

SPI Supplies Division

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: April 8, 2015

SPI #02463-MB

Formvar® Resin for Coating Grids for TEM

Section 1: Identification

Chemical Name/Synonyms..... Polyvinyl formal resin

Chemical family..... Polymer from polyvinyl alcohol and formaldehyde as a copolymer with polyvinyl acetate; Polyvinyl formal resin

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-527-3887

Worldwide FAX: 1-(703)-741-6090

Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name..... Formvar® Resin for Coating Grids for TEM

CAS #'s.....63450-15-7 99.9+% polyvinyl formal resin
.....50-00-0 <0.1% formaldehyde

Chemical Formula..... not known

Intended use: Laboratory chemical for coating TEM grids

GHS Classification:

Not a hazardous substance or mixture.

Hazardous Material Information System USA

Health..... 0

Fire Hazard..... 1

Reactivity..... 0

Personal Protection.....

NFPA Rating (estimated)

Health..... 0

Flammability..... 1

Reactivity..... 0

Emergency Overview

OSHA Hazards

No known OSHA hazards

Not a dangerous substance according to GHS.

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Ingestion May be harmful if swallowed.

Section 2: Composition

CAS# 63450-15-7	Polyvinyl formal resin	99.9%
CAS# 50-00-0	Formaldehyde	<0.1%

Section 3: Hazard Identification

Emergency overview:

This material is not hazardous by OSHA Hazard Communication Definition

Physical Health Hazards:

None known.

Physical state: Solid

Color: White to light yellow colored, free flowing powder

Odor: Slightly pungent

Odor threshold: No data available

Toxicity Data:

Oral LD50 (Rat) >5.010 mg/kg – practically nontoxic

Dermal LD50 (Rabbit) >2.000 mg/kg – not more than slightly toxic

Irritation Data:

Eye (Rabbit): 3.3 on a scale of 110.0 – slightly irritating

Skin (Rabbit): 0.0 on a scale of 8.0 – non-irritating

Potential Health Effects:

Routes of exposure

Inhalation, Ingestion, Skin Contact

Signs and Symptoms of Acute Exposure:

Not known. Animals subjected to long term exposure to polyvinyl alcohol under the skin showed no increase in tumor formation where a powdered form was used. However, an increase in tumors was reported in similar studies where polyvinyl alcohol sponges were implanted (IARC Monographs 19:351-359). NIOSH registry of toxic effects of chemical substances reported polyvinyl alcohol as "animal positive" for carcinogenicity. Although the sponge form of polyvinyl alcohol has caused fibrosis in humans, the information is not considered relevant to normal workplace exposure to polyvinyl alcohol resins and therefore, these resins are not considered to pose a carcinogenic risk to a worker.

Skin contact:

May be irritating.

Inhalation:

May be harmful

Eye contact:

Mechanical irritation is possible, therefore the dust form of the material should be kept from contacting the eyes.

Ingestion:

May be harmful.

Chronic Health Effects Summary:

No known chronic health effects.

Conditions Aggravated by Exposure:

No known conditions are aggravated by this material. However, there is a dust-explosion potential present with the use of this material, especially when working with larger (than laboratory) quantities.

Section 4: First Aid Measures

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..

Inhalation:

If symptoms are experienced, move victim to fresh air, if symptoms persist, obtain medical attention.

Eye Contact:

Wash eyes with clean low-pressure water. If irritation persists, seek medical advice.

Skin Contact:

If powdered or dust form of the material contacts the skin, immediately flush the skin with large amounts of water. If irritation or other symptoms persist, seek medical attention.

Ingestion:

Adverse health effects due to ingestion are not anticipated. If gastric irritation or discomfort persists, seek medical advice.

Section 5: Fire Fighting Measures

Flammability classification: Not classified.

Flash Point/Method: Not applicable

Auto-Ignition Temperature: Not known

Flammable Limits:

Lower: Not applicable
Upper: Not applicable

Hazardous Combustion/Decomposition Products:

Carbon monoxide, carbon dioxide, formaldehyde, acetic acid, acrolein (trace) may be formed.

Special Conditions to Avoid:

Dust particles in the atmosphere of this material may be explosive. Keep away from heat, sparks, flame and all other ignition sources. Keep containers or bags tightly closed. Clean up all dust accumulations. Prevent dust accumulations and dust clouds, possibly using water to "wet" dry dust from forming a cloud.

Extinguishing Media:

Water spray or any Class A extinguishing agent.

Fire Fighting Instructions:

Protective Equipment/Clothing: Wear a NIOSH approved positive pressure self-contained breathing apparatus and firefighter turnout gear. There could be the evolution of toxic products of combustion. Firefighting equipment should be fully decontaminated after use.

Instructions:

Use flooding quantities of water until well after fire is out.

