



Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

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| Product/Trade Name | SYLVARES™ ZT 5100 | Code | ZT5100 |
| | (formerly XR-5100) | MSDS# | 6507 |
| Supplier / Manufacturer | Arizona Chemical P.O. Box 550850 Jacksonville, FL 32255-0850 USA (800) 526-5294 / (904) 928-8700 | Validation Date | 5/22/2002 |
| | | Print Date | 5/22/2002 |
| Chemical Name | Terpene Resin | EMERGENCY PHONE CHEMTREC: 1-800-424-9300 (transportation and medical) | |

Section 2. Composition and Information on Ingredients

| Name | CAS # | % by Weight |
|---------------------------|--------------------------|-------------|
| 1) Modified Terpene Resin | Proprietary, NJTSRN-6507 | ~ 99.9 |

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

Section 3. Hazards Identification

EMERGENCY OVERVIEW

Product is a pale, yellow, solid. This is a non-combustible, non-reactive solid material. 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. May cause eye irritation. Vapors may also produce eye irritation. Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or difficulty breathing.

HMIS

HEALTH: 1
FIRE: 1
REACTIVITY: 0
PPE: see Section 8 of this MSDS.

0=Minimal; 1=Slight; 2=Moderate;
3=Serious; 4=Severe;
(*)=Chronic health hazard.

Potential Health Effects

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| Eye Contact | Dust/powder may irritate eye tissue. Rubbing may cause abrasion of the cornea. Symptoms may include irritation, redness, scratching of the cornea, and tearing. Vapors may also cause eye irritation. If heated product contacts the eye, thermal burns may result. |
| Skin Contact | Prolonged or repeated skin contact may cause irritation. When it is heated, this product may 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. |

Section 4. First Aid Measures

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| 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, seek medical attention. If hot product contacts skin, cool under running water and seek medical attention. Do not attempt to remove the hot, molten or cooled product from the skin. |
| 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.*****

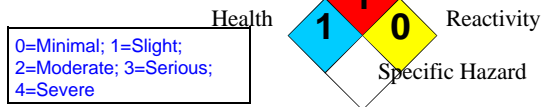
Section 5. Fire and Explosion Data

Flammability of the Product Nonflammable.

Auto-Ignition Temperature Not available.

Flash Point CLOSED CUP: >232.22°C (450°F).
(Setaflash Closed Cup).

Flammable Limits Not available.

NFPA 704

This information is for people trained in the National Fire Protection Association's (NFPA 704) Identification of the Fire Hazards of Materials.

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.

Hazardous Decomposition Products Smoke, carbon monoxide, carbon dioxide, and other products of combustion.

Extinguishing Media Carbon dioxide, dry chemical or water.

Fire Fighting Equipment and Instructions Wear full protective clothing, including self-contained positive pressure or pressure demand breathing apparatus, helmet, protective clothing and face mask. 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.

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| 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. |
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Section 8. Exposure Controls/Personal Protection

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| 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. Local exhaust ventilation is recommended when generating excessive levels of airborne dust or vapors from handling or thermal processing. Use electrically grounded, explosion-proof equipment for ventilation or any handling of this product. |
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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-facepiece 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.

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.

Xylene is typically present at a residual level of < 200ppm. Observe exposure limits for xylene:

ACGIH TLV TWA: 100 ppm;

OSHA PEL TWA: 100 ppm;

OSHA STEL: 150 ppm.

| Chemical Name or Product Name | CAS # | OSHA PEL | ACGIH TLV |
|-------------------------------|-----------------------------|-----------------|-----------------|
| 1) Modified Terpene Resin | Proprietary, NJTSRN-6507 | Not established | Not established |

NOTE: The 1989 OSHA PELs were vacated in 1993 and are not currently enforceable by Federal OSHA. However, some state OSHA programs may still enforce the 1989 limits.

