



Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product/Trade Name: SYLVACOTE® 6101

Chemical Name: Resin acids and Rosin acids, Esters with Pentaerythritol; Pentaerythritol Ester of Rosin; Rosin, Pentaerythritol Ester

CAS Number: 8050-26-8

Product Uses: Thermoplastic roadmarking applications.

Supplier/Manufacturer: Arizona Chemical Company
P.O. Box 550850
Jacksonville, FL32255-0850
USA
(800) 526-5294
(904) 928-8700

EMERGENCY PHONE: Chemtrec: 1-800-424-9300 (transportation and medical)

Section 2. Hazards Identification

Classification: Product is not classified as hazardous under GHS criteria or OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label Elements:

Signal Word(s): None

Hazard Statement(s): None

Precautionary Statement(s): None

Other information: See Section 11 for health effects. See Section 12 for environmental effects. Product may form explosive dust/air mixture if high concentration of product dust is suspended in air. Static electric charges created by emptying product from ungrounded containers in or near flammable vapors may cause flash fire. Contact with molten product can cause thermal burns.

Section 3. Composition and Information on Ingredients

Name	CASRN/Trade Secret Number	Weight %
Resin acids and Rosin acids, esters with pentaerythritol	8050-26-8	>99.9

See section 8 for Exposure Controls/ Exposure Limits/Personal Protection information.

Section 4. First Aid Measures

- Eye Contact:** Immediately flush eyes with flooding amounts of cool, low-pressure water for at least 15 minutes. If irritation persists, get medical attention. If hot/molten product contacts eye, flush with water for at least 15 minutes and seek medical attention immediately.
- Skin Contact:** In case of skin contact, wash immediately with soap and water. If irritation develops or persists, get medical attention. If hot or molten product contacts skin, cool under running water. Do not attempt to remove the hot, molten or cooled product from the skin. Seek medical attention
- Inhalation:** Move person to non-contaminated air. If affected person is not breathing, apply artificial respiration. Seek medical attention.
- Ingestion:** If swallowed, contact a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by medical personnel.
- Notes to Physician:** Provide general supportive measures and treat symptomatically. In case of ingestion, the decision of whether or not to induce vomiting should be made by the attending physician. If burn is present, treat as any thermal burn. Removing adhered product from burned skin may compromise the skin integrity and result in infection and/or more severe scarring.

****If victims of chemical over-exposure are taken for medical attention, give a copy of the label or MSDS to the physician/health professional.****

Section 5. Fire-Fighting Measures

- Extinguishing Media:** Carbon dioxide, dry chemical, or water.
- General Fire Hazards:** High concentration of airborne dust may form explosive mixture with air. Static electric charges created by emptying product from ungrounded containers in or near flammable vapors may cause flash fire. Product is not considered combustible. If heated above its flash point in the presence of air, product can support combustion.
- NFPA Hazard Ratings:** 1 Health 1 Fire 0 Reactivity
- Hazardous Decomposition Products:** Smoke, carbon monoxide, carbon dioxide, and other products of combustion.
- Fire Fighting Equipment:** Wear full protective clothing, including self-contained positive pressure or pressure demand breathing apparatus, helmet, and protective clothing. Use water to cool fire-exposed containers and to protect personnel.

Section 6. Accidental Release Measures

- Containment:** Contain the discharged material. If airborne dust is generated, eliminate all sources of ignition that may come into contact with the dust.
- Clean-up Procedures:** Wear appropriate protective equipment and clothing during clean up. Avoid generation of dust during clean-up. Wear an approved respirator if dust is generated above exposure limits. Attempt to reclaim free product, if this is possible. Shovel material into appropriate container for disposal. Follow all Local, State, Federal and Provincial regulations for disposal.
- Evacuation Procedures:** Persons not wearing appropriate protective equipment should be excluded from area of spill until clean-up has been completed.
- Special Instructions:** Avoid contact with skin and eyes. Avoid skin contact with molten resins. Avoid inhalation of dust from spilled material. Avoid inhalation of fumes from molten product.

Section 7. Handling and Storage

- Handling:** Avoid eye and skin contact. Avoid breathing dusts from this material. Avoid breathing fumes if product is used at high temperatures. Maintain good housekeeping to prevent dust accumulation. Flaked or crushed material may cause a dust problem. If product is in dust form, it is classified as a dust explosion hazard class II. Handling of product in dust form should be in accordance with NFPA. If handling with flammable or combustible materials, the explosion hazard may increase. Avoid ignition sources such as sparks and flame. In addition, when emptying bags where flammable vapors may be present, blanket vessel with inert gas, assure proper grounding (NFPA 69 – Explosion Prevention Systems; NFPA 70 - National Electric Code; NFPA 77 – Recommended Practices on Static Electricity; NFPA 654 – Standard for the Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical and Plastics Industry), and pour material slowly into conductive grounded chutes. An explanation of dust explosions is available in Technical Bulletin #1. Please contact customer service to request a copy. Do not reheat product packaged in light metal containers. The light metal containers will not safely support the movement or transfer of the product in a hot, molten form. Do not chisel drums in areas where flammable liquids are stored or used. Wash thoroughly after handling. Never eat, drink or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet or applying cosmetics.
- Storage:** Store at ambient temperature and atmospheric pressure. Guard against dust accumulation of this material. Flaked or crushed product may be prone to oxidation, therefore, control inventory – use oldest material first. Suggest stainless steel construction for bulk storage

