

## GHS Classification

**ID8**

**2-Aminoethanol**

**CAS 141-43-5**

Date Classified: Apr. 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	-	-	-	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
5 Gases under pressure	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
6 Flammable liquids	Category 4	-	Warning	Flammable liquid	The flash point is 85degC (c.c.) (ICSC, 2004), which is classified into Category 4. Classified into Class 8 (UN#2491) (UN Recommendations on the Transport of Dangerous Goods)
7 Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 410degC (ICSC, 2004)
10 Pyrophoric solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not available
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	Containing no 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 fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other
14 Oxidizing solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Classification not possible	-	-	-	No data available. Corrosivity to metals remains uncertain, though classified as "corrosive substances" (as the classification based on UN Recommendations on the Transport of Dangerous Goods includes "skin corrosivity") (UN#2491).

## Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 5	-	Warning	May be harmful if swallowed	Based on the rat LD50 (oral route) of 3,320mg/kg (ACGIH (7th, 2001)).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the rabbit LD50 (dermal route) of 1,000mg/kg (ACGIH (7th, 2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Due to the fact that the substance is "liquid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	Insufficient data available
2 Skin corrosion / irritation	Category 1A	Corrosion	Danger	Causes severe skin burns and eye damage	Based on the description in the report on animal skin irritation tests (CERI Hazard Data 2001-41 (2002), ACGIH (7th, 2001)): "Corrosive" and "irritating, necrosis," the substance is thus considered "corrosive."
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the description in the report on rabbit eye irritation tests (CERI Hazard Data 2001-41 (2002), ACGIH (7th, 2001)): "Extremely irritating, causing corneal opacity and iris/conjunctival swelling," the substance is considered "extremely irritating to the eye and corrosive to the skin and eye."
4 Respiratory/skin sensitization	Respiratory sensitization: Category 1 Skin sensitization: Category 1	(Respiratory sensitization) Health hazard  (Skin sensitization) Exclamation mark	(Respiratory sensitization) Danger  (Skin sensitization) Warning	(Respiratory sensitization) May cause allergic or asthmatic symptoms or breathing difficulties if inhaled  (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: Based on the description of the data on human health effects (CERI Hazard Data 2001-41 (2002)): "The results of inhalation provocative tests on aerosols (containing very low concentrations of 2-aminoethanol) are all positive in 14 subjects (cough, running nose, congested nose, asthmatic breathing). The substance is thus considered to cause "respiratory sensitization." Skin sensitization: Based on the data on human health effects (CERI Hazard Data 2001-41 (2002)): "2-aminoethanol causes mild skin sensitization."
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the absence of data on in vivo germ cell multi-generation mutagenicity tests and negative data on in vivo somatic cell mutagenicity tests (micronucleus tests), described in CERI Hazard Data 2001-41 (2002).
6 Carcinogenicity	Classification not possible	-	-	-	No data available

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the results of rat teratogenicity studies (CERI Hazard Data 2001-41 (2002)): Pyelectasia is observed in the embryo at dose levels toxic to maternal animals.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, liver)	Health hazard	Danger	Causes damage to organs (nervous system, liver)	Based on the human evidence including "headache, nausea, hyposthenia, dizziness, numbness in fingertips, pectoralgia" and "enlargement of the liver, an increase in serum ALT levels and alkaline phosphatase activity, chronic hepatitis (in six month's time)" (CERI Hazard Data 2001-41 (2002)), and the evidence from animal studies including "ataxia, convulsions," and "hepatocellular fatty degeneration" (CERI Hazard Data 2001-41 (2002)). The effects on nervous system and liver of experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, testes, gastrointestinal tract, liver, kidneys, respiratory organs)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (nervous system, testes, gastrointestinal tract, liver, kidneys, respiratory organs)	Based on the human evidence including "a decrease in locomotor activity, lethargy, skin irritation, irregular respiration, decrease (83%) - with spermatogenesis inhibition and adverse effects on alimentary canal (degeneration of the small intestine wall, intestinal blockage due to dehydrated excrement) reported on the deceased subjects. Those in rodents include: hepatocellular fatty degeneration, an increase in lymphoid tissues in the pulmonary interstitium (CERI Hazard Data 2001-41 (2002)). Those in survived canines include: hepatic congestion, vacuolation and cloudy swelling of hepatocytes, an increase in brown pigments in Kupffer cells, a decrease in lymphocytes in the splenic white pulp, an increase in brown pigment phagocytic macrophage in the splenic red pulp, a decrease in red blood cells, an increase in hyaline granules in the renal tubular epithelium, cloudy swelling of the convoluted renal tubular epithelium, pulmonary congestion, small hemorrhagic focuses in the lung (CERI Hazard Data 2001-41 (2002)). Those in deceased canines include: bronchial pneumonia, a decrease in lymphocytes and red blood cells in the spleen (CERI Hazard Data 2001-41 (2002)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
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 72 hours ErC50=2.5mg/L of the algae (Selenastrum) (MOE Eco-Toxicity Tests of Chemicals, 1996).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 83% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=-1.31 (PHYSPROP Database, 2005)), it was classified into Not classified.