

# SAFETY DATA SHEET

M49005 - ANSI - EN



## INDSPEC Chemical Corporation

A subsidiary of Occidental Petroleum Corporation

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### RESORCINOL, U.S.P. GRADE POWDER

SDS No.: M49005

SDS Revision Date: 08-Nov-2016

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#### SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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<b>Company Identification:</b>	INDSPEC Chemical Corporation Subsidiary of Occidental Petroleum Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, Texas 75380-9050
<b>Manufacturing Address:</b>	INDSPEC Chemical Corporation Subsidiary of Occidental Petroleum Corporation 133 Main Street Petrolia, Pennsylvania 16050 USA Information: (+1) 412-826-3666
<b>24 Hour Emergency Telephone Number:</b>	1-800-733-3665 or 1-972-404-3228 (U.S.); CHEMTREC (U.S.): 1-800-424-9300; CHEMTREC Contract No: CCN16186; CANUTEC (Canada): 1-613-996-6666 MEDICAL EMERGENCIES: 1-800-456-7566
<b>To Request an SDS:</b>	MSDS@oxy.com or 1-972-404-3245
<b>Customer Service:</b>	1-877-699-8465
<b>Product Identifier:</b>	<b>RESORCINOL, U.S.P. GRADE POWDER</b>
<b>Product No.</b>	79-09
<b>Synonyms:</b>	1,3-dihydroxybenzene, 1,3-Benzenediol, Benzene-1,3-diol
<b>Product Use:</b>	Chemical Intermediate
<b>Uses Advised Against:</b>	Personal care products (e.g. cosmetics, skin peels, hair dyes, etc.)

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Chemical Family: Benzendiol

## SECTION 2. HAZARDS IDENTIFICATION

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

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### EMERGENCY OVERVIEW:

**Color:** White to off-white  
**Physical State:** Powder  
**Appearance:** Flakes  
**Odor:** Faint, Characteristic Odor

**Signal Word:** **DANGER**

**MAJOR HEALTH HAZARDS:** HARMFUL IF SWALLOWED. CAUSES SERIOUS EYE DAMAGE. CAUSES SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM AND BLOOD.

**AQUATIC TOXICITY:** VERY TOXIC TO AQUATIC LIFE, FOR ACUTE EXPOSURES. HARMFUL TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

**PRECAUTIONARY STATEMENTS:** Do not breathe dust, fume, gas, mist, vapors, or spray. Wear eye protection, face protection, protective gloves. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. When handling this material use methods to minimize the generation of dust. Avoid release to the environment.

**ADDITIONAL HAZARD INFORMATION:** Good hygiene and safety practices should be used when handling and working with this material. Do not use this product until the safety data sheet (SDS) has been read and understood.

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### GHS CLASSIFICATION:

<b>GHS: CONTACT HAZARD - SKIN:</b>	Category 2 - Causes skin irritation
<b>GHS: CONTACT HAZARD - EYE:</b>	Category 1 - Causes serious eye damage
<b>GHS: SENSITIZATION HAZARD:</b>	Skin Sensitizer Category 1B - May cause allergic skin reaction
<b>GHS: ACUTE TOXICITY - ORAL:</b>	Category 4 - Harmful if swallowed
<b>GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):</b>	Category 1 - Causes damage to: Central Nervous System, Blood Category 2 - May cause damage to Respiratory system

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	STOT - SE toxicity is due to oral route of exposure only
<b>HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:</b>	Category 1 - Very toxic to aquatic life
<b>HAZARDOUS TO AQUATIC ENVIRONMENT - CHRONIC HAZARD:</b>	Category 3 - Harmful to aquatic life with long lasting effects

**GHS SYMBOL:** Corrosive, Health hazard, Exclamation mark, Environmental hazard**GHS SIGNAL WORD:** DANGER**GHS HAZARD STATEMENTS:****GHS - Health Hazard Statement(s)**

- Causes skin irritation
- Causes serious eye damage
- May cause an allergic skin reaction
- Harmful if swallowed
- Causes damage to central nervous system and blood - methemoglobin via oral bolus dosing
- May cause damage to respiratory system - via oral bolus dosing