Section 8. Exposure Controls/Personal Protection

Observe exposure limits for Particulates (NOC):

ACGIH TLV TWA: 10 mg/m³ Total dust; **ACGIH TLV TWA:** 3 mg/m³ Respirable dust;

OSHA PEL TWA: 15 mg/m³ Total dust; **OSHA PEL TWA:** 5 mg/m³ Respirable dust.

Engineering Controls: Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Ventilation must be sufficient to effectively remove and prevent build-up of airborne dusts or vapors. Use electrically grounded, explosion-proof equipment for ventilation or any handling of this product.

Personal Protection

Eye/Face: Wear chemical goggles and face shield if handling molten material. Ensure compliance with OSHA's personal protective equipment (PPE) standard for eye and face protection, 29 CFR 1910.133.

Skin: Use impervious gloves. Work clothing sufficient to prevent all skin contact should be worn, such as coveralls and long sleeves. For heated/molten product, use any type thermal insulating gloves and other clothing as necessary to protect from thermal burns. Ensure compliance with OSHA's personal protective equipment (PPE) standard, 29 CFR 1910.132 (general) and 138 (hand protection).

Respiratory: Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2-1992). A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented.

DUST/MIST: If concentrations are below the TLV and/or PEL, a NIOSH-approved disposable dust/mist respirator may be used for personal comfort. For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH-approved half-face piece respirator equipped with dust-mist cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in Publication No. 87-116 or ANSI Z88.2-1992. Note: ANSI Z88.2-1992 requires the use of a HEPA filter if the particle size distribution of the contaminant is unknown. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

For molten/heated product:

GAS/VAPOR: For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH approved half-face piece respirator equipped with appropriate chemical cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in Publication No. 87-116 or ANSI Z88.2-1992. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

General: Use good industrial hygiene practices in handling this material. Eye wash fountains and emergency showers are recommended. Launder contaminated clothing before reuse.

Section 9. Physical and Chemical Properties

Appearance:	Light yellow solid
Odor:	Mild
Odor Threshold:	Not applicable
pH:	Not applicable
Melting point/freezing point:	100°C softening point typical
Initial boiling point and boiling range:	Not applicable
Flash Point:	>254.4°C (490°F) (Setaflash Closed Cup)
Evaporation rate:	Approx. 0 (n-BuAc=1)
Flammability:	Non-flammable
Upper/lower flammability or explosive limits:	Not available
Vapor pressure:	<0.001 mm Hg at 20°C (68°F)
Vapor density:	Not applicable
Volatiles:	Negligible
Specific gravity:	>1 at 25°C/25°C (water=1.00)
Solubility (water):	0.38 mg/L at 20°C (Rosin, pentaerythritol ester)
Partition coefficient, n-octanol/water:	LogK _{ow} 6.1-7.1 @ 35°C (Rosin, pentaerythritol ester)
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	10,300 cps @ 125°C (257°F), Brookfield
Molecular weight:	Not available
Acid Number:	12 typical

Section 10. Stability and Reactivity Data

Chemical Stability:	This product is stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	Avoid strong oxidizing agents. Avoid dispersion of dust in air. Avoid ignition sources where dust is produced.
Incompatibility:	May react with strong oxidizing agents.
Hazardous Decomposition Products:	Smoke, carbon monoxide, carbon dioxide and other products of combustion.

Section 11. Toxicological Information

Routes of Exposure and Potential Health Effects:

Eye:	Dust or powder from the product may cause eye irritation. Rubbing may cause abrasion of the cornea. Symptoms may include irritation, redness, scratching of the cornea, and tearing. If heated, product can cause thermal burns and vapors may cause eye irritation.
Skin:	Product may cause mild skin irritation after prolonged or repeated contact. If heated, product can cause thermal burns.
Inhalation:	Inhalation of dusts may cause respiratory irritation. Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing and difficulty breathing.

Ingestion: Ingestion of product may produce mild gastrointestinal disturbances.

Toxicity Data: (for Rosin, pentaerythritol ester)

Acute Toxicity: Oral, rat, LD₅₀ >2000 mg/kg
Oral, rat, LD₅₀ >5000 mg/kg
Dermal, rabbit, LD₅₀ >2000 mg/kg

Skin Corrosion/Irritation: Not found to be a skin irritant in rabbits

Eye Irritation: Not found to be an eye irritant in rabbits

Sensitization: Not found to be a skin sensitizer in the Guinea Pig Maximization Test (GPMT).

