GHS Classification

ID659 Indium tin oxide

CAS 50926-11-9 Date Classified: Apr. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

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

Physical Hazards

	Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1	Explosives	Not applicable	–	–	–	There are no chemical groups associated with explosive properties present in the molecules.
2	Flammable gases	Not applicable	–	–	–	Solid (GHS definition)
3	Flammable aerosols	Not applicable	–	–	–	Not aerosol products
4	Oxidizing gases	Not applicable	–	–	–	Solid (GHS definition)
5	Gases under pressure	Not applicable	–	–	–	Solid (GHS definition)
6	Flammable liquids	Not applicable	–	–	–	Solid (GHS definition)
7	Flammable solids	Classification not possible	–	–	–	No data available
8	Self-reactive substances and mixtures	Not applicable	–	–	–	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9	Pyrophoric liquids	Not applicable	–	–	–	Solid (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	–	–	–	No data available
13	Oxidizing liquids	Not applicable	–	–	–	Solid (GHS definition)
14	Oxidizing solids	Classification not possible	–	–	–	No data available
15	Organic peroxides	Not applicable	–	–	–	Inorganic substance
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 statement of indium oxide LD50> 10g/kg (SAX (4th, 2001)) and tin oxide LD50> 6.6g/kg (RTECS (2004)), it was set as the outside of Category. Since an indium tin oxide is considered to be a mixture of an indium oxide and a tin oxide, LD50 value as a mixture should be calculated according to the definition of GHS. But LD50 value of both compounds is 5g/kg or more, it becomes the outside of Category.
1	Acute toxicity (dermal)	Classification not possible	–	–	–	No data available
1	Acute toxicity (inhalation: gas)	Not applicable	–	–	–	Solid (GHS definition)
1	Acute toxicity (inhalation: vapour)	Classification not possible	–	–	–	No data available
1	Acute toxicity (inhalation: dust, mist)	Classification not possible	–	–	–	No data available
2	Skin corrosion / irritation	Classification not possible	–	–	–	No data available
3	Serious eye damage / eye irritation	Classification not possible	–	–	–	No data available
4	Respiratory/skin sensitization	Classification not possible	–	–	–	No data available
5	Germ cell mutagenicity	Classification not possible	–	–	–	No data available
6	Carcinogenicity	Classification not possible	–	–	–	No data available
7	Toxic to reproduction	Classification not possible	–	–	–	No data available
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	–	–	–	No data available.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (lung, frame, gastrointestinal tract)	Health hazard	Danger	Causes damage to organs (lung, frame, gastrointestinal tract) through prolonged or repeated exposure	″For indium and its compound, TLV−TWA is set up by the influence to skelton and gastrointestinal system and the hazardous property especially by the inhalation to lungs (ACGIH (7h, 2001))″ ″There is a case report of the pulmornary fibrosis by the indium tin oxide of two examples in humans (J Occup Health 45:137−139 (2003)), (Eur Respr J.25(1):201−204 (2005)″, ″An indium tin oxide consists of indium oxides and tinoxide (J Occup Health (2002))″and ″Since an indium tin oxide contain high idium content (indium 74% and tin 8%), major cause of the observed lung toxicity is probably indium. (Eur Respr J.25(1):201−204 (2005))″ −based on these, it was classified to as Category 1 (lungs, skeletal, digestive tracts). [special notes] Since indium was recorded and selected as indium and its compound also by ACGIH and industrial safety and health laws, idium tin oxide was evaluated and classified as the indium analogue.
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	−	−	−	No data available
11	Hazardous to the aquatic environment (chronic)	Classification not possible	−	−	−	No data available.