

## GHS Classification

**ID701**

**Cyanamide, calcium salt (1:1)**

**CAS 156-62-7**

Date Classified: Mar. 15, 2007 (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	Classification not possible	-	-	-	Although pure form is nonflammable (Merck, 13th, 2001), it may also be considered that if content of carbon as production increases, it may become flammable. [Note] Although calcium cyanamid with the content of calcium carbide being less than 0.1% contains combustible component carbon, there is no UN number and it does not correspond to a hazardous materials. So it is outside Category.
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	Not classified	-	-	-	Non-pyrophoric when in contact with air at a room temperature and mainly used as agricultural chemicals.
11 Self-heating substances and mixtures	Not classified	-	-	-	A pure forms is nonflammable (Merck, 13th, 2001) and outside Category. Moreover, UNRTDG is classified into 4.3 and III when the content of the carbonized calcium (calcium carbide) which is the impurities on manufacture exceeds 0.1% (UN number 1403). 4.2 is not attached. As mentioned above, it was judged as the outside of Category.
12 Substances and mixtures, which in contact with water, emit flammable gases	Category 3 or Not classified	Flame	Warning	In contact with water releases flammable gases	It reacts with water and flammable gases acetylene and ammonia are produced (HSDB, 2003). When the content of carbonized calcium (calcium carbide) which is manufacturing impurities exceeds 0.1% (UN number 1403), UNRTDG is classified into 4.3 and III and corresponds to category 3, but When other, it is outside Category.
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not applicable	-	-	-	Inorganic compounds containing no oxygen and halogen.
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 4	Exclamation mark	Warning	Harmful if swallowed	It was set as Category 4 based on the lower value (403mg/kg). This lower value were adopted from LD50 value of 1958mg/kg (4300mg/kg/purity 45.54%) and 403 mg/kg (700mg/kg/purity 45.54%) converted 100% of sample purity of the oral administration examination using rats (Agricultural Chemical Registration Data (2000)).
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	Since in the rat acute percutaneous toxicity studies which administered up to 2800mg/kg (100% purity reduced value: 1640mg/kg), fatal cases is observed in male at highest dose (purity reduced value: 1640mg/kg) but not observed in female (pesticide registration application samples (2000)). it was guessed that LD50 value was in the dose ranges exceeding Category 4 (1000 - 2000mg/kg), and it was set as Category 5.
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 5	-	Warning	May be harmful if inhaled	About inhalation, there is description of "LC50 are maximum allowable concentrations, and 13g or more of 50% aqueous solutions of calcium cyanamide per m <sup>3</sup> " (Agricultural Chemical Registration Data (2000)). And LC50 became >6.5mg/L (mist), it was set as Category 5.
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the diffuse nature expansive redness and itchiness on human skin and formation of induration, ulcer, and crust on rabbit skin since (Agricultural Chemical Registration Data (2000)), and it was classified as R38 in EU-Annex, it was classified as Category 2.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Since pH of the soil suspensions of calcium cyanamide was classified into more than 11.5 (Agricultural Chemical Registration Data (2000)) and R41 in EU-Annex I (Access in 2006), it was set to Category 1.
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)-	No data available

5	Germ cell mutagenicity	Not classified	-	-	-	Based on the negativity of the mouse bone marrow micronucleus tests and Ames examination carried out up to 1000 microg/plate (Agricultural Chemical Registration Data (2000)), we classified it as Out Of Category.
6	Carcinogenicity	Not classified	-	-	-	From the negativity in mouse and rat carcinogenicity test (Agricultural Chemical Registration Data (2000)), it carried out the outside of category.
7	Toxic to reproduction	Classification not possible	-	-	-	No data available
8	Specific target organs/systemic toxicity following single exposure	Category 2 (systemic toxicity); Category 3 (respiratory tract irritation)	Health hazard	Warning	May cause damage to organs (systemic toxicity); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	Although there is the toxic symptom such as decrease of the amount of locomotor activity, prostrate, irregular respiration, trembling, the fall of body temperature, anemia, abasic, deconditioning of respiratory in rat dermal acute toxicity test (Agricultural Chemical Registration Data (2000)), it is not obvious the relationship with dose. And considering that male is 2000mg/kg (purity equivalent of 1172mg/kg), and female is 1000mg/kg (purity equivalent of 586mg/kg) about the amount of non toxic of this test, and the difficulty of specifying the target organs. So it is generally considered as in the guidance value of the Category 2, it is classified into Category 2 (general toxicity). Moreover, in the rat inhalation acute toxicity test, the inflammation of a respiratory way, pharyngitis, and a tracheal gill flame occurred. So it is classified into Category 3 (respiratory irritation).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Since the non-neoplastic lesions which originates in the this product is not acknowledged in a mouse and rats carcinogenicity test, and regarding occupational exposures of calcium cyanamide, there is no basis considered to be caused by calcium cyanamide about all of acute or chronic disease up to the level of 8mg CaCN <sub>2</sub> /m <sup>3</sup> (Agricultural Chemical Registration Data (2000)), it considered that data is insufficient and it cannot be classified.
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)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 48-hour EC50=7.7mg/L of Crustacea (Daphnia magna) (Agricultural Chemical Registration Data, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2, and supposed not rapidly degrading (BIOWIN), though supposed less bio-accumulative (log Kow=-0.2(PHYSPROP Database, 2005)).