



**HAZARDOUS INGREDIENTS**

Hazardous Ingredients	Calculated Composition	C.A.S. No.	PEL <sup>1</sup> -mg/m <sup>3</sup>	TLV <sup>2</sup> -mg/m <sup>3</sup>
Selenium (Se)	60-80	7782-49-2		
Copper (Cu)	0.1-1.7	7440-50-8	1	1

**PHYSICAL and CHEMICAL DATA**

Grey-black, wet filter cake with a slightly acid odor. The filter cake is 20-40 per cent water.

Ingredient	Mol. wt.	Specific Gravity	m.p. °C	b.p. °C	Sol. in H <sub>2</sub> O g/100ml
Se	78.96		217	685	0
Cu	63.54	8.9	1083	2595	0

**PHYSICAL HAZARDS**

Selenium reacts with air or oxygen slowly at ambient temperatures, rapidly at higher temperatures burning with a blue flame and forming highly toxic selenium dioxide.

Finely divided copper in contact with acetylene forms explosive acetylides. Acetylene present in ethylene oxide is sufficient to form copper acetylide.

**HEALTH HAZARDS<sup>3</sup>**

**Selenium**

Acute Some selenium compounds are highly toxic but elemental selenium is relatively inert.

## **INCO<sup>®</sup> PCR Selenium Recovery Cake**

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**Inhalation:** If selenium oxide is formed inhalation of fume at high concentrations can result in irritation of eyes nose and throat and headache.

**Skin Contact:** Metallic selenium in contact with the skin is likely to cause irritation or rash. Some selenium compounds, e.g. selenium dioxide can cause skin burns and dermatitis. The acidic nature of this cake can also cause skin irritation.

**Eye Contact:** The acidic nature of this cake can cause eye irritation.

### Chronic

**Inhalation/  
Ingestion:** Persistent inhalation or ingestion of small amounts of selenium metal may result in upper respiratory irritation, metallic taste, dermatitis, nausea, vomiting, dizziness and a garlic aroma to the breath and sweat.

### **Copper**

**Skin Contact:** A few instances of allergic skin rashes have been reported in workers exposed to metallic copper.

**Ingestion:** The lowest observed toxic oral dose of copper (TD<sub>Lo</sub>) is 120 µg/kg in humans. This dose caused gastrointestinal effects.

**Preexisting  
Conditions:** Wilson's disease can occur in certain individuals with a rare inherited metabolic disorder characterized by retention of excessive amounts of copper in the liver, brain, kidneys and corneas. These deposits eventually lead to tissue necrosis and fibrosis, causing a variety of clinical effects, especially liver, (i.e. hepatic) disease and neurologic changes. Wilson's disease is progressive and, if untreated, leads to fatal liver (i.e. hepatic) failure.

- California Proposition 65
  - Copper and copper compounds are not listed

## **PRECAUTIONS FOR SAFE STORAGE, HANDLING AND USE**

Do not inhale. Keep container closed when not in use. Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below their PELs. If ventilation alone cannot so control exposures, use NIOSH-approved respirators selected according to OSHA 29 CFR 1910.134.

Avoid skin and eye contact. Wear suitable gloves. Wash skin thoroughly after handling. Launder clothing and gloves as needed.

Copper will burn in the presence of chlorine and fluorine gases. Do not store near reactive substances.

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Selenium can react with hydrogen and some organic compounds to form highly toxic and flammable, gaseous hydrogen selenide.

Drying may greatly increase the dustiness of this product.

## **SPILL, LEAK AND DISPOSAL PROCEDURE**

Collect spills by using sweeping compound (if necessary to suppress dust) or by vacuuming with the vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if the exhaust is discharged into the workplace. Wear appropriate NIOSH-approved respirators if collection and disposal of spills is likely to cause the concentration of airborne contaminants to exceed their exposure limits.

Waste is normally collected to recover metal values. Should waste disposal be deemed necessary, follow EPA and local regulations.

## **EMERGENCY AND FIRST AID PROCEDURES**

Deposits on the skin should be washed off without delay. If irritation develops seek medical attention.

In the case of eye contact, immediately flush eyeballs with plenty of water for at least 15 minutes. Seek medical attention immediately.

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### **Note:**

***Inco believes that the information in this Material Safety Data Sheet is accurate. However, Inco makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.***

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### Footnotes:

- ® Trademark of the Inco family of companies.
- 1 OSHA Permissible Exposure Limit
- 2 Threshold Limit Value of the American Conference of Governmental Industrial Hygienists.
- 3 Describes possible health hazards of the product supplied. If user operations change it to other chemical forms, whether as end products, intermediates or fugitive emissions, the possible health hazards of such forms must be determined by the user.