts.

#### 6 . ACCIDENTAL RELEASE MEASURES

- Personal precautions : Keep upwind of generated dusts during clean up.  
Wear proper protective equipments.
- Methods for cleaning up : Use dustless methods such as a vacuum and place into cosable container for disposal, or flushwith water. Do not dry sweep. Flush spilled material into suitable retaining areas or containerswith water to avoid airborne particulates.

#### 7 . HANDLING AND STORAGE

- Handling
  - Safe handling advice : Wear long-sleeved working clothes, safety goggles, dust-proof mask and protective gloves to avoid eye and skin contact and breathing dust.Use in adequate ventilation.
- Storage
  - Appropriate storage conditions : Avoid direct sunlight. Keep the container or paper bag tightly closed and store in a dry, cool, and well-ventilated place.

#### 8 . EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering measures to reduce exposure : Handle with adequate local exhaust ventilation for nuisance dust.Install washstand and eye-flush equipment near the workshop.
- Exposure guidelines :
  - Japan Society for Occupational Health (2005) : Inhalative particles 1 mg/m<sup>3</sup>  
Total particles 4 mg/m<sup>3</sup>
  - ACGIH (2005) : PNOS\* TLV-TWA 10 mg/m<sup>3</sup> (E, I)  
3 mg/m<sup>3</sup> (E, R)
  - OSHA (2004) : PNOS\* 15 mg/m<sup>3</sup>
- \* PNOS: Particulate Not Otherwise Specified
- Personal protective equipment
  - Respiratory protection : Dust-proof mask
  - Hand protection : Rubber gloves
  - Eye protection : Safety goggles
  - Skin and body protection : Long-sleeved working

**9 . PHYSICAL AND CHEMICAL PROPERTIES**

## Physical state

Appearance : Powder  
 Color : Brown  
 Odor : Odorless  
 pH : 7-11 ( as 10wt% slurry by water )

## Specific temperatures/temperature ranges at which changes in physical state

Melting point : 2,600  
 Flash point : Not flashing  
 Explosion properties : Not explosion  
 Specific gravity : 6.2

## Solubility

Water : Insoluble  
 Other solvents : Soluble in acid

**10 . STABILITY AND REACTIVITY**

Stability : Stable in the atmosphere  
 Reactivity : Not show severe reaction in contact another material  
 Hazardous decomposition products : Will not occur

**11 . TOXICOLOGICAL INFORMATION**

## Toxicological Information of mixture

Acute toxicity : No date available  
 Local effects (skin, eye etc.) : May be irritating (We don't have animal test)  
 Mutagenicity : No data available

Toxicological Information of  $\text{CeO}_2$  <sup>1)</sup>

Acute toxicity : Oral rat  $\text{LD}_{50}$  >5000 mg/kg  
 Intraperitoneal mouse  $\text{LD}_{50}$  465 mg/kg  
 Inhalation rat  $\text{TCLo}$  50 mg/m<sup>3</sup>/4H/17W ( Intermittent )  
 Lungs, Thorax, or Respiration : Fibrosis, Focal (Pneumoconiosis)  
 Liver : Liver function tests impaired  
 Biochemical : Enzyme inhibition, induction, or change in blood or tissue levels.  
 $\text{TCLo}$  50 mg/m<sup>3</sup>/6H/90D ( Intermittent )  
 Lungs, Thorax, or Respiration : Structural or functional change in trachea or bronchi Lungs. Changes in lung weight.  
 Blood : Other change.  
 $\text{TCLo}$  100 mg/m<sup>3</sup>/2H/30D ( Intermittent )  
 Cardiac : EKG changes not diagnostic of specified effects.  
 Lungs, Thorax, or Respiration : Other changes.  
 Blood : Leukopenia.

Local effects (skin, eye etc.) : No data available  
 Mutagenicity : No data available

Toxicological Information of $\text{La}_2\text{O}_3$ <sup>1)</sup>	
Acute toxicity	: Oral rat $\text{LD}_{50}$ >8500 mg/kg (La) Oral mouse $\text{LD}_{50}$ 2450 mg/kg (La) Intraperitoneal mouse $\text{LD}_{50}$ 530 mg/kg
Local effects (skin, eye etc.)	: Eye irritation (Rabbit) 100mg (Mild irritation)
Mutagenicity	: No data available
Toxicological Information of $\text{PrO}_{11}$ <sup>1)</sup>	
Acute toxicity	: Oral rat $\text{LD}_{50}$ >5000 mg/kg
Local effects (skin, eye etc.)	: No data available
Mutagenicity	: Cytogenetic analysis of intraperitoneal (mouse) 77 mg/kg
Toxicological Information of $\text{Nd}_2\text{O}_3$ <sup>1)</sup>	
Acute toxicity	: Oral rat $\text{LD}_{50}$ >5000 mg/kg
Local effects (skin, eye etc.)	: No data available
Mutagenicity	: Cytogenetic analysis of intraperitoneal (mouse) 86 mg/kg
Toxicological Information of $\text{CeF}_3$ <sup>1)</sup>	
Acute toxicity	: Oral rat $\text{LD}_{50}$ >5000 mg/kg
Local effects (skin, eye etc.)	: No data available
Mutagenicity	: No data available

## 12 . ECOLOGICAL INFORMATION

No data available

## 13 . DISPOSAL CONSIDERATIONS

Treat sludge as industrial waste. Standard waste water disposal methods consistent with applicable local, state and federal regulations.

When discharging empty containers, remove the contents completely before disposing of them.

Note: When disposing of the product outside Japan, conform to applied laws and regulations in that country or territory.

## 14 . TRANSPORT INFORMATION

International regulations for transport

IMDG code : Not applicable

ICAO-TI / IATA-DGR : Not applicable

UN hazard class : Not applicable

UN number : Not applicable

Specific precautionary transport measures and conditions :

Before transport, make sure that there is no break in packaging and no leakage. Avoid spill, impact, fall or damage during loading and handle with care and prevent breakage of containers or bags.

Note: When transporting the product outside Japan, conform to applied laws and regulations in that country or territory.

## 15 . REGULATORY INFORMATION

Laws and regulations applied in Japan:

- A powdered dust difficulty prevention rule
- Not include the harmful substances subject to the notification of the name etc. in The Industrial Safety and Health Law, Poisonous and Deleterious Substances Control Law and The Law Concerning and Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management.

Note: When using the product outside Japan, it must be handled in accordance with applied laws and Regulations in that country or territory.

## 16 . OTHER INFORMATION

TSCA Inventory    Included

Reference    (1) Registry of Toxic Effects of Chemical Substances (RTECS)

For further information, please contact

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This is a translation of original Material Safety Data Sheet prepared in Japanese.