**GHS - Environmental Hazard Statement(s)**

- Very toxic to aquatic life
- Harmful to aquatic life with long lasting effects

**GHS - Precautionary Statement(s) - Prevention**

- Wear eye protection, face protection, protective gloves
- Do not breathe dust, fume, gas, mist, vapors, or spray
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Contaminated work clothing should not be allowed out of the workplace
- Avoid release to the environment

**GHS - Precautionary Statement(s) - Response**

- 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 or doctor/physician
- IF ON SKIN: Wash with plenty of water
- Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
- If skin irritation or rash occurs: Get medical advice/attention
- Take off contaminated clothing and wash it before reuse

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- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
  - Rinse mouth
  - IF exposed: Call a POISON CENTER or doctor/physician
  - Collect spillage

**GHS - Precautionary Statement(s) - Storage**

- Store in a secure manner

**GHS - Precautionary Statement(s) - Disposal**

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

**Hazards Not Otherwise Classified (HNOC)**

None Known

**Health Hazards Not Otherwise Classified**

- Material may penetrate the skin and cause systemic toxicity

See Section 11: TOXICOLOGICAL INFORMATION

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Synonyms: 1,3-dihydroxybenzene, 1,3-Benzenediol, Benzene-1,3-diol

Component	Percent [%]	CAS Number
Resorcinol	100	108-46-3

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## SECTION 4. FIRST AID MEASURES

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**General Advice:** Exposure to this material may result in irritation to any contacted tissue, and may result in corrosive type burns depending upon the concentration, duration, and nature of exposure. Skin exposure can result in allergic and nonallergic contact urticaria and allergic contact dermatitis. Ingestion in one documented case of 50 g by an adult woman caused respiratory distress, methemoglobinemia, metabolic acidosis and CNS symptoms.

**INHALATION:** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or seek medical attention if you feel unwell.

**SKIN CONTACT:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice/attention. Take off contaminated clothing and wash before reuse.

**EYE CONTACT:** Immediately flush contaminated eyes with a directed stream of water for as long as possible. Remove contact lenses, if present and easy to do. Continue rinsing. GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:** IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. In

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cases of intentional or accidental ingestion of more than minor amounts, GET MEDICAL ATTENTION IMMEDIATELY.

### Most Important Symptoms/Effects (Acute and Delayed):

**Acute Symptoms/Effects:** Listed below.

**Inhalation (Breathing):** Respiratory System Effects: Inhalation of this material may cause irritation, redness of upper and lower airways, coughing.

**Skin:** Skin Irritation: When solid material along with moisture contact skin it may cause redness, irritation, burning sensation, hives (acute or delayed contact urticaria), and/or allergic contact dermatitis. Material may penetrate the skin and cause systemic toxicity.

**Eye:** Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

**Ingestion (Swallowing):** Gastrointestinal System Effects: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation. Resorcinol is well absorbed by the GI tract and this route of exposure can lead to systemic effects such as unconsciousness, respiratory failure, seizures, leukocytosis and severe metabolic acidosis, and methemoglobinemia. Alterations in liver and kidney functions have been reported in severe poisonings.

### Delayed Symptoms/Effects:

- Repeated and prolonged skin contact may cause allergic and non-allergic dermatitis
- This material is classified as a skin sensitizer according to GHS criteria
- Systemic toxicity may result from substantial skin exposure

**Target Organ Effects:** IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**Interaction with Other Chemicals Which Enhance Toxicity:** None known.

**Medical Conditions Aggravated by Exposure:** May aggravate preexisting conditions such as: eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

**Protection of First-Aiders:** Protect yourself by avoiding contact with this material. Avoid contact with skin and eyes. Do not ingest. Do not breathe dust, fume, gas, mist, vapors, or spray. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

**Notes to Physician:** Treat symptomatically. This material is more irritating to the skin and eyes in the presence of water. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. There is no antidote. Oral ingestion and significant skin exposure may result in systemic toxicity. The basic approach to patients with resorcinol poisoning should include initial stabilization of the patient by supporting the airway, respiration and circulation, and treating complications such as seizures or metabolic acidosis in the Emergency Department, as soon as possible after oral ingestion. Consider the use of activated charcoal if seen promptly after ingestion.

