

SAFETY DATA SHEET

Version 6.1
Revision Date 05/28/2017
Print Date 08/08/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Resorcinol

Product Number : 398047

Brand : Sigma-Aldrich

Index-No. : 604-010-00-1

CAS-No. : 108-46-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 Spruce Street
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Skin sensitisation (Sub-category 1B), H317

Specific target organ toxicity - single exposure, Oral (Category 1), Central nervous system, Blood, H370

Specific target organ toxicity - single exposure, Oral (Category 2), Respiratory system, H371

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302

Harmful if swallowed.

H315

Causes skin irritation.

H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H370	Causes damage to organs (/\$/*_ORG_SING_ORAL\$/) if swallowed.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	: 1,3-Benzenediol
Formula	: C ₆ H ₆ O ₂
Molecular weight	: 110.11 g/mol
CAS-No.	: 108-46-3
EC-No.	: 203-585-2
Index-No.	: 604-010-00-1

Hazardous components

Component	Classification	Concentration
1,3-Benzenediol		
	Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1B; STOT SE 1; STOT SE 2; Aquatic Acute 1; Aquatic Chronic 3; H302, H315, H317, H318, H370, H400, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combu formation should be taken into consideration before additional processing

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,3-Benzenediol	108-46-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye irritation Skin irritation Not classifiable as a human carcinogen		
		TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Skin & eye irritation Not classifiable as a human carcinogen		
		STEL	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye irritation Skin irritation Not classifiable as a human carcinogen		
		STEL	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Skin & eye irritation Not classifiable as a human carcinogen		
		TWA	10.000000 ppm 45.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	20.000000 ppm 90.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	10 ppm 45 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	20 ppm 90 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	10 ppm 45 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	20 ppm 90 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
1,3-Benzenediol	108-46-3	Methemoglobin	1.500 %	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	During or end of shift			
		Methemoglobin	1.5% Hb	In blood	ACGIH - Biological Exposure Indices (BEI)
		During or at the end of the shift			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industria situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

- | | |
|---|---|
| a) Appearance | Form: solid |
| b) Odour | No data available |
| c) Odour Threshold | No data available |
| d) pH | 4.5 |
| e) Melting point/freezing point | Melting point/range: 109 - 112 °C (228 - 234 °F) - lit. |
| f) Initial boiling point and boiling range | 178 °C (352 °F) at 21 hPa - lit. |
| g) Flash point | 127 °C (261 °F) - closed cup |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | Lower explosion limit: 1.4 %(V) |
| k) Vapour pressure | 1 hPa at 21.1 °C (70.0 °F) |
| l) Vapour density | No data available |
| m) Relative density | 1.28 g/cm3 at 20 °C (68 °F) |

- | | | |
|----|--|------------------------------------|
| n) | Water solubility | 717 g/l at 25 °C (77 °F) - soluble |
| o) | Partition coefficient: n-octanol/water | log Pow: 0.8 at 20 °C (68 °F) |
| p) | Auto-ignition temperature | No data available |
| q) | Decomposition temperature | No data available |
| r) | Viscosity | No data available |
| s) | Explosive properties | Not explosive |
| t) | Oxidizing properties | No data available |

9.2 Other safety information

- | | |
|-----------------------|--------------------------|
| Surface tension | 72 mN/m at 20 °C (68 °F) |
| Dissociation constant | 9.81 at 25 °C (77 °F) |

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Oxidizing agents, Iron and iron salts.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 510 mg/kg(1,3-Benzenediol)

(OECD Test Guideline 401)

LD50 Dermal - Rabbit - male - 2,830 mg/kg(1,3-Benzenediol)

No data available(1,3-Benzenediol)

Skin corrosion/irritation

Skin - Rabbit(1,3-Benzenediol)

Result: Irritating to skin. - 24 h

Serious eye damage/eye irritation

Eyes - Rabbit(1,3-Benzenediol)

Result: Irreversible effects on the eye - 72 h

Respiratory or skin sensitisation

in vivo assay - Mouse(1,3-Benzenediol)

Result: The product is a skin sensitiser, sub-category 1B.
(OECD Test Guideline 429)

Germ cell mutagenicity

Ames test(1,3-Benzenediol)

Salmonella typhimurium

Result: negative

(1,3-Benzenediol)

Rat - male and female

Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Specific target organ toxicity - single exposure

No data available(1,3-Benzenediol)

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available(1,3-Benzenediol)

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - No observed adverse effect level - 80 mg/kg(1,3-Benzenediol)
RTECS: VG9625000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(1,3-Benzenediol)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 29.5 mg/l - 96 h(1,3-Benzenediol)

Toxicity to daphnia and other aquatic invertebrates semi-static test EC50 - Daphnia magna (Water flea) - 1 mg/l - 48 h(1,3-Benzenediol)
(OECD Test Guideline 202)

Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata (green algae) - > 97 mg/l - 72 h(1,3-Benzenediol)
(OECD Test Guideline 201)

Toxicity to bacteria Respiration inhibition EC50 - activated sludge - 79 mg/l - 3 h(1,3-Benzenediol)
(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 14 d(1,3-Benzenediol)
Result: 66.7 % - Readily biodegradable.
(OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(1,3-Benzenediol)

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2876 Class: 6.1 Packing group: III
Proper shipping name: Resorcinol
Reportable Quantity (RQ) : 5000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2876 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: RESORCINOL
Marine pollutant : yes

IATA

UN number: 2876 Class: 6.1 Packing group: III
Proper shipping name: Resorcinol

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,3-Benzenediol	108-46-3	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,3-Benzenediol	108-46-3	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,3-Benzenediol	108-46-3	1994-04-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3.**

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H370	Causes damage to organs (/\$/*_ORG_SING_ORAL\$/) if swallowed.
H370	Causes damage to organs if swallowed.
H371	May cause damage to organs if swallowed.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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Preparation Information

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Product Safety – Americas Region
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