GHS Classification

ID1168 Disodium chromate decahydrate

CAS 13517-17-4 Date Classified: Aug. 22, 2006 (Environmental Hazards: Mar. 31, 2006)

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

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	–	–	–	Liquid (GHS definition)
3	Flammable aerosols	Not applicable	–	–	–	Not aerosol products
4	Oxidizing gases	Not applicable	–	–	–	Liquid (GHS definition)
5	Gases under pressure	Not applicable	–	–	–	Liquid (GHS definition)
6	Flammable liquids	Not classified	–	–	–	Since it is a nonflammable anhydride combined with crystal water (ICSC (J), 2001), it was considered to be nonflammable and classified asout of Category.
7	Flammable solids	Not applicable	–	–	–	Liquid (GHS definition)
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 classified	–	–	–	Since it is nonflammable (ICSC (J), 2001) anhydride combined with water of crystallization and it is considered nonflammable, it was carried out the outside of Category.
10	Pyrophoric solids	Not applicable	–	–	–	Liquid (GHS definition)
11	Self-heating substances and mixtures	Not classified	–	–	–	It is what the nonflammable (ICSC (J) 2001) anhydride was combined with crystal water, and was considered nonflammable. Therefore, it was carried out the outside of category.
12	Substances and mixtures, which in contact with water, emit flammable gases	Not classified	–	–	–	Stable to water (the water solubility is obtained)
13	Oxidizing liquids	Not applicable	–	–	–	Liquid (GHS definition)
14	Oxidizing solids	Classification not possible	–	–	–	ICSC (J) (2001) and HSDB (2005) describe that the anhydride is a "strong oxidizer," this product is also considered to have a strong oxidativity. But we cannot classify it because of insufficient data.
15	Organic peroxides	Not applicable	–	–	–	Inorganic compound
16	Corrosive to metals	Classification not possible	–	–	–	No data available

Health Hazards

Hazard class		Classification	symbol	signal word	hazard statement	Rational for the classification
1	Acute toxicity (oral)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	The LD50 values for sodium chromate anhydride (CAS: 7775-11-3) are 87mg/kg in male and 40mg/kg in female (both EU-RAR (2005)). Because the molecular weight of the decahydrate (approx. 342) is about twice as much as that of the anhydride (approx. 162), the LD50 values were converted to approx. 175mg/kg for male and approx. 80mg/kg for female, and the substance was classified as Category 3.
1	Acute toxicity (dermal)	Category 5	–	Warning	May be harmful in contact with skin	It is rabbit LD50 = 1330mg/kg (EU-RAR (2005)) to a sodium chromate anhydrides (CAS:7775-11-3). In 10 hydrate, a molecular weights (about 342) was about twice the anhydride (about 162). And it was set as Category 5 based on concersion rabbit LD50 = about 2800mg/kg.
1	Acute toxicity (inhalation: gas)	Not applicable	–	–	–	It is a liquid in the definition of GHS. In addition, although this product is an existing deliquescent yellow crystals, the melting points is belw 19.9degC (it can be dissolved in water of crystallization).
1	Acute toxicity (inhalation: vapour)	Classification not possible	–	–	–	No data available
1	Acute toxicity (inhalation: dust, mist)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Rat LC50 = 0.104mg/L/4h to the sodium chromate anhydrides (CAS:7775-11-3) carried out in the state of mist (EU-RAR (2005)). Since a molecular weights of 10 hydrate (about 342) was as about twice as the anhydride (about 162). So it was converted to LC50 = about 0.2mg/L/4h, and it was set as Category 2.
2	Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	In anhydrides of this product (in Sodium chromate (CAS:7775-11-3), there is description that the deep ulcers which shows corrosive and severe irritation to human skin is started (ICSC(2005);SITTIG (4th, 2002)). Furthermore, in the European risk phrases, it was classified with caustic (C;R34) (EU-Annex I (Access on June 2006)), it was set as Category 1A-1C. In addition, further categorizing from this data is difficult.
3	Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Due to the descriptions that anhydrides of this product (Sodium chromate (CAS:7775-11-3)) shows causticity to the human eye, and it produces serious depths burn and the visual impairment (ICSC(2005);SITTIG (4th, 2002)), it was classified into Category 1.

