

## GHS Classification

**ID61**

**Phenol**

**CAS 108-95-2**

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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 "solid" according to GHS definition
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	-	-	-	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	-	-	-	Classified as "solid" according to GHS definition
7 Flammable solids	Not classified	-	-	-	Classified into Division 6.1 (UN#1671) (UN Recommendations on the Transport of Dangerous Goods)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	-	-	-	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 715degC (ICSC, 2004)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not available - melting point: 43degC (ICSC, 2004), test temperature: 140degC
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	-	-	-	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	-	-	-	Organic compounds containing oxygen (but not fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other elements)
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Not classified	-	-	-	Classified into Division 6.1 (UN#1671) (UN Recommendations on the Transport of Dangerous Goods)

## 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	Based on the LD50 value calculated from the testing data of rat LD50 (oral route) of 414mg/kg (MOE Risk Assessment vol. 1 (2002)), 512mg/kg (EHC 161 (1994)), 400mg/kg (EHC 161 (1994)), 340mg/kg (EHC), and 445mg/kg (EHC 161 (1994)). LD50=375 mg/kg
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the testing data of rat LD50 (dermal route) of 670mg/kg (EHC 161 (1994)). Likewise, based on the testing data of rabbit LD50 (dermal route) 850 mg/kg and 1,400 mg/kg (EHC 161 (1994)). The value of rat, which is lower than that of rabbit, is adopted for classification purposes.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Due to the fact that the substance is "solid" 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	-	-	-	No data available
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	Based on the testing data of rabbit skin irritation tests (EHC 161 (1994)) and data on human health effects (EHC 161 (1994)): Corrosive to the skin. Subsequently classified into 1A-1C, due to lack of data for subclassification, although the substance should be placed in 1A from the viewpoint of safety.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the testing data of rabbit eye irritation tests (EHC 161(1994)): Application of 10% glycerin solution or 5% aqueous solution causes complete corneal opacity, although numerical data are not available. The substance causes irreversible effects on the eye.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Not classified	(Respiratory sensitization) - (Skin sensitization) -	(Respiratory sensitization) - (Skin sensitization)	(Respiratory sensitization) - (Skin sensitization) -	Respiratory sensitization: No data available Skin sensitization: based on the negative results of the Mugnussen and Kligman skin sensitization tests on guinea pigs (EHC 191 (1994)), the MEST method using rats (NITE Initial Risk Assessment No.32 (2005)) and tests on human volunteers (NITE Initial Risk Assessment No.32 (2005)).
5 Germ cell mutagenicity	Category 1B	Health hazard	Danger	May cause genetic defects	Based on the absence of data on germ cell multi-generation mutagenicity tests and positive data on germ cell mutagenicity tests in vivo (chromosome aberration tests), described in CERI-NITE Hazard Assessment No.32 (2005) and NTP DB (Access on Dec., 2005)
6 Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Group 3 by IARC (1999), Category A4 by ACGIH (2005) and Group D by IRIS (2002).
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the description in CERI-NITE Hazard Assessment No.32 (2005): Birth rates decline at dose levels not toxic to parent animals (Narotsky and Kavlock, 1995)
8 Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs, cardiovascular system, kidneys, nervous system)	Health hazard	Danger	Causes damage to organs (respiratory organs, cardiovascular system, kidneys, nervous system)	Based on the human evidence including "adverse effects on the heart and blood vessels," "a significant increase in respiratory rate, dyspnea, irregular cardiac rhythm, cardiovascular shock, severe metabolic acidosis, methemoglobinemia, acute renal failure, nephropathy, dark urine, adverse effects on nervous systems (convulsions, etc.)" (CERI-NITE Hazard Assessment No.32 (2005)), "irregular heart rhythm" (EHC 161 (1994)), "arrhythmia, bradycardia" (ATSDR (1998)), and the evidence from animal studies including "strong suppression of pupillary reflex" (CERI-NITE Hazard Assessment No.32 (2005)). The effects on 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 (cardiovascular system, liver, gastrointestinal tract, blood system, kidneys, spleen, thymus, central nervous system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (cardiovascular system, liver, gastrointestinal tract, blood system, kidneys, spleen, thymus, central nervous system)	Based on human evidence including "an increase in mortality due to cardiovascular diseases" (CER-I-NITE Hazard Assessment No.32 (2005)), "nonconjugated hyperbilirubinemia in newborns" (EHC 161 (2000)), "nausea, vomiting, diarrhea, gastralgia, hemolytic anemia, methemoglobinemia, glomerular degeneration, renal tubular necrosis; hemorrhage in papillary cells" (ATSDR (1998)), and the evidence from animal studies including "a significant decrease in red blood cell count, protein columns and necrosis of renal tubules; papillary hemorrhage, atrophy and necrosis of the spleen and thymus gland, hepatocellular vacuolar degeneration, severe adverse effects on the central nervous system (behavior observed in inclined plant tests), hepatopathy" (CER-I-NITE Hazard Assessment No.32 (2005)). 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 48 hours LC50=3.1mg/L of the crustacea (Ceriodaphnia) (EU-RAR, 2002).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 85% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=1.46 (PHYSPROP Database, 2005)), it was classified into Not classified.