GHS Classification

ID206 Carbofuran

CAS 1563-66-2 Date Classified: Jun. 20, 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	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	Not classified	–	–	–	Not ignite spontaneously on coming into contact with air at normal temperatures
11	Self-heating substances and mixtures	Classification not possible	–	–	–	No data available
12	Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	–	–	–	The chemical structure of the substance does not contain metals or metaloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).
13	Oxidizing liquids	Not applicable	–	–	–	Solid (GHS definition)
14	Oxidizing solids	Not applicable	–	–	–	Organic compounds containing oxygen (but not chlorine and fluorine) and the oxygen is chemically bonded only to carbon (but not to other elements).
15	Organic peroxides	Not applicable	–	–	–	Containing no -O-O- structure
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 1	Skull and crossbones	Danger	Fatal if swallowed	Category 1 based on SPECIES: Rat; ENDPOINT: LD50; VALUE: :5mg/kg; REFERENCE SOURCE: ACGIH (2004)
1	Acute toxicity (dermal)	Category 5	–	Warning	May be harmful in contact with skin	It was set as Category 5 based on rabbit LD50 value of 75% wettable powder: 3400mg/kg (reduced values = 2550mg/kg) (ACGIH, 2004).
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 1	Skull and crossbones	Danger	Fatal if inhaled	It was set as Category 1 based on 75% wettable powder guinea-pig LC50 (4 hours) value: 0.045mg/L (equivalent 0.03375mg/L) (ACGIH, 2004).
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	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not	–	–	–	Respirator: No data Skin : ACGIH (2004) describes that two cases showed positive when 30 patients with allergic contact dermatitis underwent a patch test. This does not fit the skin sensitization criteria since there were no case reports from other medical institutions. It also describes that a test using guinea pig showed no skin sensitization. Therefore we classified this as uncategorizable because of insufficient data.
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 a positive result from the micronucleus test using mouse erythrocytes, which is an in vivo mutagenicity test using somatic cells (ACGIH, 2004), there is no positive result from in vivo genotoxicity tests using germ cells. So the substance was classified as Category 2.
6	Carcinogenicity	Not classified	–	–	–	Since it was classified into A4 (ACGIH, 2004) according to ACGIH, it was set as the outside of Category.

7	Toxic to reproduction	Not classified	–	–	–	Since there is the descriptioin that there is no obvious reproductive toxicity in the dose causing general toxicity to parent animals in the rat and mouse oral administration test and in rat three generation reproduction study (ACGIH (7th, 2004)), it was considered as on the outside of Categry.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system)	Health hazard	Danger	Cause damage to organs (nervous system)	It was classified into Category 1 (nerve system). Due to the descriptions that the neurologic symptom which indicates cholinesterase inhibits activities in the exposure tests to human in ACGIH (2004) was observed, and that the sensorimotor neuropathy was observed in the ingestion of very large amounts case.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system); Category 2 (testes)	Health hazard	Danger; Warning	Causes damage to organs (nervous system) through prolonged or repeated exposure; May cause damage to organs (testes) through prolonged or repeated exposure	Due to the descriptions that in the oral study for two years using rats in ACGIH (2004), reduction in brains cholinesterase activities was observed with the given dose within the guidance value range of Category 1, and that in the oral study for one year using dogs in ACGIH (2004) and IRIS (2006) the effects on the nervous system and testes were observed with the given dose within the guidance value range of Category 2 , they were classified into Category 1 (nervous system) and Category 2 (teste).
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 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 96-hour LC50=80microg/L of fishes (Bluegill) (PDS).
11	Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Classified into Category 1, since acute toxicity was Category 1, supposed not rapidly degrading (BIOWIN), though supposed less bioaccumulative (log Kow=2.32(PHYSPROP Database, 2005)).