

GPS Safety Summary

This Product Safety Summary is intended to provide a brief overview of the information on the risk assessment results of the chemical product that we manufacture based on the chemical industry's Global Product Strategy (GPS) to the general public as a social responsibility of a company that manufacture chemical substances.

This summary is not intended to provide technical information including effects on human health and the environment and details of risk assessment. In addition, it is not intended to be prepared as a document to replace a Safety Data Sheet (SDS) or a risk assessment report like a Chemical Safety Report under the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) (REACH CSR). Although the summary is prepared based on the laws, materials, information and data that are available at the present moment, it does not provide any assurances.

SUBSTANCE NAME

Phenol (Phenol, CAS No. 108-95-2)

GENERAL STATEMENT

Phenol is a white solid with characteristic odor. Phenol is aromatic compound with hydroxyl synthesized from benzene. Phenol is used as raw material of phenol resin, for synthesis of bisphenol A which is raw material of epoxy resin, and as raw material of various chemicals.

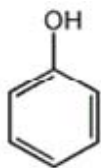
Phenol is harmful if swallowed or inhaled, toxic in contact with skin, causes severe skin burns and eye damage, suspected of causing genetic defects, suspected of damaging fertility or the unborn child. Phenol also causes damage to organs (nervous system, kidney) by single exposure and causes damage to organs (kidney, the central nervous system) through prolonged or repeated exposure. Though phenol is toxic to aquatic life, its bioaccumulation is considered to be low because phenol is readily biodegradable.

It is recommended to wear appropriate protective masks, gloves while sampling for production. It is also recommended to take effective measures to prevent leakage and conduct regular monitoring and maintenance and inspection of facilities to minimize the effect on environmental organism.

CHEMICAL IDENTITY

Item	Contents
Generic name	Phenol
Trade name	Phenol
Chemical name	Phenol (IUPAC name: Phenol)
CAS No.	108-95-2
Other numbers	Reference No. listed in the official gazettes (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Industrial Safety and Health Act) (3)-481 EC No. 203-632-7
Molecular formula	C ₆ H ₅ OH

Structural formula



Other information

None in particular

USES AND APPLICATIONS

Intended uses of our product Industrial intermediate (synthetic raw material, raw material for polymer or polymerization initiator)

PHYSICAL/CHEMICAL PROPERTIES

Appearance (physical state)	Solid
Color	White
Odor	None
Specific gravity (relative density)	1.071
Melting point/boiling point	40.85 °C/ 182 °C
Combustibility/flammability	Not applicable
Flash point	79 °C(Closed)
Limit of combustion or explosion	8.6 vol % / 1.8vol %
Auto ignition temperature	715 °C
Vapor pressure	30 Pa (20°C)
Molecular weight	94.11
Water solubility	76.04 g/ g (15°C)
Octanol-water partition coefficient	LogKow: 1.46

HEALTH EFFECTS

Effect assessment	Results (GHS ^{*1} hazard classification)
Acute toxicity (oral ingestion)	Harmful if swallowed (Category 4)
Acute toxicity (inhalation)	Not applicable ^{*2} (gas) Classification not possible ^{*3} (vapor) Harmful if inhaled (Category 4) (dust/mist)
Acute toxicity (dermal)	Harmful in contact with skin (Category 3)
Skin corrosion/irritation	Causes severe skin burns and eye damage (Category 1)
Serious eye damage/eye irritation	Causes serious eye damage (Category 1)
Respiratory sensitization	Classification not possible
Skin sensitization	Not classified ^{*4}
Germ cell mutagenicity	Suspected of causing genetic defects
Carcinogenicity	Not classified
Reproductive toxicity	Suspected of damaging fertility or the unborn child (Category 2)
Specific target organ toxicity (Single exposure)	Causes damage to organs (nervous system, kidney) (Category 1)
Specific target organ toxicity (Repeated exposure)	Causes damage to organs (kidney, the central nervous system) through prolonged or repeated exposure (Category 1)

Aspiration hazard

Source/remarks

Classification not possible

^{*1} GHS: Globally Harmonized System of Classification and Labelling of Chemicals. This system enables us to classify chemicals by hazard type and degree according to globally harmonized rules.

^{*2} Not applicable: Because the physical properties defined by GHS are not met, the chemical is not included in the target chemicals of the classification.

^{*3} Classification not possible: The data needed for judging classification are not available at all or sufficient data are not collected for classification.

