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SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: FORAL® AX synthetic resin

APPEARANCE: hot molten viscous liquid at 150-210°C (302-410°F) or solid **HMIS RATINGS**

COLOR: pale to light amber **Health hazard:** 3 SERIOUS

ODOR: typical rosin **Flammability hazard:** 1 SLIGHT

CASRN: 065997-06-0 **Reactivity hazard:** 0 MINIMAL

CHEMICAL DESCRIPTION: hydrogenated wood rosin

SECTION 2: HAZARDOUS COMPONENT INFORMATION

This product is shipped and delivered as a SOLID or HOT MOLTEN liquid. The HMIS health hazard rating is for the HOT MOLTEN product.

When shipped at elevated temperatures and delivered in HOT MOLTEN form, refer to MSDS Sections 3, 4, 5, 7, and 8 for additional hazard information.

When shipped and delivered in SOLID form, this product is not a health hazard according to the OSHA Hazard Communication Standard 29CFR1910.1200.

If this product is used in a manner that could generate particulates (dust), refer to MSDS Section 8, Recommended Exposure Limits and Personal Protective Equipment.

If this product is heated or used at temperatures sufficient to produce smoke or fumes, refer to MSDS Section 8, Recommended Exposure Limits and Personal Protective Equipment.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: *DANGER!*

HOT MOLTEN product: Burns can cause irreversible eye injury and blindness.

Causes skin burns.

Inhalation of smoke or fumes can cause throat discomfort, coughing, or breathing difficulty.

Product may burn if ignited.

WARNING!

SOLID product at ambient temperature: Static charges generated by emptying package in or near flammable vapors may cause flash fire.

May form flammable dust-air mixtures.

For bags of 1000 lbs. or greater, see MSDS Section 7, Handling and Storage, for additional information.

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POTENTIAL HEALTH EFFECTS:

SOLID product at ambient temperature: Dust may cause physical eye irritation.

May cause skin irritation by mechanical abrasion.

Inhalation of dust may cause respiratory tract irritation.

May cause allergic skin reaction (sensitization) in susceptible individuals.

Prolonged exposure to smoke or fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing, or breathing difficulty. Repeated exposure may lead to respiratory sensitization (asthma) in susceptible individuals. Refer to MSDS Section 8, Exposure Controls/Personal Protection, for further information.

Refer to Section 5 for Hazardous Combustion Products, and Section 10 for Hazardous Decomposition/Hazardous Polymerization Products.

SECTION 4: FIRST AID PROCEDURES

- EYES:** HOT MOLTEN product: Cool burns with plenty of low-pressure water. Get immediate medical attention.
SOLID product at ambient temperature: Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists.
- SKIN:** HOT MOLTEN product: Immediately cool skin burns with water and cold packs for at least 15 minutes. Do NOT put ice directly on the skin. Do NOT attempt to remove solidified resin from the skin as severe tissue damage may result. See Note to Physician.
SOLID product at ambient temperature: Wash thoroughly with soap and water. Get medical attention if irritation persists. See Note to Physician.
- INHALATION:** Remove to fresh air. Treat any irritation symptomatically. Get medical attention if irritation persists.
- INGESTION:** Not an ingestion hazard under anticipated conditions of use.
- NOTE TO PHYSICIAN:** This product contains rosin or a rosin derivative. Rosin and some of its derivatives have been reported to cause an allergic skin reaction (sensitization) in susceptible individuals after repeated or prolonged skin contact.

Material should not be forcibly removed from the skin. Mineral oil may be used to loosen and soften the material.

SECTION 5: FIRE HAZARDS**FIRE FIGHTING PROCEDURES:**

Wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear when fighting fires involving this product.

Use water to keep fire-exposed containers cool.

Apply water to HOT MOLTEN or HOT LIQUID resin fires from a safe, protected location to avoid body contact with hot resin.

EXTINGUISHING MEDIA:

Water spray, dry chemical, foam, carbon dioxide or halon may be used on fires involving this product.