Section 9. Physical and Chemical Properties

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| Physical state and appearance | Solid. | Vapor Density | Not available |
| Odor | Odorless unless heated | Percent Volatile (EPA Method 24) | 0% (w/w). |
| Color | Pale yellow | Solubility (water) | Negligible |
| Molecular Weight | Not available | Density (vs. water) | > 1 |
| Specific Gravity | >1 (Water = 1) | Flash Point | CLOSED CUP: >232.22°C (450°F). (Setaflash Closed Cup). |
| Boiling Point | >148.89°C (300°F) | R/B Softening Point | 90 - 96 °C |
| pH | Not applicable | Acid No. (per ASTM D-465) | Not available |

Section 10. Stability and Reactivity Data

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| Chemical Stability | The product is stable. |
| Conditions to avoid | Avoid strong oxidizing agents. |
| Incompatibility | May react with strong oxidizing agents. |
| Hazardous Decomposition Products | Smoke, carbon monoxide, carbon dioxide, and other products of combustion. |
| Hazardous Polymerization | Hazardous polymerization will not occur. |

Section 11. Toxicological Information

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| Toxicity to Animals | <p>Terpene Resin: ORAL, rat, LD50 = > 5000 mg/kg; DERMAL, rabbits, LD50 = > 10,000 mg/kg.</p> <p>Primary eye irritation study in rabbits showed product to be mildly irritating. Varying degrees of conjunctival irritation was noted in all unwhashed eyes that cleared by day 10. Product was not found to be a skin sensitizer in guinea pigs.</p> |
| Toxicity to Humans | <p>Contact may cause skin or eye irritation. Ingestion may cause nausea, vomiting and diarrhea. Inhalation of dust may cause respiratory irritation.</p> <p>Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or difficulty breathing. Product was not found to cause skin sensitization in human patch test studies.</p> <p>CARCINOGENIC EFFECTS: None of this product's components are listed as carcinogens by ACGIH, IARC, NIOSH, NTP or OSHA. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. No information is available on the toxicity of this product to the reproductive system.</p> |

Section 12. Ecological Information

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| Ecotoxicity | No information is available. |
| Environmental Fate | No information is available. |

Section 13. Disposal Considerations

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| 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. |
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Section 14. Transport Information

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| DOT Classification | Not a DOT controlled material (United States). |
| Proper Shipping Name | None. |
| DOT Identification Number | None. |
| Packing Group | None. |
| Hazardous Substances Reportable Quantity | Not available. |
| Special Provisions for Transport | IF SHIPPED OVER 100°C (but less than product 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 Determined |
| International Transportation Regulations | Not Determined |

Section 15. Regulatory Information

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| Federal and State Regulations | <p>OSHA: Not hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).</p> <p>SARA TITLE III: SARA Section 302 (40 CFR 355 Appendix A): None of this product's components are listed; SARA Section 311/312: None; SARA Section 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.</p> <p>TSCA Inventory: All of this product's components are listed.</p> <p>International Inventories: All of this product's components are on or exempt from these inventories: Canada DSL, EINECS, China and Japan.</p> <p>This product contains antioxidants.</p> <p>State Lists: None of this product's components are listed in CA, FL, MA, MN, NJ, or PA.</p> <p>This product does not contain any chemicals currently on the California List of Known Carcinogens and Reproductive Toxins.</p> |
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Section 16. Other Information

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| Key/Legend | ACGIH = American Conference of Governmental Industrial Hygienists. ANSI = American National Standards Institute. ASTM = American Society for Testing and Materials. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. DOT = Department of Transportation. EPA = Environmental Protection Agency. IARC = International Agency for Research on Cancer. LD = Lethal Dose. NIOSH = National Institute of Occupational Health and Safety. 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. |
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Validated by Richard Moye on 5/22/2002.

Verified by Regulatory Affairs Dept..

Printed 5/22/2002.

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| Supersedes Date | 11/19/01 | Reason for Revision | Updated Section 15. |
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