

MATERIAL SAFETY DATA SHEET

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Version 1.9

Section 1 - Product and Company Information

Product Name RESORCINOL, 99+%, A.C.S. REAGENT
Product Number 398047
Brand SIAL

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313 No
RESORCINOL	108-46-3	No

Formula C6H6O2
Synonyms Benzene, m-dihydroxy- * m-Benzenediol *
1,3-Benzenediol * C.I. 76505 * C.I. Developer 4 *
C.I. Oxidation Base 31 * Developer O * Developer
R * Developer RS * m-Dihydroxybenzene *
1,3-Dihydroxybenzene * m-Dioxybenzene * Durafur
developer G * Fouramine RS * Fournine 79 *
Fournine EW * m-Hydroquinone *
3-Hydroxycyclohexadien-1-one * m-Hydroxyphenol *
3-Hydroxyphenol * Nako TGG * NCI-C05970 * Pelagol
Grey RS * Pelagol RS * Phenol, m-hydroxy- * RCRA
waste number U201 * Resorcin * Resorcine *
Resorcinol (ACGIH)

RTECS Number: VG9625000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic (USA) Harmful (EU).

Harmful if swallowed. Irritating to skin. Risk of serious damage to eyes. Very toxic to aquatic organisms.

Target organ(s): Liver. Kidneys.

HMIS RATING

HEALTH: 2*

FLAMMABILITY: 0

REACTIVITY: 0

NFPA RATING

HEALTH: 2

FLAMMABILITY: 0

REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

EXPLOSION HAZARDS

Container explosion may occur under fire conditions.

FLASH POINT

260.6 °F 127 °C Method: closed cup

EXPLOSION LIMITS

Lower: 1.4 %

AUTOIGNITION TEMP

608 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable: Water or foam may cause frothing.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Emits toxic fumes under fire conditions.

Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS

Air and light sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	STEL	20 PPM
USA	ACGIH	TWA	10 PPM
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	10 PPM
		STEL	20 PPM

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	45 MG/M3
Poland		NDSch	90 MG/M3
Poland		NDSP	-

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid		
Property	Value	At Temperature or Pressure	
Molecular Weight	110.11 AMU		
pH	4.4		
BP/BP Range	178 °C	16 mmHg	
MP/MP Range	110.0 - 113.0 °C		
Freezing Point	N/A		
Vapor Pressure	1 mmHg	21.1 °C	
Vapor Density	3.8 g/l		
Saturated Vapor Conc.	N/A		
SG/Density	1.2717 g/cm3		
Bulk Density	N/A		
Odor Threshold	N/A		
Volatile%	N/A		
VOC Content	N/A		
Water Content	N/A		

Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	Log Kow: 0.8	
Decomposition Temp.	N/A	
Flash Point	260.6 °F 127 °C	Method: closed cup
Explosion Limits	Lower: 1.4 %	
Flammability	N/A	
Autoignition Temp	608 °C	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Soluble. Other Solvents: SOLUBLE IN WATER, ALCOHOL ETHER AND ACETIC ACID, DMS	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May discolor on exposure to air.

Materials to Avoid: Oxidizing agents Iron and iron salts.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Liver. Kidneys. Spleen. Heart. Blood.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Human

29 mg/kg

LDLO

Oral

Rat

301 mg/kg

LD50

Remarks: Gastrointestinal:Changes in structure or function of salivary glands. Behavioral:Convulsions or effect on seizure

threshold. Lungs, Thorax, or Respiration:Dyspnea.

Oral
Mouse
200 mg/kg
LD50

Intraperitoneal
Mouse
215 MG/KG
LD50

Subcutaneous
Mouse
213 MG/KG
LD50

Skin
Rabbit
3360 mg/kg
LD50

Remarks: Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Skin and Appendages:Skin: After topical exposure:Primary irritation.

IRRITATION DATA

Skin
Rabbit
500 mg

Skin
Rabbit
20 mg
24H
Remarks: Moderate irritation effect

Eyes
Rabbit
100 mg
Remarks: Severe irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Species: Mouse
Route of Application: Skin
Dose: 4800 MG/KG
Exposure Time: 12W
Frequency: I
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

IARC CARCINOGEN LIST

Rating: Group 3

NTP CARCINOGEN LIST

Rating: No evidence.

Species: Mouse/rat

ACGIH CARCINOGEN LIST

Rating: A4

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 80 MG/L
Cell Type: lymphocyte
Mutation test: Cytogenetic analysis

Species: Human
Dose: 40 MG/L
Cell Type: Other cell types
Mutation test: Cytogenetic analysis

Species: Rat
Dose: 10 MMOL/L
Cell Type: liver
Mutation test: DNA damage

Species: Hamster
Dose: 1600 MG/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 96 h
Value: 0.25 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: > 100 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 48.3 - 66.1 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Resorcinol
UN#: 2876
Class: 6.1

Packing Group: Packing Group III
Hazard Label: Toxic Substance
PIH: Not PIH

IATA

Proper Shipping Name: Resorcinol
IATA UN Number: 2876
Hazard Class: 6.1
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: Xn-N
Indication of Danger: Harmful. Dangerous for the environment.
R: 22-36/38-50
Risk Statements: Harmful if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms.
S: 26-61
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic (USA) Harmful (EU).
Risk Statements: Harmful if swallowed. Irritating to skin. Risk of serious damage to eyes. Very toxic to aquatic organisms.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Avoid release to the environment. Refer to special instructions/safety data sheets.
US Statements: Target organ(s): Liver. Kidneys.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.