CONDITIONS TO AVOID:

Avoid impact, friction, heat, sparks or flame.

Avoid conditions that generate dust. This product may form flammable dust-air mixtures.

Avoid emptying package in or near flammable vapors. Static charges may cause flash fire.

HAZARDOUS COMBUSTION PRODUCTS:

If heated to combustion, the following substances may be formed: carbon monoxide, carbon dioxide, aldehydes, carboxylic acids, and smoke.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Extinguish all sources of ignition. If product is not contaminated, scoop into clean containers for use. If product is contaminated, scoop into containers, and dispose appropriately.

In case of accidental spill or release, refer to Section 8, Personal Protective Equipment and General Hygiene Practices.

SECTION 7: HANDLING AND STORAGE

GENERAL MEASURES:

For HOT MOLTEN product: Use personal protective equipment as indicated in Section 8: Exposure Controls/Personal Protection.

For SOLID product: Ground all equipment.

Blanket vessel with inert gas when emptying bags where flammable vapors may be present.

Ground operator and pour material slowly into conductive, grounded chute.

For large bags (1000 lbs or greater) a ground cable **MUST** be attached to the bag ground connection.

Keep container closed when not in use.

Control inventory. Rotate stock periodically. Use oldest material first.

MATERIALS OR CONDITIONS TO AVOID:

Water contact with HOT MOLTEN or HOT LIQUID resin may result in foaming or spattering, which can cause eye or skin burns.

Keep away from heat, flame, sparks and other ignition sources.

Spontaneous heating may occur if stored in a non-ventilated area at elevated temperatures.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL HYGIENIC PRACTICES:

Avoid contact with eyes, skin, and clothing.

Avoid breathing dust or fumes.

Avoid contamination of food, beverages, or smoking materials.

Wash thoroughly after handling, and before eating, drinking or smoking.

RECOMMENDED EXPOSURE LIMITS:

PARTICULATES (dust): If used under conditions that generate particulates (dust), the OSHA TWA of 5 mg/m³ respirable fraction (15 mg/m³ total), and ACGIH TLV-TWA of 3 mg/m³ respirable fraction (10 mg/m³ total) should be observed.

ROSIN PYROLYSIS FUMES: If this product is heated to temperatures sufficient to produce smoke or fumes, the TLV-TWA of 0.1 mg/m³ (as formaldehyde) for rosin core solder pyrolysis products should be observed.

PERSONAL PROTECTIVE EQUIPMENT:

Safety glasses

Impervious gloves

Appropriate protective clothing

Appropriate respiratory protection is required when exposure to airborne contaminants may exceed acceptable limits. Respirators should be selected and used in accordance with OSHA, Subpart I (29 CFR 1910.134) and manufacturer's recommendations.

Personnel exposed to HOT MOLTEN or HOT LIQUID material should wear protective clothing that provides protection against thermal burns. Required Protective Equipment: a) Longsleeved protective shirt, long pants, and work shoes; b) Hard hat and face shield; c) Long-cuff gloves (Gauntlet type-extending beyond the wrist); d) Lined rainsuit with protective hood or shoulder shroud or e) Full aluminized or thermal suit with hood.

WORK PRACTICES AND ENGINEERING CONTROLS:

Keep away from ignition sources. May form flammable dust-air mixtures.

Eyewash fountains and safety showers should be easily accessible.

Provide adequate ventilation.

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Discharge from the ventilation system should comply with applicable air pollution control regulations.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE:

Eliminate ignition sources and prevent build-up of static electrical charges.

Completely isolate and thoroughly clean all equipment, piping, or vessels before beginning maintenance or repairs.

Keep area clean. Product will burn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Solubility in Water: negligible at 20°C

Specific Gravity: 1.07

Evaporation Rate: slower than butyl acetate

Softening Point: 167 ° F 75 ° C

SECTION 10: STABILITY AND REACTIVITY**GENERAL STABILITY CONSIDERATIONS:**

Stable under recommended handling and storage conditions.

