



MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

DESCRIPTION: Perkins P-178

1. Chemical Product and Company Identification

DESCRIPTION: **Perkins P-178**
PRODUCT CODE: 46-P178.-.
PRODUCT TYPE: Liquid PRF Resin
APPLICATION: Durable Wood Adhesive

Manufacturer/Supplier Information

MSDS prepared by:
Hexion Specialty Chemicals, Inc.
155 West A Street, Bldg. A-1
Springfield, OR
97477

For Emergency Medical Assistance
Call Health & Safety Information Services
1-866-303-6949

For additional health and safety or regulatory information, call (541)744-3256.

2. Composition, Information on Ingredients

The ingredients listed below have been associated with one or more immediate and/or delayed(*) health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING, HANDLING, OR EXPOSURE TO THESE INGREDIENTS, READ AND UNDERSTAND THE MSDS.

	% by weight
108-95-2 *Phenol	10.0 - 30.0
50-00-0 *Formaldehyde	0.01 - 0.1

Any applicable Canadian trade secret numbers will be listed in Section 15.2.

3. Hazards Identification

3.1 Emergency Overview

Appearance	Clear, reddish-brown liquid
Odor	Slight aromatic

WARNING!

Will polymerize at high temperatures with some evolution of heat.

Hazardous polymerization may occur.

Overexposure may cause central nervous system depression. May cause irritation of nose, throat and lungs if allowed to become airborne.

Causes chemical burns to eyes.

NORTH AMERICAN EMERGENCY RESPONSE GUIDE, 2000, NO: 171

HMIS Rating

HEALTH = 3 (serious)
FLAMMABILITY = 0 (minimal)
REACTIVITY = 1 (slight)
CHRONIC = *

3.2 Potential Health Effects

Immediate Hazards

INGESTION: Not expected to be harmful under normal conditions of use.
INHALATION: Not expected to be harmful under normal conditions of use. However, overexposure may cause central nervous system effects. Also, if allowed to become airborne, may cause irritation of nose, throat and lungs.
SKIN: May cause irritation on prolonged or repeated contact.
EYES: Causes chemical burns.

108-95-2 Phenol

Can cause central nervous system effects. Signs and symptoms may include headache, dizziness, nausea, vomiting, motor difficulties and unconsciousness.

Delayed Hazards

108-95-2 Phenol

Can cause liver and kidney damage. Signs and symptoms of chronic poisoning may include vomiting, difficulty in swallowing, diarrhea, lack of appetite, jaundice, fatigue, bleeding or easy bruising and sometimes pain and swelling in the upper right abdomen, changes in urine output or dark urine, pain upon urination or in the lower back, or general edema. Can also cause cardiac damage evidenced by shortness of breath and in severe cases cardiac arrest. Preexisting medical conditions of the heart, kidney, liver, lung, eyes and skin may be aggravated by exposure.
-- See Footnote

50-00-0 Formaldehyde

May cause cancer. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29CFR 1910.1048. Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancer. The National Toxicology Program (NTP) has listed formaldehyde as a probable human carcinogen. The International Agency for Research on Cancer (IARC) has concluded formaldehyde is carcinogenic to humans.

Safe handling and use instructions are provided in this MSDS and in the OSHA Formaldehyde Workplace Standard at 29CFR1910.1048. OSHA has identified 0.5 ppm as the "Action Level". Please review and understand the guidance contained in this MSDS and refer to the OSHA Formaldehyde Standard for regulatory requirements that may be applicable to your operation and use.

For further information and a review of various studies, go to www.osha.gov/SLTC/formaldehyde, www.iarc.fr and other authoritative websites.

May cause allergic skin reaction. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that preexisting respiratory and skin disorders may be aggravated by exposure.

Footnote: As of the date of issuance of this document, this material has not been listed by NTP, classified by IARC nor regulated by OSHA as a carcinogen.

4. First Aid Measures

INGESTION:	If accidentally swallowed, dilute by drinking large quantities of water. If the individual is drowsy or unconscious, do not give anything by mouth. Immediately contact poison control center or hospital emergency room for advice on whether to induce vomiting or for any other additional treatment directions.
INHALATION:	Remove to fresh air.
SKIN:	In case of irritation, flush with water.
EYES:	Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to ensure water contact with entire surface of eyes and lids. Call a physician.

5. Fire Fighting Measures

Flash point	Greater than 100 °C (212 °F) Tag Closed Cup ASTM D 56
Lower explosion limit	Not available
Upper explosion limit	Not available
Autoignition temperature	Not available
Will not burn.	
In case of fire, use water spray, dry chemical, "alcohol" foam or CO2. Use water to keep fire-exposed containers cool.	

6. Accidental Release Measures

Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. For large spills, use water spray to disperse vapors and flush spill area. Prevent runoff from entering waterways or sewers. Use appropriate Personal Protective Equipment (PPE).