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## SECTION 5. FIRE-FIGHTING MEASURES

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**Fire Hazard:** Negligible fire hazard.

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**Explosive properties:** Dust (powder) may form explosive mixture in air. Closed containers may explode or rupture when exposed to extreme heat (fire).

**Extinguishing Media:** Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO<sub>2</sub>), Water spray

**Unusual Hazards:** Water may cause frothing.

**Fire Fighting:** Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel.

**Hazardous Combustion Products:** Carbon monoxide

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Lower Flammability Level (air):** 1.4% @ 200 °C (392 °F)

**Upper Flammability Level (air):** 1.28% @ 200 °C (392 °F)

**Flash point:** 161.5 (°C), Pensky-Martens Closed Cup (PMCC)

**Auto-ignition Temperature:** 608 °C (1126 °F)

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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**Occupational Release:** Refer to DOT Guide 153 for additional guidance on transportation emergency response. See Section 13, Disposal Considerations, for additional information.

**Personal Precautions:**

Keep unnecessary and unprotected personnel from entering the area. Stop spill/leak if no risk involved. Stay upwind. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

**Methods and Materials for Containment and Cleaning Up:**

Contain spill. Use methods to minimize generation of dust. Shovel back into original dry container or waste receptacle. Flush area with water. Contain runoff from fire control and dilution water.

**Environmental Precautions:**

This product released into the environment must be reported to the National Response Center (1-800-424-8802) when the reportable quantity of 5,000 lbs. or more is spilled or leaked.

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## SECTION 7. HANDLING AND STORAGE

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**Precautions for Safe Handling:**

Avoid contact with skin and eyes. Avoid prolonged or repeated breathing of dusts. Minimize generation of dust. Do not ingest. Observe good personal hygiene practices and recommended procedures. Wash exposed area promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or restrooms. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. Do not wear contact lenses without proper eye protection when using this product.

**Safe Storage Conditions:**

Protect from physical damage. Air and light sensitive. Keep in a closed, properly labeled container within a cool (shaded), dry, well-ventilated area. Store in a cool, well-ventilated area away from possible sources of ignition. Keep away from food, drink and animal feed. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

**Incompatibilities/ Materials to Avoid:**

Acid/alkaline catalyzed reaction with formaldehyde is exothermic

**Additional Information:** DO NOT TAKE INTERNALLY. Not for use or storage in or around home. Do not use until manufacturer's precautions have been read and understood. Vacuum or wet down dust as a good housekeeping practice. Provide suitable facilities for quick drenching or flushing of the eyes and body. See exposure scenario annex.

**SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Regulatory Exposure Limit(s):** None. This product does not contain any components that have regulatory occupational exposure limits (OEL's).

*OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit*

**NON-REGULATORY EXPOSURE LIMIT(S):** Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Resorcinol	10 ppm	20 ppm	-----	10 ppm 45 mg/m <sup>3</sup>	20 ppm 90 mg/m <sup>3</sup>	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

**ENGINEERING CONTROLS:** Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below applicable exposure limits and to keep area dust levels below explosive dust concentrations.

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### PERSONAL PROTECTIVE EQUIPMENT:

**Eye Protection:** Wear safety glasses with side-shields. If eye contact is likely, wear chemical resistant safety goggles and/or face-shield when appropriate. Do not wear contact lenses without proper eye protection when using this product. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Wear protective clothing, such as Nomex®, to minimize skin contact. In dusty areas, wear necessary resistant protective apparel, including necessary head, hand, and foot protection. Wear appropriate heat resistant clothing when potential exists for contact with hot materials.

**Hand Protection:** Wear appropriate chemical resistant gloves. Use thermal protective gloves if handling hot material. .

