

Issue Date 22-Apr-2015

Revision Date 23-Sep-2015

Version 2

## 1. IDENTIFICATION

### Product identifier

**Product Name** Phenol 90% Column Vacuum Distilled

### Other means of identification

**Product Code** 5200

**UN/ID no.** UN2821

**Synonyms** Phenol, CVD; Carboic acid; Phenic acid; Phenylic acid; Hydroxybenze;  
Monohydroxybenzene

### Recommended use of the chemical and restrictions on use

**Recommended Use** Laboratory chemicals.

**Uses advised against** No information available

### Details of the supplier of the safety data sheet

#### **Manufacturer Address**

Harrell Industries, Inc.  
2495 Commerce Drive  
Rock Hill, SC 29730

[www.harrellindustries.com](http://www.harrellindustries.com)

### Emergency telephone number

**Company Phone Number** 803-327-6335

**Fax Number** 803-327-7808

**24 Hour Emergency Phone Number** 800 633-8253 (PERS)

## 2. HAZARDS IDENTIFICATION

### Classification

#### **OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Germ cell mutagenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2

### Label elements

#### **Emergency Overview**

#### **Danger**

#### **Hazard statements**

Toxic if swallowed

Toxic in contact with skin

Toxic if inhaled

Causes severe skin burns and eye damage

Suspected of causing genetic defects

May cause damage to organs through prolonged or repeated exposure



POISON! DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. RAPIDLY ABSORBED THROUGH SKIN. CORROSIVE. CAUSES SEVERE BURNS TO EVERY AREA OF CONTACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. COMBUSTIBLE LIQUID AND VAPOR.

**Appearance** Colorless to light pink liquid

**Physical state** liquid

**Odor** sharp, medicinal, sweet, tarry

#### Precautionary Statements - Prevention

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Use only outdoors or in a well-ventilated area  
 Do not breathe dust

#### Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician  
 Corrosive. Redness, pain, blurred vision can occur. Can cause burns and permanent eye damage.  
 May cause blindness  
 Rapidly absorbed through the skin with systematic poisoning effects to follow.  
 Discoloration and severe pains may occur, but may be disguised by a loss in pain sensation.  
 Breathing vapor, dust or mist results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite). Will irritate, possibly burn respiratory tract. Other symptoms listed under ingestion may also occur.  
 Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, nausea, vomiting, headache, dizziness, muscular weakness, central nervous system effects, increase in heart rate, irregular breathing, coma, and possibly death. Acute exposure is also associated with kidney and liver damage. Ingestion of 1 gram has been lethal to humans

#### Precautionary Statements - Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Not applicable

#### Other Information

Toxic to aquatic life with long lasting effects Very toxic to aquatic life

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance

#### Synonyms

Phenol, CVD; Carboic acid; Phenic acid; Phenylic acid; Hydroxybenze;  
 Monohydroxybenzene.

#### Formula

C6H5OH in H2O

Chemical Name	CAS No.	Weight-%
Phenol	108-95-2	90
Water	7732-18-5	10

## 4. FIRST AID MEASURES

### Description of first aid measures

<b>Eye contact</b>	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician immediately.
<b>Skin contact</b>	In case of skin contact, immediately flush skin with large amounts of water while removing contaminated clothing and shoes. As soon as possible, repeatedly apply polyethylene glycol to affected area. Destroy contaminated clothing and shoes. Flush skin with water for at least 30 minutes. It is very important to avoid rubbing or wiping affected parts which would aggravate irritation and cause product dispersion. Continue treatment until the burned area changes color from white to pink. Expect that this can take a long period of time (20 minutes or more). The polyethylene glycol application should be done during transportation to the hospital. If polyethylene glycol is not available, flush with water for at least 30 minutes prior to going to hospital. Get medical attention immediately.
<b>Inhalation</b>	Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion</b>	If swallowed, immediately administer castor oil or other vegetable oil. Never give anything by mouth to an unconscious person. Be ready to induce vomiting at the advice of a physician or poison control center. Castor oil(or vegetable oil) dosage should be between 15 and 30 cc. Get medical attention immediately.

### Most important symptoms and effects, both acute and delayed

<b>Symptoms</b>	Chronic: Repeated exposure may cause symptoms described for acute poisoning as well as eye and skin discoloration.
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### Indication of any immediate medical attention and special treatment needed

<b>Note to physicians</b>	In case of phenol poisoning, start first aid immediately, then get medical attention. People administering first aid should take precautions to avoid contact with phenol. A phenol antidote kit (castor oil or other vegetable oil, polyethylene glycol 300) should be available in any phenol work area. Actions to be taken in case of phenol poisoning should be planned and practiced before beginning work with phenol. Castor oil and or polyethylene glycol can be given by a first aid responder before medical help arrives. Treat phenol ingestion with gastric lavage using 40% aqueous Bacto-Peptide milk or water until phenolic odor is eliminated. Then give 15 to 50 cc castor or vegetable oil. Debride necrotic skin. Monitor vital signs, fluid status, electrolytes, BUN, renal and hepatic function, and electrocardiogram. Manage sedation, seizures renal failure, and fluid electrolyte imbalances symptomatically as indicated.
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## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, Carbon dioxide, water spray or alcohol foam. Water spray may be used to keep fire exposed containers cool.