Germ Cell Mutagenicity: Non mutagenic in the AMES Salmonella Assay. There was no evidence of carcinogenicity in a two year cancer bioassay in rats and this negative cancer bioassay was submitted under EPA HPV program as surrogate for genetic toxicity testing. A chemically similar substance was not clastogenic in cytogenetic test conducted in Chinese Hamster Ovary (CHO) cells.

Carcinogenicity: This product is not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP or OSHA. Rosin, pentaerythritol ester has been tested for potential carcinogenicity in a two year bioassay conducted in rats in which there was no evidence of carcinogenicity.

Reproductive Toxicity: No obvious effects of treatment on fertility, pregnancy performance or pup development at any dose level in a Reproduction/Developmental Toxicity Screening Test in rats. Parental NOEL = 1900 mg/kg/day; Reproductive/Developmental NOEL = 1900 mg/kg/day.

Repeat Dose Toxicity: NOEL approx. 500 mg/kg/day in rats in 90-day feeding study.

Specific Target Organ System Toxicity

– **Single Exposure:** No data available

Specific Target Organ System Toxicity

– **Repeated Exposure:** See above

Other: No data available

Section 12. Ecological Information

Ecotoxicity (for Rosin, pentaerythritol ester):

Acute Toxicity, Fish: 96-hr LL₅₀ >1000 mg/l loading rate WAF; NOEL 1000 mg/l loading rate WAF
 Acute Toxicity, Daphnia: 48-hr EL₅₀ >1000 mg/l loading rate WAF; NOEL 1000 mg/l loading rate WAF
 Growth Inhibition, Algae: 72-hr EL₅₀ for AUC and Average Specific Growth Rate (0-72H) >1000 mg/l loading rate WAF, NOEL 1000 mg/l loading rate WAF

Biodegradability: 0 % degradation after 28 days, not readily biodegradable (for Rosin, pentaerythritol ester)

Bioaccumulative Potential:

Partition Coefficient (LogK_{ow}) 3.6 at pH 7.5, 6.1-7.1 at pH 2, upper range indicated potential to bioaccumulate (for Rosin, pentaerythritol ester)

Section 13. Disposal Considerations

Waste Disposal Waste material must be tested using methods described in 40 CFR 261 to determine if it meets applicable definitions of hazardous waste. No EPA Waste Numbers are applicable for this product's components. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Write to the address listed in Section 1 for information on heavy metals analysis and other disposal information.

Section 14. Transport Information

DOT Classification: Not a DOT controlled material.
DOT Proper Shipping Name: None
DOT Identification Number: None
Packing Group: None
Hazardous Substances Reportable Quantity: None
Special Provisions for Transport: IF SHIPPED OVER 100°C (but less than flash point): DOT Shipping Name: Elevated Temperature Liquid, n.o.s.; Hazard Class: 9; UN/NA Number: UN3257; Packing Group III; bulk shipping requires "HOT" placard
Additional Shipping Information: Not a Marine Pollutant
International Transportation Regulations: Not classified

Section 15. Regulatory Information

TSCA: This product is on the Toxic Substances Control Act (TSCA) Inventory.

SARA TITLE III:

SARA 302 (40 CFR 355): None of this product's components are listed.

SARA 311/312 (40 CFR 370.2): None.

SARA 313 (40 CFR 372.65): None of this product's components are listed.

CERCLA (40 CFR 302.4): None of this product's components are listed.

International Inventories: This product is either listed or exempt from listing on the following inventories: Canada DSL, Europe EINECS, Japan ENCS, Korea ECL, Australia AICS, China IECS and Philippines PICCS.

State Lists: None of this product's components are listed in CA, FL, MA, NJ or PA.

Other: This product contains antioxidants.

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Section 16. Other Information
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Validation Date: May 1, 2008

Supersedes Date: December 3, 2007

Reason for Revision: New format. Revised Sections 1, 2, 3, 5, 8, 9, 11, 12, and 15.

Validated By: C. P. Smith, Sr. Product Regulatory Specialist

Key/Legend:

ACGIH = American Conference of Governmental Industrial Hygienists. ANSI = American National Standards Institute. ASTM = American Society for Testing and Materials. AUC = Area Under Curve. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. DOT = Department of Transportation. EL = Effective Loading. EPA = Environmental Protection Agency. GHS = Globally Harmonized System of Classification and Labeling of Chemicals. IARC = International Agency for Research on Cancer. LD = Lethal Dose. LL = Lethal Loading. NIOSH = National Institute of Occupational Health and Safety. NOEL = No Observed Effect level. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. PEL = Permissible Exposure Limit. SARA = Superfund Amendments and Reauthorization Act. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act. WAF = Water Accommodated Fractions.

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