**Protective Material Types:**

Neoprene

**Respiratory Protection:** A NIOSH/MSHA approved respirator with air purifying organic vapor cartridge/canister with particulate filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. The added protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Powder
<b>Appearance:</b>	Flakes
<b>Color:</b>	White to off-white
<b>Odor:</b>	Faint, Characteristic Odor
<b>Odor Threshold [ppm]:</b>	No data available.
<b>Molecular Weight:</b>	110.1 g/mol
<b>Molecular Formula:</b>	C6-H4-(OH)2
<b>Chemical Family:</b>	Benzendiol
<b>Decomposition Temperature:</b>	No data available
<b>Boiling Point/Range:</b>	277.5 °C
<b>Freezing Point/Range:</b>	109 °C.
<b>Melting Point/Range:</b>	110 °C (230 °F)
<b>Vapor Pressure:</b>	0.065 Pa @ 25 °C 1 mm @ 21°C (70°F)
<b>Vapor Density (air=1):</b>	3.8
<b>Relative Density:</b>	1.278@ 20°C
<b>Bulk Density:</b>	1.2@ 20°C
<b>Water Solubility:</b>	717000 mg/L @ 25 °C
<b>pH:</b>	4 - 5 (10% solution)

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<b>VOC Content (%)</b> :	No data available
<b>Volatility</b> :	0% by volume @ 21 °C
<b>Evaporation Rate (ether=1)</b> :	No data available
<b>Partition Coefficient (n-octanol/water)</b> :	Kow = 0.97 @ 15 °C
<b>Flash point</b> :	161.5 (°C), Pensky-Martens Closed Cup (PMCC)
<b>Flammability (solid, gas)</b> :	No data available
<b>Lower Flammability Level (air)</b> :	1.4% @ 200 °C (392 °F)
<b>Upper Flammability Level (air)</b> :	1.28% @ 200 °C (392 °F)
<b>Auto-ignition Temperature</b> :	608 °C (1126 °F)
<b>Viscosity</b> :	Not applicable to solids

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**SECTION 10. STABILITY AND REACTIVITY**

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**Reactivity:** Not reactive under normal temperatures and pressures.

**Chemical Stability:** Stable at normal temperatures and pressures. Hygroscopic.

**Possibility of Hazardous Reactions:** Closed containers may explode or rupture when exposed to extreme heat (fire).

**Conditions to Avoid:** (e.g., static discharge, shock, or vibration) -. None known.

**Incompatibilities/ Materials to Avoid:** Acid/alkaline catalyzed reaction with formaldehyde is exothermic.

**Hazardous Decomposition Products:** Oxides of carbon (Carbon monoxide, Carbon dioxide)

**Hazardous Polymerization:** Will not occur.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**IRRITATION DATA:** As listed below

**Standard Draize (Eye):**

Score - 110 @24, @48, and @72 hrs - Corrosive Rabbit

**Standard Draize (Skin):**

Score - 4.4 (Rabbit 24 hrs.) Moderate Irritation

**TOXICITY DATA:**

**PRODUCT TOXICITY DATA:** RESORCINOL, U.S.P. GRADE POWDER

**Note:** The original 8 hour acute inhalation test value of LC0 = >2800 mg/m<sup>3</sup> was adjusted to a 4 hour value of LC0 = > 5600 mg/m<sup>3</sup> for classification purposes.

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<b>LD50 Oral:</b> 301 mg/kg Oral-Rat LD50; 29 mg/kg Oral-Human LDLO	<b>LD50 Dermal:</b> 3360 mg/kg (Rabbit) - Intact and abraded skin	<b>LC50 Inhalation:</b> LC0 = > 5600 mg/m <sup>3</sup> (Rat - 4 hr)
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**COMPONENT TOXICITY DATA:**

**Note:** The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Resorcinol 108-46-3	202 mg/kg (Rat)	3360 mg/kg (Rabbit)	21.3 mg/L (1 hr-Rat)

**Summary of Toxicity Studies:**

- Animal and human data have indicated that resorcinol may cause damage to the respiratory system
- Animal and human data have indicated that resorcinol causes damage to the blood and central nervous system
- Respiratory Sensitization - Not Determined
- Skin Sensitization - Positive
- Mutagenicity - Negative
- Carcinogenicity - Negative
- Reproductive Toxicity - Negative

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**POTENTIAL HEALTH EFFECTS:**

