

## GHS Classification

**ID37**

**CAS 7782-49-2**

### Physical Hazards

**Selenium**

Date Classified: Jun. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
7 Flammable solids	Classification not possible	—	—	—	Classification not possible, because of the unidentified configuration and the absence of data. The substance is combustible according to ICSC (2004) and, as far as metals are concerned, the finer the particles, the more dangerous they are, according to Sax (11th, 2004). Metal powder (combustibles, and excluding those with specific product names) is classified into Division 4.1, Packing Group II and III (UN#3089), by the UN Recommendations on the Transport of Dangerous Goods.
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Classification not possible	—	—	—	No data available
11 Self-heating substances and mixtures	Classification not possible	—	—	—	No data available
12 Substances and mixtures, which in contact with water, emit flammable gases	Classification not possible	—	—	—	Classified as metalloids. Selenium reacts with water at 50degC, with the evolution of selenious acid and flammable hydrogen, according to ICSC (2004). However, classification is not possible due to lack of data on the maximum generation rate of hydrogen gas at ambient temperature.
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	—	—	—	Inorganic compounds containing no oxygen and halogen
15 Organic peroxides	Not applicable	—	—	—	Not organic compounds
16 Corrosive to metals	Classification not possible	—	—	—	Test methods applicable to solid substances are not available

### Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	—	—	—	Based on the rat LD50 (oral route) value of 6,700mg/kg (CERI Hazard Data 2001-38 (i) (2002)).
1 Acute toxicity (dermal)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "solid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	Insufficient data available
2 Skin corrosion / irritation	Classification not possible	—	—	—	Insufficient data available
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	Insufficient data available, though CERI Hazard Data 2001-39(i)(2002) reports epidemiological evidence of human exposure: "irritating," to labor exposed high level of Selenium for a short time.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	(Respiratory sensitization) – (Skin sensitization) –	(Respiratory sensitization) – (Skin sensitization)	(Respiratory sensitization) – (Skin sensitization) –	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Classification not possible	—	—	—	No data available
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Category D by EPA (1993) and Group 3 by IARC (1987).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of adverse effects on reproduction and pups, described in EHC 58 (1986) (though no data on parental toxicity are available).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, respiratory organs)	Health hazard	Danger	Causes damage to organs (nervous system, respiratory organs)	Based on the human evidence including "vomiting, diarrhea, abdominal pain, numbness of hands, abnormal menstrual bleeding and abnormal dehairing" (HSDB (1998)), and the evidence from animal studies including "pneumonitis" (CERI Hazard Data 2001-39 (i) (2002)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1 (respiratory organs)  Note: As for acute toxicity of inorganic selenium compounds, "clinical findings include vomiting, diarrhea, laboured breathing, weakness, unstable gait and coma, while histological findings include pulmonary edema, necrosis of the liver, degeneration of the skeletal muscles, hydropic degeneration of renal tubules, swelling and rupture of the myocardial mitochondria" (PATTY (4th, 2000)).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, respiratory organs, liver)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (nervous system, respiratory organs, liver)	Based on the human evidence including "peripheral nerve conduction velocity, peripheral nerve paralysis, neurological symptoms including pain and abnormal reflex, consciousness disorder, spasm, paralysis, changes in motor activity" (CERI Hazard Data 2001-39 (i) (2002)) and "chronic bronchitis or moderate pulmonary emphysema" (EHC 58 (1986)), and the evidence from animal studies including "cirrhosis" (CERI Hazard Data 2001-39 (i) (2002)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1 (liver).
10	Aspiration hazard	Classification not possible	-	-	-	No data available

### Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Classification not possible	-	-	-	Classification not possible due to lack of data
11 Hazardous to the aquatic environment (chronic)	Category 4	-	-	May cause long lasting harmful effects to aquatic life	Although L(E) C50 <=100 mg/L data existed, since it was metal and the behavior in the water was unknown, it classified into Category 4.