

MATERIAL SAFETY DATA SHEETHercules Incorporated
Pinova Division
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894-0001
(302) 594-5000 (24 HRS)**1 PRODUCT IDENTIFICATION**

PRODUCT NAME	PENTALYN® A SYNTHETIC RESIN
CHEMICAL/COMMON NAME	pentaerythritol ester of rosin
CAS NUMBER	8050-26-8

2 COMPOSITION / INFORMATION ON INGREDIENTS

This product is considered hazardous according to the OSHA Hazard Communication Standard 29CFR1910.1200 due to flammable dust potential.

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.

3 HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW****WARNING!**

Static charges generated by emptying package in or near flammable vapors may cause flash fire. May form flammable dust-air mixtures.

POTENTIAL HEALTH EFFECTS

May cause eye irritation by mechanical abrasion.
May cause skin irritation by mechanical abrasion.
Inhalation may cause respiratory tract irritation.
Prolonged or repeated contact may cause skin irritation and may cause skin 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.

4 FIRST AID MEASURES**SKIN**

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists. Thoroughly wash clothing before reuse. See Note to Physician.
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. Get immediate medical attention. See Note to Physician.

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EYE

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.

HOT MOLTEN product: Cool burns with plenty of low-pressure water. Get immediate medical attention.

INHALATION

Remove to fresh air. Get medical attention if nasal, throat or lung irritation develops.

INGESTION

Not an ingestion hazard under anticipated conditions of use. For accidental ingestion: If conscious, drink one to two glasses of water (8-16 oz.). Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.

NOTES 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. Smoke or fumes generated by heating product may lead to respiratory sensitization (asthma) in susceptible individuals.

For **HOT MOLTEN** or **HOT LIQUID** product: Material should not be forcibly pulled from the skin. Mineral oil may be used to loosen and soften the material.

5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

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.

CONDITIONS TO AVOID

None known.

HAZARDOUS COMBUSTION PRODUCTS

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

FLASH POINT > 350 ° F Cleveland Open Cup

6 ACCIDENTAL RELEASE MEASURES

Ventilate area. Avoid dust formation. 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.

7 HANDLING & STORAGE

GENERAL MEASURES

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.

Store in a cool, dry area.

Keep container closed when not in use.

Check old product for deterioration regularly.

Control inventory.

Rotate stock periodically.

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

MATERIALS OR CONDITIONS TO AVOID

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

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

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

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

WORK PRACTICES & ENGINEERING CONTROLS

Eyewash fountains and safety showers should be easily accessible.

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.

GENERAL HYGIENIC PRACTICES

Avoid contact with eyes, skin, and clothing.

Avoid breathing dust or fumes.

Handle in areas with adequate ventilation.

Avoid contamination of food, beverages, or smoking materials.

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

Remove contaminated clothing promptly and clean thoroughly before reuse.

RECOMMENDED EXPOSURE LIMITS

PARTICULATES (INSOLUBLE) NOT OTHERWISE SPECIFIED (PNOS): If used under conditions that generate particulates, the 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, maintain exposure to resin acids to the lowest achievable concentration using recommended engineering controls and personal protective equipment.

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 manufacturers 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.

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.

9 PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE:	solid or flake
COLOR:	light amber
ODOR:	typical rosin
Specific Gravity	1.07
Percent Volatile	negligible at 68° F
Vapor Pressure	negligible at 68° F
Evaporation Rate	negligible at 68° F
Vapor Density	heavier than air
Solubility In Water	negligible at 68° F
Softening Point	228 - 241 ° F

10 STABILITY & REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS

None anticipated under normal or recommended handling and storage conditions. If this product is used at elevated temperatures, it may generate combustion products. Refer to MSDS Section 5, Hazardous Combustion Products.

HAZARDOUS POLYMERIZATION

Not anticipated under normal or recommended handling and storage conditions.

GENERAL STABILITY CONSIDERATIONS

Stable under recommended handling and storage conditions.

INCOMPATIBLE MATERIALS

None known

11 TOXICOLOGICAL INFORMATION

CARCINOGENICITY INFORMATION

Not listed as a carcinogen by NTP. Not regulated as a carcinogen by OSHA. Not evaluated by IARC.

REPORTED HUMAN EFFECTS

Due to the physical nature of this material, may cause eye, skin and respiratory irritation. This product contains rosin or a rosin derivative. Rosin and some rosin derivatives have been reported to cause an allergic skin reaction (sensitization) in susceptible individuals after repeated or prolonged contact. Smoke or fumes generated by heating may lead to respiratory sensitization (asthma) in susceptible individuals.

REPORTED ANIMAL EFFECTS

Oral LD50 (rat): > 2000 mg/kg. Not toxic by OSHA/ANSI criteria based on acute animal peroral testing of this or a similar product (LD50 >500 mg/kg). Feeding studies of this or similar products indicate no evidence of risk at anticipated workplace exposure levels. Mild reversible respiratory irritation from single and repeated inhalation exposure to heated vapors of this or a similar material.

12 ECOLOGICAL INFORMATION

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AQUATIC TOXICITY

Acute 96-hour LL50 (Fathead minnow): > 1000 mg/l. Acute 48-hour EL50 (Daphnia magna): > 1000 mg/l. Algae growth inhibition test (72-hour EL50): > 1000 mg/l.

BIODEGRADABILITY

Based upon data from this or similar materials, this product cannot be regarded as readily biodegradable; however, it may be slowly biodegradable.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Landfilling in a permitted solid or hazardous waste facility is recommended. Handling, transportation, and disposal of material should be conducted in a manner to prevent a nuisance dust hazard. Fully containerize the material before handling, and protect from exposure to the outdoors. Ensure there are no restrictions on disposing of bulk or semi-bulk quantities of waste material. Disposal should be in accordance with all Federal, State and local regulations.

14 TRANSPORT INFORMATION

GENERAL

This product is not subject to DOT regulations.

For specific information regarding transportation of this product, please call the Hercules representative at (905) 279-3338.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

FOR USES INVOLVING COSMETIC OR SKIN-CONTACT APPLICATIONS:

Pursuant to U.S. FDA Regulation 21 CFR 740.10:

"WARNING - The safety of this product has not been determined."

CHEMICAL INVENTORIES

U.S. TSCA: The components of this product are included on the TSCA Inventory.

SARA TITLE III - SECTIONS 302/304

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

SARA TITLE III - SECTION 311 AND 312

NHH: Not a health hazard

HC-3: Fire hazard

SARA TITLE III - 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.

16 OTHER INFORMATION

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HMIS RATINGS:

Health 0 Minimal Hazard
Flammability 1 Slight Hazard
Reactivity 0 Minimal Hazard

LIST OF ACRONYMS

ACGIH: American Conferences of Governmental Industrial Hygienists
AIHA WEEL: American Industrial Hygienists Association-Workplace Environmental Exposure Level
ANSI: American National Standards Institute
CASRN: Chemical Abstracts Service Registry Number
CEPA: Canadian Environmental Protection Act
CERCLA: Comprehensive Emergency Response, Compensation and Liability Act
DSL: Domestic Substances List (Canadian)
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
NDSL: Non-Domestic Substances List (Canadian)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit (OSHA)
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 Substance Control Act
TWA: Time Weighted Average

DISCLAIMER

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.

MSDS STATUS

Effective Date	MSDS Revision(s)	Supersedes Date
10/13/2003	Sections 2, 6, 8, 11 and 12	12/02/2002