- Eye contact:** Direct contact with solid, dust, or solutions may cause severe irritation and burns to the eye lids, conjunctivitis, corneal edema, corneal burn.
- Skin contact:** Direct contact or contact with dust may cause severe irritation and allergic skin rash. Material may penetrate the skin and cause systemic toxicity.
- Inhalation:** Inhalation of dust may cause irritation of upper and lower airways.
- Ingestion:** Exposure by ingestion may cause irritation, nausea, vomiting, and systemic toxicity. May cause local tissue damage to epiglottis, mucus membranes of the mouth, esophagus and stomach such as burning, inflammation. Resorcinol is well absorbed by the GI tract and this route of exposure can lead to systemic effects such as unconsciousness, respiratory failure, seizures, leukocytosis and severe metabolic acidosis, and methemoglobinemia. Alterations in liver and kidney functions have been reported in severe poisonings.
- Chronic Effects:** Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Possible allergic contact dermatitis (red, itchy skin rash).

**SIGNS AND SYMPTOMS OF EXPOSURE:**

**Inhalation (Breathing):** Respiratory System Effects: Inhalation of this material may cause irritation, redness of upper and lower airways, coughing.

**Skin:** Skin Irritation: When solid material along with moisture contact skin it may cause redness, irritation, burning sensation, hives (acute or delayed contact urticaria), and/or allergic contact dermatitis. Material may penetrate the skin and cause systemic toxicity.

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**Eye:** Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

**Ingestion (Swallowing):** Gastrointestinal System Effects: Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation. Resorcinol is well absorbed by the GI tract and this route of exposure can lead to systemic effects such as unconsciousness, respiratory failure, seizures, leukocytosis and severe metabolic acidosis, and methemoglobinemia. Alterations in liver and kidney functions have been reported in severe poisonings.

**TOXICITY:**

Resorcinol, in low concentrations, is commonly used in the pharmaceutical and cosmetic industries. Resorcinol has been reported to be less toxic than phenol or catechol by the ingestion or skin routes of exposure.

**ACUTE TOXICITY:**

In a fixed dose study, rats were administered resorcinol via oral gavage at single doses of 200, 500 or 2000 in a preliminary test and a dose of 200 mg/kg in the main experiment. Hypoactivity or piloerection, dyspnoea and tremors were observed in all animals on day 1, with recovery complete on day 2. No mortality, treatment-related effects on bodyweight or gross abnormalities were observed. The dose of 200 mg/kg was identified as the maximum non-lethal dose of resorcinol under these experimental conditions. In a 2004 case report, unintentional ingestion of 50 grams by an adult woman resulted in systemic toxicity and loss of fetus at 30 weeks. A 2006 case report of an unintentional ingestion resulted in death. Both cases documented unconsciousness, respiratory failure, seizures and metabolic acidosis.

**CHRONIC TOXICITY:**

Some early laboratory animal studies via dermal and oral routes under particular conditions along with human case reports (at high dermal exposures to damaged skin) have suggested that resorcinol may have a potential to affect mammalian thyroids. No thyroid effects were seen in numerous other studies, however, including animal studies conducted under clinically relevant conditions, medical case reports under the current therapeutic conditions, as well as occupational investigations of exposed worker populations, suggesting acceptable risk to humans based on these scientific and weight-of-evidence considerations. Recently, a well-conducted study (OECD TG 416 with detailed evaluation of thyroid endpoints) found no significant effects on the thyroid of rats given up to 233 mg/kg bw/day (males) or 304 mg/kg bw/day (females) in the drinking water through two generations. It is also generally accepted that humans are less susceptible than rats to thyroid disruption by chemicals. Thus the risk that resorcinol presents to humans in terms of thyroid dysfunction resulting from occupational, environmental, or exaggerated use of proprietary preparation is negligible.