Unusual fire and explosion hazards:

Dust when mixed in sufficient quantities with air creates a potential for explosive concentrations

Section 6: Accidental Release Measures

Release response:

Vacuum or otherwise pick up and retain for recycle or disposal. Do not flush spilled material to the sewer or the environment. Avoid creating a dust cloud since this could create an a potential for a dust explosion hazard. Use vacuum equipment designed especially for handling combustible dust.

Reportable Quantities:

See Section 15: Regulatory information.

Section 7: Handling and Storage

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.

Storage:

Keep container dry. Store away from excessive heat, sparks and flame. Avoid creating any dust cloud when handling. Keep container close to prevent contamination.

Section 8: Exposure Controls and Personal Protection

Engineering Controls:

Provide sufficient ventilation to minimize exposure. Use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Personal Protection:

Inhalation: Avoid breathing dust. Use NIOSH/OSHA approved equipment when airborne exposure is excessive. High airborne concentrations may require use of self-contained breathing apparatus or supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR 1910.134.

Skin: Skin contamination should be minimized as good industrial practice. Wearing of protective gloves is recommended. Wash hands and contaminated skin after handling.

Eye: Always use safety glasses, even for work with small quantities, such as the making Formvar filmed grids.

Section 9: Physical and Chemical Properties

Boiling Point/Range: Not applicable

pH: Not applicable

Vapor Pressure: Not applicable

Viscosity: Not applicable

Specific Gravity (Water = 1): 1.1-1.3

Water solubility: Insoluble

Solubilities: Phenols, some chlorinated hydrocarbons, alcohol mixtures, and certain aromatic hydrocarbons.

Octanol/Water Partition Coefficient in Kow: Specific value not known

Melting/Freezing Point: Not applicable

Evaporation Rate: Not applicable

Percent Volatile as packed (%) Max 2.2

Section 10: Stability and Reactivity

Chemical Stability:

The product is stable.

Conditions to Avoid:

Avoid contact with excessive heat, sparks or open flame or dust accumulation.

Incompatibility with:

None known

Hazardous Products of Deposition:

Carbon dioxide, carbon monoxide, formaldehyde, acetic acid, acrolein (trace).

Reactions with Air and Water:

Does not react with air, water or other common materials.

Section 11: Toxicological Information

Summary:

Not considered to be toxic to humans or animals

Component:

Polyvinyl formal resin 99.9+%
Formaldehyde < 0.1%

Skin Effects:

No skin effects are expected from contact.

Acute Oral Effects:

Animal studies showed no adverse health effects when performed on polyvinyl alcohol.

Acute Inhalation Effects:

None known

Subchronic Effects:

None known

Chronic Effects/Carcinogenicity:

None expected from polyvinyl formal resin, however, formaldehyde is a suspected human carcinogen by IARC. Note: Formaldehyde is present but in less than 0.1% levels.

Reproductive/Development Effects:

No reproductive or developmental effects are expected.

Section 12: Ecological Information

Exotoxicity: Exotoxicity is expected to be low based on the low water solubility of polymers. No other information is known on this topic.

Environmental Fate: No information found in our selected references.

Bioaccumulation: Not expected to occur.

Section 13: Disposal Considerations

Polyvinyl formvar is not a "hazardous waste" as that term is defined in the

Resource Conservation and Recovery Act (RCRA), 40 CFR 261, "Identification and Listing of Hazardous Waste". Burn in an approved incinerator or dispose of in an approved landfill in accordance with all applicable local, state, and federal laws and regulations. Consult your appropriate regulatory officials for information on such disposal.

Section 14: Transport Information

Proper Shipping Name: Polyvinyl Formal Resin

Special Hazard Precautions: Causes only slight eye irritation.

DOT Hazard Class: Non-Regulated

UN/NA ID: Not Regulated

Packing Group: Not Applicable

Labels: Not Regulated

Marine Pollutant: Not known, but probably not based on its insolubility in water.

NAER Guidebook: Not Regulated

DOT Status: Not Regulated

Section 15: Regulatory Information

TSCA: This product is listed on the TSCA 8(b) inventory.

If identified components of this product are listed under the TSCA 12(b) Export Notification Rule, they will be listed below.

TSCA 12(b) Component Listed under TSCA Section

SARA-Section 313 Emissions Reporting:

Component Reporting Threshold

SARA-Section 311/312:

No components present in this product are subject to the reporting requirements of this statute.

CERCLA Hazardous Substances and their Reportable Quantities:

Component	Reportable Quantity
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California Prop. 65:

Proposition 65 requires manufacturers or distributors of consumer products into the State of California to provide a warning statement if the product contains ingredients for which the State has found to cause cancer, birth defects or other reproductive harm. If this product contains an ingredient listed by the State of California to cause cancer or reproductive toxicity, it will be listed below:

Canada:

CAS# 63450-15-7 is listed on the DSL List.

CAS# 50-00-0 is listed on the DSL List.

WHMIS: No information found.

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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