4	Respiratory/skin sensitization	Respiratory sensitization: Category1; Skin sensitization: Category1	(Respiratory sensitization)Health hazard; (Skin sensitization)Exclamation mark	(Respiratory sensitization)Danger; (Skin sensitization)Warning	(Respiratory sensitization)May cause allegy or asthma symptoms pr breathing difficulties if inhaled; (Skin sensitization)May cause allergic skin reaction	Respiratory sensitization: about the anhydride of this substance (Sodium chromate (CAS: 7775-11-3)), in addition to repetition or long-term inhalation exposure to human may cause asthma (ICSC(2005)), it is classified into "R42 (inhalation may cause sensitization)" according to the EU risk phrases. Moreover, chromium and chromium compound were classified into "the 2nd group (material considered that there is probably sensitizing to human)" in Japan Association of Industrial Health, and chromium was classified into the material with respiratory sensitization in Japanese Society of Occupational Allergy Special Committee, this product thought that it had respiratory sensitization and was set to Category 1. Skin sensitization: about the anhydride of this substance (Sodium chromate (CAS: 7775-11-3)), in addition to there is a description of showing sensitivity to a human skin (ICSC(2005), and SITTIG(4th, 2002)), it is classified into "R42 (inhalation may cause sensitization)" according to the EU risk phrases. Moreover, since hexavalent chromium compound was classified into "Sh (risk of skin sensitization)"in DFG, chromium and chromium compound were classified into "the 1st group (material which has sensitizing clearly to human)" in Japan industrials society, this product was considered to have skin sensitization, and was set to Category 1.
5	Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Although it is only a positive in an in vitro mutagenicity test (Ames, chromosome aberration) as data of the this product (a sodium chromate anhydrides (CAS:7775-11-3) is included) (IARC 49, 1990), about the flood solubility hexavalent chromium compound, there is the mutagenicity knowledge in in vivo was indicated (NTP RoC (11th, 2005), IARC49 (1990), EU-RAR (2005)). So and it is classified into Category 2. Refer to potassium dichromate (ID 262, Chemical Abstracts Service:7778-50-9).
6	Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	As hexavalent chromium compounds, since it was was classified K (Chromium hexavalent (VI) compounds) in NTP (2005), group 1 (Chromium(VI)) in IARC (1990), and A (as Chromium(VI), Inhalation route) in EPA (1986), respectively, it was classified into Category 1A.
7	Toxic to reproduction	Classification not possible	-	-	-	Since there is no detailed data and also the data is insufficient for this product, it cannot classify. In addition, refer to potassium dichromate (ID 262, CAS: 7778-50-9) about the reproductive toxicity of hexavalent chromium compounds.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory, kidneys, liver)	Health hazard	Danger	Cause damage to organs (respiratory, kidneys, liver)	In the inhalation test (guess at mist) to the rat written in the document of Priority 1, the necrosis of pulmonary edemas, inflammation, and a bronchial epithelium are observed at 0.028mg/L /24h of sodium chromate anhydrides (CAS:7775-11-3) (EU-RAR (2005)). This dose is equivalent to 0.17 mg/L /4h, and when converting into the amount of 10 hydrate (about 0.34 mg/L /4h), it is included in the guidance value of Category 1. Moreover, since there are descriptions that a soluble hexavalent chromium compound affects liver, the kidney, and respiratory organs in ACGIH-TLV (2005). Furthermore, in the inside of the document in Priority 2, "caustic is in a human airway, the caustic by oral ingestion are showed, kidney and liver are affected, and a tissue is injured" (ICSC (2005)), it was considered as Category 1 (the respiratory system, kidney, liver).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, kidneys, liver)	Health hazard	Danger	Causes damage to organs (respiratory organs, kidneys, liver) through prolonged or repeated exposure	Because of the document of Priority 1 that effects on liver, kidney and respiratory tracts occured by water soluble hexavalent chromium compounds (ACGIH-TLV (2005)), and of the description "human respiratory tracts are affected, nasal septal perforations are occured, and kidneys are damaged" in the document of Priority 2 (ICSC (2005), SITTIG (4th, 2002)), it was classified into Category 1 (respiratory system, kidney, 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	-	-	-	No data available
11	Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	No data available.