**Interaction with Other Chemicals Which Enhance Toxicity:** None known.

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**GHS HEALTH HAZARDS:**

**GHS: ACUTE TOXICITY - ORAL:** Category 4 - Harmful if swallowed.

**GHS: CONTACT HAZARD - EYE:** Category 1 - Causes serious eye damage

**GHS: CONTACT HAZARD - SKIN:** Category 2 - Causes skin irritation.

**Skin Absorbent / Dermal Route?** Yes.

**GHS: SENSITIZATION HAZARD:** Skin Sensitizer Category 1B - May cause allergic skin reaction.

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**SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):**

- Category 1 - Blood, Central Nervous System
- Category 2 - Respiratory System

**MUTAGENIC DATA:**

While resorcinol appears to induce chromosome aberrations in vitro, based on the weight of evidence, these findings suggest that resorcinol is not genotoxic in vivo.

**REPRODUCTIVE TOXICITY:**

Not classified as a reproductive toxin per GHS criteria.

**DEVELOPMENTAL TOXICITY:**

Not classified as a developmental or reproductive toxin per GHS criteria.

**Health Hazards Not Otherwise Classified**

- Material may penetrate the skin and cause systemic toxicity

**OTHER HAZARDS:**

Some early laboratory animal studies via dermal and oral routes under particular conditions along with human case reports (at high dermal exposures to damaged skin) have suggested that resorcinol may have a potential to affect mammalian thyroids. No thyroid effects were seen in numerous other studies, however, including animal studies conducted under clinically relevant conditions, medical case reports under the current therapeutic conditions, as well as occupational investigations of exposed worker populations, suggesting acceptable risk to humans based on these scientific and weight-of-evidence considerations. Recently, a well-conducted study (OECD TG 416 with detailed evaluation of thyroid endpoints) found no significant effects on the thyroid of rats given up to 233 mg/kg bw/day (males) or 304 mg/kg bw/day (females) in the drinking water through two generations. It is also generally accepted that humans are less susceptible than rats to thyroid disruption by chemicals. Thus the risk that resorcinol presents to humans in terms of thyroid dysfunction resulting from occupational, environmental, or exaggerated use of proprietary preparation is negligible.

**SECTION 12. ECOLOGICAL INFORMATION****ECOTOXICITY DATA:**

<u>Component</u>	<u>Freshwater Fish</u>	<u>Invertebrate Toxicity:</u>	<u>Algae Toxicity:</u>	<u>Other Toxicity:</u>
Resorcinol	- - 96 hr. LC50 Oncorhynchus mykiss: >100 mg/L (flow-through) - 96 hr. LC50 Pimephales promelas: 53.4 mg/L	- 48 hr. LC50 Daphnia magna: 78 mg/L	- Algae-Scenedesmus: LD0 60 mg/L	- - Bacteria-E Coli: LD0 <1000 mg/L - Arthropoda-Daphnia: LD0 0.8 mg/L

**Invertebrate Toxicity:**

LC50 Daphnia magna: 1.0 mg/L (48 hr)  
LC50 Daphnia magna: 0.17 mg/L (21 day)  
LC50 Grass Shrimp: 42 mg/L (96 hr)

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### FATE AND TRANSPORT:

**BIODEGRADATION:** Resorcinol was determined to be readily biodegradable with elimination rates being 66.7% after 14 days. In the study conducted following OECD Test guideline 302B, 97% degradation was observed after 4 days.

**PERSISTENCE:** BOD: 61% ThOD; COD: 100% ThOD; ThOD: 1.89. Resorcinol is not considered to be persistent in the environment.

**BIOACCUMULATIVE POTENTIAL:** Using a Log Kow of 0.80, the estimated BCF = 3.16. This material is not expected to bioaccumulate.

**MOBILITY IN SOIL:** Koc at 20 °C: 10.36.

**ADDITIONAL ECOLOGICAL INFORMATION:** Resorcinol is not considered a substance that is persistent, bioaccumulating, or toxic when modeled using the EPA's PBT Profile.

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## SECTION 13. DISPOSAL CONSIDERATIONS

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### **Waste from material:**

Reuse or recycle if possible. This material is a hazardous waste when it is discarded or intended to be discarded. Generators of waste containing this contaminant, EPA hazardous waste number U201, must conform with ALL regulations in storage, transportation, treatment and disposal of waste. Dispose of as a hazardous waste in accordance with local, state, and federal regulations.