**Unsuitable extinguishing media** Caution: Use of water spray when fighting fire may be inefficient.

### Specific hazards arising from the chemical

No information available.

### Explosion data

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

### Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Structural firefighter's protective clothing is ineffective for fires involving this material. Stay away from sealed

containers.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

### Environmental precautions

**Environmental precautions** See Section 12 for additional ecological information.

### Methods and material for containment and cleaning up

**Methods for containment** Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb and place into a chemical waste container.

**Methods for cleaning up** Absorb with inert materials (e.g., vermiculite, dry sand, earth). Do not use combustible materials, such as saw dust. Do not flush to sewer!! Dry lime or soda ash may be used to neutralize spills.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. All phenol workers should be properly trained on its hazards and the proper protective measures required. This training should also include emergency actions. All phenol operations should be enclosed to eliminate any potential exposure routes. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

**Incompatible materials** Oxidizers, aluminum chloride and nitrobenzene, calcium hypochlorite, butadiene, halogens, formaldehyde, mineral oxidizing acids, isocyanates, sodium nitrite and many other materials. Hot liquid phenol will attack aluminum, magnesium, lead, and zinc metals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Phenol 108-95-2	TWA: 5 ppm S*	TWA: 5 ppm TWA: 19 mg/m <sup>3</sup> (vacated) TWA: 5 ppm (vacated) TWA: 19 mg/m <sup>3</sup> (vacated) S* S*	IDLH: 250 ppm Ceiling: 15.6 ppm 15 min Ceiling: 60 mg/m <sup>3</sup> 15 min TWA: 5 ppm TWA: 19 mg/m <sup>3</sup>

### Appropriate engineering controls

**Engineering Controls** Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

<b>Eye/face protection</b>	Use chemical safety goggles and/or full face shield. Maintain eye wash fountain and quick-drench facilities in work area.
<b>Skin and body protection</b>	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
<b>Respiratory protection</b>	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**General Hygiene Considerations** Handle in accordance with good industrial hygiene and safety practice.

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

<b>Physical state</b>	liquid	<b>Odor</b>	sharp, medicinal, sweet, tarry
<b>Appearance</b>	Colorless to light pink liquid	<b>Odor threshold</b>	No information available
<b>Color</b>	colorless to light pink		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>	3.5-4.2	
<b>Melting point / freezing point</b>	No information available	
<b>Boiling point / boiling range</b>	No information available	
<b>Flash point</b>	79 °C / 174 °F	
<b>Evaporation rate</b>	<0.01	
<b>Flammability (solid, gas)</b>	No information available	
<b>Flammability Limit in Air</b>		
<b>Upper flammability limit:</b>	8.6%(v)	
<b>Lower flammability limit:</b>	1.7%(v)	
<b>Vapor pressure</b>	0.4@20C(68F)	
<b>Vapor density</b>	3.2	
<b>Relative density</b>	1.06@20C/4C	
<b>Water solubility</b>	1g/15 ml of water	
<b>Solubility in other solvents</b>	Very soluble in alcohol	
<b>Partition coefficient</b>	No information available	
<b>Autoignition temperature</b>	715 °C / 1319 °F	
<b>Decomposition temperature</b>	No information available	
<b>Kinematic viscosity</b>	No information available	
<b>Dynamic viscosity</b>	No information available	
<b>Explosive properties</b>	No information available	
<b>Oxidizing properties</b>	No information available	

**Other Information**

<b>Softening point</b>	No information available
<b>Molecular weight</b>	94.11
<b>VOC Content (%)</b>	No information available
<b>Density</b>	No information available
<b>Bulk density</b>	No information available

**10. STABILITY AND REACTIVITY****Reactivity**

No data available

**Chemical stability**

Stable under ordinary conditions of use and storage.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous polymerization** Will not occur.

**Conditions to avoid**

Heat, flames, ignition sources and incompatibles.

**Incompatible materials**

Oxidizers, aluminum chloride and nitrobenzene, calcium hypochlorite, butadiene, halogens, formaldehyde, mineral oxidizing acids, isocyanates, sodium nitrite and many other materials. Hot liquid phenol will attack aluminum, magnesium, lead, and zinc metals.

**Hazardous Decomposition Products**

Carbon monoxide. Carbon dioxide (CO<sub>2</sub>). Toxic gases and vapors may be released if involved in a fire.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

<b>Inhalation</b>	Breathing vapor, dust or mist results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite). Will irritate, possibly burn respiratory tract. Other symptoms listed under ingestion may also occur.
<b>Eye contact</b>	Corrosive to the eyes and may cause severe damage including blindness. Corrosive. Red, pain, blurred vision can occur. Can cause burns and permanent eye damage.
<b>Skin contact</b>	Corrosive. Rapidly absorbed through the skin with systemic poisoning effects to follow. Discoloration and severe burns may occur, but may be disguised by a loss in pain sensation.
<b>Ingestion</b>	Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, nausea, vomiting, headache, dizziness, muscular weakness, central nervous system effects, increase in heart rate, irregular breathing, coma, and possibly death. Acute exposure is also associated with kidney and liver damage. Ingestion of 1 gram has been lethal to humans.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Phenol 108-95-2	= 317 mg/kg ( Rat ) = 340 mg/kg ( Rat )	= 630 mg/kg ( Rabbit )	-
Water 7732-18-5	> 90 mL/kg ( Rat )	-	-

**Information on toxicological effects**

**Symptoms** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Phenol 108-95-2	-	Group 3	-	-

**Numerical measures of toxicity - Product Information**

The following values are calculated based on chapter 3.1 of the GHS document .