7. Handling and Storage

7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipment (PPE).

INHALATION:	Avoid prolonged or repeated breathing of vapor.
SKIN:	Avoid prolonged or repeated contact with skin and clothing.
EYES:	Do not get in eyes.

7.2 Storage

Keep container closed.
Store at 20°C (70°F) or lower. Keep tightly closed.
Store in a cool, dry place.

8. Exposure Controls/Personal Protection

8.1 Exposure Controls

ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.

8.2 Personal Protection

Where air contaminants can exceed acceptable criteria, use NIOSH (42 CFR Part 84) approved respiratory protection equipment. Respirators should be selected based on the form and concentration of contaminants in air in accordance with OSHA laws and regulations or other applicable standards or guidelines, including ANSI standards regarding respiratory protection. Use goggles if contact is likely. Wear impervious gloves as required to prevent skin contact.

8.3 Exposure Guidelines

108-95-2		Phenol			
ACGIH TLV	8-hr TWA	5 ppm	19 mg/m3	Skin	
OSHA PEL	8-hr TWA	5 ppm	19 mg/m3	Skin	
50-00-0		Formaldehyde			
ACGIH TLV	Ceiling	0.3 ppm	0.37 mg/m3	A2 - Suspected Human Carcinogen; SEN	
OSHA PEL	8-hr TWA	0.75 ppm	0.9 mg/m3		
	STEL (15 min)	2 ppm	2.5 mg/m3		

9. Physical and Chemical Properties

Appearance	Clear, reddish-brown liquid
Odor	Slight aromatic
Odor threshold	Not available
Specific gravity	1.191 - 1.197
pH	Not available
Viscosity	450 - 700 cPs Brookfield
Freezing point	Less than 0 °C (32 °F)
Solubility in water	Infinite
Octanol/water partition coefficient	Not available
Vapor pressure	Approx. 50 mm Hg @25 °C (77 °F)
Vapor density	Not available

Evaporation rate
Boiling point, 760 mm Hg
Typical % solids

0.4 (Butyl Acetate = 1)
102 °C (216 °F)
Approx. 61.00 % (m)

10. Stability and Reactivity

Normally stable, but will polymerize at high temperatures with some evolution of heat.

Incompatibilities:

Oxidizers, acids

Decomposition products may include:

CO, CO₂, aldehydes (including formaldehyde), particulate matter and other organic compounds.

Hazardous polymerization:

May occur.

11. Toxicological Information

INGESTION: A similar product was found to have an LD₅₀ >0.5 g/kg when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

INHALATION: A similar product was found to be non-toxic by inhalation when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN ABSORPTION: A similar product was found to be non-toxic dermally when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN: A similar product was not a primary irritant (primary skin irritation index less than 5.0/8.0) when tested as described in 16 CFR Part 1500.41.

EYES: A similar product was severely irritating when tested as described in 16 CFR Part 1500.42.

108-95-2 Phenol

LC₅₀: rat=0.316 mg/l (RTECS)

LD₅₀: Oral-rat= 414 mg/kg (Sax); Skin-rabbit= 850 mg/kg (Sax)

50-00-0 Formaldehyde

LC₅₀: rat=0.59 mg/l (Sax)

LD₅₀: Oral-rat= 800 mg/kg (Merck); Skin-rabbit= 270 mg/kg (Sax)

12. Ecological Information

Not determined

13. Disposal Considerations

Recover free liquid. Absorb residue and dispose of according to local, state/provincial, and federal requirements.

14. Transport Information

14.1 U.S. Department of Transportation (DOT)

The data provided in this section is for information only and may not be specific to your package size. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phenol)
UN/NA number	3082
Class	9
Packing group	III
Label	9
RQ Ingredients	

14.2 Canadian Transportation of Dangerous Goods (TDG)

Regulation: Non regulated

15. Regulatory Information (Selected Regulations)

15.1 U.S. Federal Regulations

OSHA Hazards Communication Standard 29CFR1910.1200

This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

SARA Title III: Section 311/312

Immediate health hazard
Delayed health hazard
Reactivity hazard

SARA Title III: Section 313 and 40 CFR Part 372

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Phenol	108-95-2	13.98%
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TSCA Section 8(b) Inventory

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

15.2 Canadian Regulations

Workplace Hazardous Materials Information System (WHMIS)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all the information required by the CPR.

Canadian Environmental Protection Act (CEPA)

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

National Pollutant Release Inventory (NPRI)

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subsection 16(1), National Pollutant Release Inventory.

Phenol (and its salts)	108-95-2	13.98%
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16. Other Information

User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS) require that the information contained on these sheets be made available to your workers. Educate and train your workers regarding OSHA and WHMIS precautions. Instruct your workers to handle this product properly. Consult with appropriate experts to guard against hazards associated with use of this product and its ingredients.

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