### **Container Management:**

Dispose of contaminated packaging as unused product. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

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## SECTION 14. TRANSPORT INFORMATION

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**IMPORTANT:** The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

### **LAND TRANSPORT**

**U.S. DOT 49 CFR 172.101:**  
**UN NUMBER:** UN2876  
**PROPER SHIPPING NAME:** Resorcinol  
**HAZARD CLASS/ DIVISION:** 6.1  
**PACKING GROUP:** III

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**RESORCINOL, U.S.P. GRADE POWDER**

SDS No.: M49005

SDS Revision Date: 08-Nov-2016

Supersedes Date: 2016-22-March

**LABELING REQUIREMENTS:** 6.1, Toxic\* **NOTE:** Use DOT Guide 153 for Emergency Response.**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**UN NUMBER:** UN2876  
**SHIPPING NAME:** Resorcinol  
**CLASS OR DIVISION:** 6.1  
**PACKING/RISK GROUP:** III  
**LABELING REQUIREMENTS:** 6.1, Toxic

**MARITIME TRANSPORT (IMO / IMDG) :**

**UN NUMBER:** UN2876  
**PROPER SHIPPING NAME:** Resorcinol  
**Packing Group:** III  
**LABELING REQUIREMENTS:** 6.1, Toxic, Marine Pollutant

**AIR TRANSPORT (ICAO / IATA): :**

**UN Number:** UN2876  
**Proper shipping name:** Resorcinol  
**Hazard Class:** 6.1  
**Packing group:** III

**SECTION 15. REGULATORY INFORMATION****U.S. REGULATIONS****OSHA REGULATORY STATUS:**

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

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	CERCLA Reportable Quantities:
Resorcinol	5000 lb (final RQ)

**SARA EHS Chemical (40 CFR 355.30)**

Not regulated

**EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):**

Acute Health Hazard

**EPCRA SECTION 313 (40 CFR 372.65):**

Not regulated

**RESORCINOL, U.S.P. GRADE POWDER**

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**DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):**

No components in this material are regulated under DHS

**OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):**

Not regulated

**NATIONAL INVENTORY STATUS****TSCA 12(b):** This product is not subject to export notification.**Canadian Chemical Inventory:** All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Resorcinol 108-46-3	Listed	Not Listed

**STATE REGULATIONS****California Proposition 65:**

This product and its ingredients are not listed, but it may contain impurities/trace elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact OxyChem Technical Services at 1-412-826-3666.

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Resorcinol 108-46-3	Not Listed	Not Listed	Not Listed	Listed	1634	Not Listed

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Resorcinol 108-46-3	Not Listed	Listed	Not Listed	Present	Listed

**CANADIAN REGULATIONS**

• This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations

Component	Canadian Chemical Inventory:	NDSL:	WHMIS - Classifications of Substances:
Resorcinol	Listed Present (that participate in atmospheric photochemical reactions except those under item number 65 on the Toxic Substances List source)		D1B,D2B

## RESORCINOL, U.S.P. GRADE POWDER

SDS No.: M49005

SDS Revision Date: 08-Nov-2016

Supersedes Date: 2016-22-March

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### SECTION 16. OTHER INFORMATION

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**Prepared by:** OxyChem Corporate HESS - Product Stewardship

**Rev. Date:** 08-Nov-2016

**Reason for Revision:**

- Updated Customer Service Contact Information: SEE SECTION 1
- Updated Uses Advised Against information: SEE SECTION 1
- The Emergency Overview Signal word has been added or changed. SEE SECTION 2
- Revised GHS Information: SEE SECTION 2
- Updated First Aid Measures: SEE SECTION 4
- FIRE FIGHTING MEASURES (SECTION 5)
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Safe Storage Conditions. SEE SECTION 7
- PPE recommendations have been modified: SEE SECTION 8
- PHYSICAL AND CHEMICAL PROPERTIES (SECTION 9)
- Toxicological Information has been revised: SEE SECTION 11
- ECOLOGICAL INFORMATION (SECTION 12)
- DISPOSAL CONSIDERATIONS (SECTION 13)

**IMPORTANT:**

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and INDSPEC Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

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**End of Safety Data Sheet**