



MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 12/20/2012

Version 1.0

SECTION 1. Identification

Product identifier

Product number	822303
Product name	Resorcinol for synthesis

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

Identified uses	Chemical for synthesis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 4, Oral, H302
Eye irritation, Category 2, H319
Skin irritation, Category 2, H315
Acute aquatic toxicity, Category 1, H400

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

GHS-Labeling

Hazard pictograms



Signal Word
Warning

Hazard Statements
H302 Harmful if swallowed.

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H315 Causes skin irritation.
H319 Causes serious eye irritation.
H400 Very toxic to aquatic life.

Precautionary Statements

P273 Avoid release to the environment.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$C_6H_4(OH)_2$	$C_6H_6O_2$ (Hill)
CAS-No.	108-46-3	
Molar mass	110.11 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Resorcinol (>= 90 % - <= 100 %)

108-46-3

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Subsequently administer: activated charcoal (20 - 40 g in 10% slurry). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, CNS disorders

Indication of any immediate medical attention and special treatment needed

No information available.

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SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.

Forms explosive mixtures with air on intense heating.

Risk of dust explosion.

Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Ensure adequate ventilation.

Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Protected from light.

Store at +15°C to +25°C (+59°F to +77°F).

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SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Resorcinol 108-46-3</i>			
ACGIH	Time Weighted Average (TWA):	10 ppm	
	Short Term Exposure Limit (STEL):	20 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	10 ppm 45 mg/m ³	
	Short Term Exposure Limit (STEL):	20 ppm 90 mg/m ³	
Z1A	Time Weighted Average (TWA):	10 ppm 45 mg/m ³	
	Short Term Exposure Limit (STEL):	20 ppm 90 mg/m ³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state solid

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Color	white
Odor	unpleasant
Odor Threshold	No information available.
pH	ca. 4 - 6 at 100 g/l 68 °F (20 °C)
Melting point	228 - 232 °F (109 - 111 °C)
Boiling point/boiling range	538 °F (281 °C) at 1,013 hPa
Flash point	261 °F (127 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.4 %(V)
Upper explosion limit	No information available.
Vapor pressure	0.1 hPa at 68 °F (20 °C)
Relative vapor density	3.79
Relative density	ca. 1.28 g/cm ³ at 68 °F (20 °C)
Water solubility	1,000 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 0.93 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Ignition temperature	1121 °F (605 °C) Method: DIN 51794

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Bulk density ca. 600 - 700 kg/m³

SECTION 10. Stability and reactivity

Reactivity

highly reactive
Risk of dust explosion.
Forms explosive mixtures with air on intense heating.

Chemical stability

Sensitivity to light
Sensitive to air.

Possibility of hazardous reactions

Risk of explosion with:
Nitric acid
Exothermic reaction with:
Ammonia, Amines, organic nitro compounds, Strong oxidizing agents
Violent reactions possible with:
bases, metallic salts, Iron, Acid anhydrides, Acid chlorides

Conditions to avoid

Strong heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Temperatures above melting point.

Incompatible materials

no information available

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Target Organs

Respiratory system
cardiovascular system
Eyes
Skin
Central nervous system
Blood
spleen
Liver
Kidneys

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Acute oral toxicity

LD50 rat: 301 mg/kg (RTECS)

LDLO human: 29 mg/kg (RTECS)

absorption

Symptoms: Irritation of mucous membranes

Acute inhalation toxicity

Symptoms: Possible damages:, Irritation symptoms in the respiratory tract.

Acute dermal toxicity

LD50 rabbit: 3,360 mg/kg
(RTECS)

absorption

Skin irritation

rabbit

Result: Irritations
(IUCLID)

Causes skin irritation.

Eye irritation

rabbit

Result: Severe irritations
(IUCLID)

Causes serious eye irritation.

Genotoxicity in vitro

Mutagenicity (mammal cell test): micronucleus.

Result: negative
(IUCLID)

Ames test

Result: negative
(IUCLID)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC

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

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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

Further information

Systemic effects:

CNS disorders, Risk of methemoglobin formation with headache, cardiac dysrhythmia, drop in blood pressure, dyspnoea and spasms, principal symptom: cyanosis (blue discoloration of the blood).

Causes impaired function of:

thyroid

Damage to:

Liver, Kidney, Cardiac

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Leuciscus idus* (Golden orfe): 31.6 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 1.28 mg/l; 48 h (IUCLID)

Toxicity to algae

IC50 *Chlorella vulgaris* (Fresh water algae): 605 mg/l; 6 h (IUCLID)

Toxicity to bacteria

microtox test EC50 *Photobacterium phosphoreum*: 264 mg/l; 30 min

Persistence and degradability

Biodegradability

66.7 %; 14 d

OECD Test Guideline 301C

(IUCLID)

Readily biodegradable.

Theoretical oxygen demand (ThOD)

1,890 mg/g

Ratio BOD/ThBOD

BOD5 61 %

Ratio COD/ThBOD

100 %

Bioaccumulative potential

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Partition coefficient: n-octanol/water

log Pow: 0.93 (20 °C)

OECD Test Guideline 107

Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Biological effects:

Formation of health-hazardous mixtures possible with water.

Further information on ecology

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 2876
Proper shipping name	RESORCINOL
Class	6.1
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 2876
Proper shipping name	RESORCINOL
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 2876
Proper shipping name	RESORCINOL
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

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SECTION 15. Regulatory information

United States of America

OSHA Hazards

Toxic by ingestion
Skin irritant
Eye irritant
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

SARA 313

SARA 313: 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.

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

Resorcinol

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

Resorcinol

US State Regulations

Massachusetts Right To Know

Ingredients

Resorcinol

Pennsylvania Right To Know

Ingredients

Resorcinol

New Jersey Right To Know

Ingredients

Resorcinol

California Prop 65 Components

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

Notification status

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

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Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue:12/20/2012

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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