INCOMPATIBLE MATERIALS:

None known

HAZARDOUS DECOMPOSITION PRODUCTS:

None known

HAZARDOUS POLYMERIZATION:

Not anticipated under normal or recommended handling and storage conditions.

SECTION 11: TOXICOLOGICAL INFORMATION**REPORTED HUMAN EFFECTS:**

PRODUCT/SIMILAR PRODUCT - Reported to cause an allergic skin reaction (sensitization) in susceptible individuals after repeated or prolonged contact.

REPORTED ANIMAL EFFECTS:

PRODUCT/SIMILAR PRODUCT - Acute oral LD50 (rat): > 4.0 g/kg; (mouse): > 3.0 g/kg; (guinea pig): > 2.5 g/kg. Acute dermal LD50 (rabbit): > 2.5 g/kg. Ninety-day oral subacute no effect level (rat): NOEL = 0.2-1.0% in diet. Signs of toxicity included refusal to eat, weight loss and death at highest level, depressed weight gain and liver enlargement. Two-year chronic oral no effect level (rat, dog): NOEL = 0.05% in diet. Signs of toxicity included temporary weight depression and liver enlargement in both species.

CARCINOGENICITY INFORMATION:

PRODUCT/SIMILAR PRODUCT - Not listed as a carcinogen by NTP. Not regulated as a carcinogen by OSHA. Not evaluated by IARC.

SECTION 12: ECOLOGICAL INFORMATION**ECOTOXICITY:**

PRODUCT/SIMILAR PRODUCT - No ecological studies have been carried out on this product.

SECTION 13: DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD:**

Incineration in accordance with applicable regulations is the recommended disposal method. Landfilling in a permitted solid or hazardous waste facility, meeting technical regulatory requirements, is a suitable alternative.

SECTION 14: TRANSPORTATION INFORMATION

For information regarding transportation of this product, please contact Hercules Transportation at (302) 594-7356.

SECTION 15: REGULATORY INFORMATION**CHEMICAL INVENTORIES:**

U. S. TSCA Status: Included on TSCA Inventory.
European EINECS Status: Included on EINECS list.
Canadian CEPA Status: Included on DSL Inventory.
Korean KECL Status: Included on KECL Inventory.

SARA TITLE III**Sections 302 and 304:**

This product is not an Extremely Hazardous Substance subject to reporting under 40CFR355.

Sections 311 and 312:

HC-1: Acute health hazard
HC-3: Fire hazard

Section 313:

This product does not contain any chemicals subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act and 40CFR372.

CERCLA

This product does not contain any chemicals subject to reporting as a CERCLA Hazardous Substance under 40CFR302.4.

RCRA

This product is not a hazardous waste as listed in 40CFR261.33. It does not exhibit any of the hazardous characteristics listed in 40CFR261, Subpart C.

SECTION 16: OTHER INFORMATION**LIST OF ACRONYMS:**

ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
AIHA WEEL: American Industrial Hygienists Association - Workplace Environmental Exposure Level
ANSI: American National Standards Institute
C: Ceiling
CASRN: Chemical Abstracts Service Registry Number
CERCLA: Comprehensive Emergency Response, Compensation and Liability Act
DSL: Domestic Substances List (Canadian)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
MITI: Ministry of International Trade and Industry (Japanese)
N/A: Not Applicable
NDSL: Non-domestic Substances List (Canadian)
NOR: Not Otherwise Regulated
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: OSHA Permissible Exposure Limit
RCRA: Resource Conservation and Recovery Act
RQ: Reportable Quantity
SARA: Superfund Amendment Reauthorization Act
STEL: Short-Term Exposure Limit
TLV: Threshold Limit Values (registered trademark of ACGIH)
TPQ: Threshold Planning Quantity
TSCA: Toxic Substances Control Act
TWA: Time Weighted Average

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.