## 12. ECOLOGICAL INFORMATION

Toxic to aquatic life.

**Ecotoxicity**

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is not expected to leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into the soil, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected

to readily biodegrade. When released into water, this material is not expected to evaporate significantly. When released into water, this material is expected to have a half-life between 10 and 30 days. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be moderately degraded by photolysis. When released into the air, this material is expected to have a half-life of less than 1 day.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Phenol 108-95-2	46.42: 96 h Pseudokirchneriella subcapitata mg/L EC50 0.0188 - 0.1044: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 187 - 279: 72 h Desmodesmus subspicatus mg/L EC50 static	11.9 - 50.5: 96 h Pimephales promelas mg/L LC50 flow-through 20.5 - 25.6: 96 h Pimephales promelas mg/L LC50 static 32: 96 h Pimephales promelas mg/L LC50 5.449 - 6.789: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 7.5 - 14: 96 h Oncorhynchus mykiss mg/L LC50 static 4.23 - 7.49: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 5.0 - 12.0: 96 h Oncorhynchus mykiss mg/L LC50 13.5: 96 h Lepomis macrochirus mg/L LC50 static 11.9 - 25.3: 96 h Lepomis macrochirus mg/L LC50 flow-through 11.5: 96 h Lepomis macrochirus mg/L LC50 semi-static 34.09 - 47.64: 96 h Poecilia reticulata mg/L LC50 static 31: 96 h Poecilia reticulata mg/L LC50 semi-static 27.8: 96 h Brachydanio rerio mg/L LC50 0.00175: 96 h Cyprinus carpio mg/L LC50 semi-static 33.9 - 43.3: 96 h Oryzias latipes mg/L LC50 flow-through 23.4 - 36.6: 96 h Oryzias latipes mg/L LC50 static	4.24 - 10.7: 48 h Daphnia magna mg/L EC50 Static 10.2 - 15.5: 48 h Daphnia magna mg/L EC50

#### Persistence and degradability

#### Bioaccumulation

Chemical Name	Partition coefficient
Phenol 108-95-2	1.47

#### Other adverse effects

No information available

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

#### Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility.

#### Contaminated packaging

Do not reuse container.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Phenol 108-95-2	U188	Included in waste streams: F039, K001, K022, K087 Included in waste stream: K060	-	U188

Chemical Name	California Hazardous Waste Status
Phenol	Toxic

108-95-2

Corrosive

**14. TRANSPORT INFORMATION**

**DOT** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II  
**Reportable Quantity (RQ)** 1000 lbs (454 kg)  
**Marine pollutant** Toxic to aquatic life.

**TDG** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II

**MEX** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** UN2821  
**Packing Group** II

**ICAO (air)** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II

**IATA** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II

**IMDG** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol Solutions  
**Hazard Class** 6.1  
**Packing Group** II  
**Description** 20 L - 55 Gallons

**RID** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol Solutions  
**Hazard Class** 6.1  
**Packing Group** II

**ADR** Regulated  
**UN/ID no.** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II

**ADN** Regulated  
**UN Number** UN2821  
**Proper shipping name** Phenol solutions  
**Hazard Class** 6.1  
**Packing Group** II

**15. REGULATORY INFORMATION****International Inventories**

**TSCA** Complies  
**DSL/NDL** Complies  
**EINECS/ELINCS** Complies  
**ENCS** Does not comply  
**IECSC** Complies



KECL Complies  
 PICCS Complies  
 AICS Complies

**Legend:**

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
 DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List  
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
 ENCS - Japan Existing and New Chemical Substances  
 IECSC - China Inventory of Existing Chemical Substances  
 KECL - Korean Existing and Evaluated Chemical Substances  
 PICCS - Philippines Inventory of Chemicals and Chemical Substances  
 AICS - Australian Inventory of Chemical Substances

**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Phenol - 108-95-2	1.0

**SARA 311/312 Hazard Categories**

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Phenol 108-95-2	1000 lb	X	X	X

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Phenol 108-95-2	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

**US State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Phenol 108-95-2	X	X	X

**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

**16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION**

<b>NFPA</b>	Health hazards 3	Flammability 2	Instability 0	Physical and Chemical Properties -
<b>HMIS</b>	Health hazards 3	Flammability 2	Physical hazards 0	Personal protection X

**Issue Date** 22-Apr-2015

**Revision Date** 23-Sep-2015

**Revision Note**

No information available

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**