

## GHS Classification

**ID1254**

**Ammonium dichromate**

**CAS 7789-09-5**

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	-	-	-	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	Not classified	-	-	-	Although it is combustible (ICSC (J) (2005) has statement as "nonflammable"), UNRTDG is classified into 5.1 and II according to the UNRTDG No. (1439). Since 4.1 was not assigned, it was classified as out of Category.
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Classified in oxidizing solids
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Not classified because of "Flash point: 190degC"(HSDB, 2003)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG is classified into 5.1 and II according to the U.N. number (1439) peculiar to a substance. Since 4.2 was not attached, it 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	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Category 2	Flame over circle	Danger	May intensify fire; oxidizer	UNRTDG No. 1439, Class: 5.1; PG II.
15 Organic peroxides	Not applicable	-	-	-	Inorganic compound
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)	Category 2	Skull and crossbones	Danger	Fatal if swallowed	Based on the rat oral LD50 values: 55mg/kg (male) and 48mg/kg (female), we adopted the lower value (48mg/kg) to classify the substance as Category 2.
1 Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	It was set as Category 4 from rabbit dermal LD50 = 1860mg/kg (EU-RAR (2005)).
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)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	It was set as Category 2 based on rat LC50 (4hr) = 0.2mg/L (EU-RAR (2005)) in inhalation study (mist).
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	Since there was description that caustic is indicated to human skin (ICSC (J), (2005)) and that produces a deep ulcers by contact to the skin (SITTIG (4th, 2002)), as well as it was classified in "C;R34 (a burned is produced)" according to the European risk phrases, 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	There is the description that corrosiveness is shown to the human eye (ICSC(J)(2005)), critical disorder with the possibility of loss of eyesight is developed (SITTIG(4th, 2002), and HSFS(1986)), moreover, it was classified to Category 1 by the skin causticity. So it was set to 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 allergy or asthma symptoms or breathing difficulties if inhaled; (Skin sensitization)May cause allergic skin reaction	Respiratory sensitization: in addition to asthma may be caused by repetition or the long-term inhalation to humans (ICSC(J)(2005)), this substance 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: in this product, by repetition or long-term contact to human, in addition to sensitization of the skin may be carried out (ICSC(J)(2005)), there is a report of skin sensitization by occupation exposure to this product (IUCRID(2000)). Moreover, it is classified into "R43 (skin contacts may cause sensitization)" according to the EU risk phrases. Furthermore, since hexavalent chromium compound is classified into "Sh (risk of skin sensitization)" in DFG, chromium and chromium compound are 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 there is only a positive (EHC61(1988), IUCLID (2000)) in an in vitro mutagenicity test (Ames) as this product data, about the flood solubility hexavalent chromium compound, there is the mutagenicity knowledge in in vivo (NTP RoC (11th, 2005), IARC49 (1990), EU-RAR (2005)). So it is classified into Category 2. In addition, potassium dichromate (ID 262, CAS: 7778-50-9, potassium dichromate) Category 1B from a dominant fatality tests positives, and sodium dichromates (ID 260, CAS: 10588-01-9) is categorized into Category 2 from positivities, such as an in vivo small core test.
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 a chromium compound of 6 values, it was classified into K (Chromium hexavalent(VI)compounds) by NTP (2005), group 1 (Chromium(VI)) according to IARC (1990), and A (Chromium(VI), Inhalation route) according to EPA (1986). Therefore, it was set as Category 1A.
7	Toxic to reproduction	Classification not possible	-	-	-	By ICSC (J) (2005), there is description "it is indicated by the animal studies that reproductive and developmental toxicity may be caused in people." Although the R of EU risk phrases classified that "Repr. Cat. 2; R60-61 (R60: spoils the rgenitalium R61: do damage to the fetal)". But there is no concrete data which the reproductive toxicity of this product, and it was presupposed that data is insufficient and it cannot be classified. In addition, for the reproductive toxicity of hexavalent chromium compound, refer to potassium dichromate (ID 262, CAS: 7778-50-9, and it is classified into Category 1B).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory, kidneys, liver)	Health hazard	Danger	Cause damage to organs (respiratory, kidneys, liver)	A soluble hexavalent chromium compound affects liver, the kidney, and respiratory organs in the document of Priority 1(ACGIH-TLV (2005)), and, in the document of Priority 2, "oral ingestions indicates caustic and there is condition of nausea, vomiting, abdominal pain, feeling of heat, diarrhea, and a shock/atrophy. Caustic is indicated to an airway by inhalation and there is a feeling of heat, a pharyngeal pain, a cough, inspiration, and stuffiness. Sice there is description that it may affect the kidney and liver and tissue damage may be produced" (ICSC (J) (2005), SITTI(4th, 2002), HSFS (1986)), 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	Since there was description that soluble hexavalent chromium compound may affect liver, the kidney, and respiratory organs (ACGIH-TLV(2005) the document of Priority 1), and that in human "respiratory tract and the kidney are affected, and nasal septal perforation and kidney disorder may be occured" (ICSC(J)(2005), SITTI(4th, 2002), and HSFS(1986) the document of Priority 2), it was classified into Category 1 (the respiratory systems, 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	-	-	-	Insufficient data available.
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	Classification not possible due to lack of data