

## GHS Classification

**ID677**

**2,3-epoxypropionaldehyde**

**CAS 765-34-4**

Date Classified: May 24, 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   | Category 3                  | Flame  | Warning     | Flammable liquid and vapour | Category 3 because of its flash point: 31degC  |
| 7 Flammable solids  | Not applicable              | -      | -           | -                           | Liquid (GHS definition)  |
| 8 Self-reactive substances and mixtures                                       | Not classified              | -      | -           | -                           | Not classified based on UNRTDG Class: 3, though containing distorted ring (epoxide groups) as chemical groups associated with self-reactive properties present |
| 9 Pyrophoric liquids  | Not classified              | -      | -           | -                           | Based on the UNRTDG class 3 (subsidiary risks 6.1), it was classified as the outside of Category.  |
| 10 Pyrophoric solids  | Not applicable              | -      | -           | -                           | Liquid (GHS definition)  |
| 11 Self-heating substances and mixtures                                       | Not classified              | -      | -           | -                           | Not classified because of UNRTDG Class: 3, Subsidiary risks Class: 6.1   |
| 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 metalloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).                                   |
| 13 Oxidizing liquids  | Not applicable              | -      | -           | -                           | Organic compounds containing oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).                              |
| 14 Oxidizing solids   | Not applicable              | -      | -           | -                           | Liquid (GHS definition)  |
| 15 Organic peroxides  | Not applicable              | -      | -           | -                           | Organic compounds containing no -O-O- structure  |
| 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  | Category 3 based on SPECIES: Rat; ENDPOINT: LD50; VALUE:230mg/kg; REFERENCE SOURCE: PATTY (5th, 2001)  |
| 1 Acute toxicity (dermal)                 | Category 3   | Skull and crossbones                                | Danger  | Toxic in contact with skin  | It was set as Category 3 based on rabbit LD50= 249mg/kg (HSDB (2003)).   |
| 1 Acute toxicity (inhalation: gas)        | Not applicable   | -   | -   | -   | Liquid (GHS definition)  |
| 1 Acute toxicity (inhalation: vapour)     | Category 2   | Skull and crossbones                                | Danger  | Fatal if inhaled  | The saturated vapor pressure concentration of this product is 59800ppm, and it is thought that all inhalation tests were done with vapor. It was classified as Category 2 based on rat LC50 = 251ppm (PATTY (5th, 2001)).  |
| 1 Acute toxicity (inhalation: dust, mist) | Classification not possible  | -   | -   | -   | No data available  |
| 2 Skin corrosion / irritation             | Category 2   | Exclamation mark                                    | Warning   | Causes skin irritation  | It was classified as Category 2 based on the statement that moderate skin irritation was observed on rabbits (HSDB (2003)).  |
| 3 Serious eye damage / eye irritation     | Category 2A  | Exclamation mark                                    | Warning   | Causes serious eye irritation   | Based on statements with the irritation of moderate in rabbit (PATTY (5th, 2001)), and with the irritation in human (HSDB (2003)), it was set as Category 2A.  |
| 4 Respiratory/skin 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                  | 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) | We found no in vivo test results, however, it has two indices for in vitro mutagenicity test (it shows positive in the bacteria reverse mutation test and the gene mutation test using the mammalian cells (MLA) (PATTY (5th, 2001), IRIS (2005)). In addition, this product has structural analogy with glycidol (ID 0098, CAS 556-52-9, in vivo somatic mutagenicity positive)), it has a similar structure with ethylene oxide, a known productive cell mutagen, and it has the alert structure (epoxide) there. In addition this product is metabolized and converted into glycidol. Therefore we classified it as Category 2. |

|    |  |   |                  |         |  |   |
|----|--|---|------------------|---------|--|---|
| 6  | Carcinogenicity  | Category 2                                | Health hazard    | Warning | Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) | Based on being classified into 2B according to IARC (1987), it was set as 2 by the technical indicator.   |
| 7  | Toxic to reproduction  | Classification not possible               | -                | -       | -  | No data available   |
| 8  | Specific target organs/systemic toxicity following single exposure   | Category 3 (respiratory tract irritation) | Exclamation mark | Warning | may cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)                                | There is the description that it has irritation to nose and throat in human (PATTY (5th, 2001)), and the description that it has irritation to the respiratory to the lung in rat (HSDB (2003)), it is classified into Category 3 (respiratory irritation). |
| 9  | Specific target organs/systemic toxicity following repeated exposure | Category 1 (kidneys)                      | Health hazard    | Danger  | causes damage to organs (kidneys) through prolonged or repeated  | It was classified to as Category 1 (kidney) according to the statement that in the rat, an edema of renal pelvis was seen with the given dose of guidance value within the limits of Category 1(IRIS 0315 (2001)) .   |
| 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.              |