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ZCRESIN MATERIAL SAFETY DATA SHEET

RA90W Modified Rosin Resin

(ALCOHOL SOLUBLE)

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Intended use: Chemical intermediate used for manufacture of industrial products.

1.PRODUCT IDENTIFICATION

Product name RA90W
Chemical Description Modified rosin resin
Chemical Family organic acids

2.COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	EC#	% by Weight
Modified Rosin Ester	92202-14-17	296-047-1	100

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

3.HAZARDS IDENTIFICATION

HMIS

health hazard 1
fire hazard 1
Reactivity 0
Personal Protection see Section 8 of this MSDS.

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

EMERGENCY OVERVIEW

Product is a light amber solid with a slight odor. This is a non-combustible, non-reactive solid material. Flaked material may cause a dust problem. Product may form explosive dust/air mixture if high concentration of product dust is suspended in air. Static electric

charges created by transferring 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.

POTENTIAL HEALTH EFFECTS

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 vapor/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.

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.****

5.FIRE FIGHTING MEASURES

FLAMMABILITY OF THE PRODUCT

Flammable.

AUTO-IGNITION TEMPERATURE

Not available.

FLASH-POINT

CLOSED CUP: 263°C.

FLAMMABLE LIMITS

Not available.

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/pressure demand breathing apparatus, helmet, and protective clothing. Use water to cool fire-exposed containers and to protect personnel.

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 INSTRUCTION

Avoid contact with skin and eyes. Avoid skin contact with molten resins. Avoid inhalation of dusts. Avoid inhalation of fumes from molten product.

7. HANDLING & 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, CGIH, 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.

PERSONAL PROTECTIVE EQUIPMENT

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 of 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.

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.

9. PHYSICAL & CHEMICAL PROPERTIES

Physical appearance	Solid
Odor	Slight
Color	Light yellow.
Molecular Weight	Not available.
Specific Gravity (25°C)	Approximately 1.07
PH	Not applicable
Vapor Density	Not available

Percent Volatile (EPA Method 24)	Negligible
Solubility in Water	Insoluble
Density (vs. water)	>1
Flash Point	CLOSED CUP: >263°C.
R/B Softening Point	≥90 °C
Acid No. (per ASTM D-465)	≥180

10. STABILITY & REACTIVITY

CHEMICAL STABILITY

This product is stable under the recommended storage conditions.

CONDITIONS TO AVOID

Avoid strong oxidizing agents. Avoid dispersion of dust in air. Avoid ignition sources where dust is produced.

INCOMPATIBILITY WITH OTHER MATERIALS

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.

SPECIAL REMARKS

Hot or molten product may darken or lose other quality properties unless stored under an inert gas blanket. Mixing water with hot or molten product may cause violent splattering due to rapid steam generation.

11. TOXICOLOGICAL INFORMATION

TOXICITY TO ANIMALS

Rosin Ester:

ORAL, rat, LD50 = > 5000 to > 10000 mg/kg;

DERMAL, rabbit, LD50 = > 2000 mg/kg;

This product was found to produce mild eye and skin irritation in rabbits. Product was not found to be a skin sensitizer in guinea pigs. Product was non-mutagenic in the Ames Salmonella Assay.

TOXICITY TO HUMANS

Contact may cause skin or eye irritation. Ingestion may cause nausea, vomiting, and diarrhea. Inhalation of dust may cause respiratory irritation.

Prolonged or repeated exposure to vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or breathing difficulty.

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 available on the toxicity of this product to the reproductive system.

12.ECOLOGICAL INFORMATION

ECATOXICITY

This product is biodegradable under aerobic and anaerobic conditions.

13.DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

14.TRANSPORT INFORMATION

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

15.REGULATORY INFORMATION

FEDERAL REGULATIONS

OSHA: Not hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

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.**

TSCA Inventory: All of this product's components are listed.

International Inventories: All of this product's components are on or exempt from these inventories: EINECS, DSL, Japan, Korea, Australia, China and the Philippines.

US lists: None of this product's components are listed in CA, FL, MA, MN, NJ, or PA.

16.OTHER INFORMATION

KEY TO ABBREVIATIONS AND ACRONYMS

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.

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.