^{*4} Not classified: Hazardousness much lower than the lowest hazard class specified by GHS

ENVIRONMENTAL EFFECTS

Effect assessment	Results (GHS hazard classification)
Hazardous to the aquatic environment (acute)	Toxic to aquatic life (Category 2)
Hazardous to the aquatic environment (chronic)	Not classified
Environmental fate/dynamics	Results
Transfer in the environment	Its volatility from the water system is low and its adsorptivity to soil is not high.
Biodegradability	Readily biodegradable
Bioaccumulation	Bioaccumulation is low.
Conclusion of PBT/vPvB	Not judged to be PBT [*] and vPvB ^{**} . [*] PBT: Persistent, bioaccumulative and toxic (Remaining in the environment and having high bioaccumulative and strong toxic properties) ^{**} vPvB: very Persistent and very Bioaccumulative (Readily remaining in the environment and having very high bioaccumulative property)

EXPOSURE

Details	No.	Potential exposure in the process of use of our products (exposure route)
Occupational Exposure	1-1	Mainly through sampling or transfer (inhalation, skin/eye contact) However phenol is produced in a closed system process, the potential for worker exposure is extremely low.
Consumer exposure	2-1	Because of no consumer use, the potential for consumer exposure is extremely low.
Environmental exposure	3-1	Mainly in the process of manufacture or use (mainly air and water system) However phenol is produced in a closed system process, the potential for release into environment is extremely low. It is solid at normal temperature and normal pressure. In the case of environmental release, though it disperses in water system, it is expected to be degraded in the water system relatively rapidly.
Note		If there is a potential for exposure in other uses, take appropriate measures in reference to the risk management recommends.

RISK MANAGEMENT RECOMMENDATIONS

Details	No.	Management recommendations based on our risk assessment results
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Occupational Exposure	1-1	<p>Wear appropriate protective masks, clothing and gloves made of materials that phenol does not penetrate while sampling operation or so on. The Japanese Society of Occupational Health and the American Conference of Governmental Industrial Hygienists (ACGIH) set the threshold limit value of propylene in the work environment at 5ppm (TWA: time-weighted average) and recommend that the concentration in the place of manufacturing or use should be controlled and regulated to levels below this environmental concentration.</p> <p>The operation manager should instructs workers how to select and use the appropriate protective equipment and how to manage the work place.</p>
Consumer exposure	2-1	None
Environmental exposure	3-1	<p>Install exhaust gas and sewage treatment equipment and take effective measures to prevent leakage, because leakage of phenol may affect adverse effect on the environment if leaked. Take care of regular confirmation of discharge volume, daily maintenance and handling.</p>
Other warnings Note		<p>For the measures and actions to be taken for regular handling, emergency situations, disposal and transportation, see Section 4, 5, 6, 7, 8, 13 and 14, SDS issued by Mitsubishi Chemical Corporation.</p>

STATE AGENCY REVIEW

Assessment document	Review condition
OECD HPV	http://webnet.oecd.org/Hpv/UI/SIDS_Details.aspx?id=E8D6DD04-8FFE-426F-8B71-BB2317CEB18B
National Institute of Evaluation and Technology (NITE)	
- Preliminary Risk Assessment of Chemical Substances	http://www.safe.nite.go.jp/risk/files/pdf_hyoukasyo/266riskdoc.pdf
Ministry of Environment	
- Preliminary Environment Risk Assessment of Chemical Substances	http://www.env.go.jp/chemi/report/h14-05/chap01/03/28.pdf
REACH	http://apps.echa.europa.eu/registered/registered-sub.aspx

REGULATORY INFORMATION / LABELLING INFORMATION

Main regulatory information

Law	Regulatory condition
UN class	6.1
UN No.	1671
Fire Service Act	Specified flammable substance, flammable solid
Ship Safety Act	Toxic substance - Toxic substances in Appended Table 1 of the

Poisonous and Deleterious Substances Control Act	Notification for Establishing Standards for the Carriage of Dangerous Goods in Ships Deleterious substance
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Industrial Safety and Health Act	Priority Assessment Chemical Substances, Type II Monitoring Chemical Substance (before amendment)
Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof	Article 57 Labeled substance Article 326 of Ordinance on industrial Safety and Health, corrosive Article 57-2 Paragraph 2 Substance Requiring notification Ordinance on Prevention of Hazards due to Specified Chemical Substances Class 3
Civil Aeronautics Act Other regulations	Class I designated chemical substances
	Substances Approved for Transportation, 6. Toxic substances 6.1 Toxic Air Pollution Control Act: Specified Substance, Hazardous Air Pollutant, Volatile Organic Compound Water Pollution Control Act: item of pollution of environment for living Sewerage Act: substance of water quality standards Water Supply Act: harmful substance, water quality standards Act for the Prevention of Marine Pollution and Maritime Disasters: Marine Pollutants Liquid (Class Y) Act on Port Regulations: dangerous substance, toxic substance Road Act: restriction on traffic of vehicles Labor Standards Act: chemical substances or compounds causes illness

Labelling information

Pictograms or symbols



Signal Word

Hazard statement

Danger

- Toxic in contact with skin
- Harmful if swallowed
- Harmful if inhaled
- Causes severe skin burns and eye damage
- Causes serious eye damage
- Suspected of causing genetic defects
- Suspected of damaging fertility or the unborn child

- Causes damage to organs (the nervous system, kidney)
- Causes damage to organs (kidney, the central nervous system) through prolonged or repeated exposure.
- Toxic to aquatic life

CONTACT INFORMATION WITHIN COMPANY

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DATE OF ISSUE / REVISION, ADDITIONAL INFORMATION

Ver. 1 : Issued on march 10, 2014 (JP version 1: issued on July 30, 2012)
Revised : None
Special remarks: None