Safety Data Sheet

Tall Oil

1. Identification

TRADE NAME (AS LABELED): Tall Oil
SYNONYMS: Tallol, Liquid Rosin, Crude Tall Oil
PRODUCT USES: Supplied for use as an intermediate in the manufacture of soaps, adhesives, rubbers and inks. Also used in application areas such as asphalt emulsifiers and cleaners.
CHEMICAL NAME/CLASS: Fatty and resin acids mixture.
MANUFACTURER'S NAME: WestRock
ADDRESS: 504 Thrasher Street Norcross, GA 30071
EMERGENCY PHONE: (800) 424-9300 (CHEMTREC)
BUSINESS PHONE: 770-448-2193

2. Hazard Identification

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS#</th>
<th>Signal Word/Pictogram</th>
<th>Hazard Statement(s)</th>
<th>GHS Classification/Category</th>
</tr>
</thead>
</table>
| Tall Oil | 8002-26-4| WARNING                | Causes Eye Irritation                     | Eye Damage/Irritation-
                                                                 | Category 2B                |
|          |          |                        | Causes Skin Irritation                    | Skin Corrosion/Irritation  |
                                                                 | Category 2                 |

Precautionary Statements:

Prevention Statements - Do not get in eyes. Wear appropriate protective equipment for eye and skin exposure. Wear protective gloves.
Response statements - If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye or skin irritation persists get medical advice/attention. Take off contaminated clothing and wash before reuse. Wash thoroughly after handling.

Ingredients of Unknown Acute Toxicity (>1%): Not applicable
3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS#</th>
<th>EC#</th>
<th>Wt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall Oil</td>
<td>8002-26-4</td>
<td>232-304-6</td>
<td>100</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

**Inhalation:** Inhalation may cause slight respiratory tract irritation. Symptoms may include coughing, difficulty breathing and shortness of breath. Remove exposed person to fresh air and get medical advice if symptoms persist.

**Eye Contact:** Immediately flush eyes with large amounts of temperate water for 15 minutes. Remove contact lenses, if present and easy to do, continue rinsing. May cause irritation to the eyes, especially if heated.

**Skin Contact:** May cause irritation following prolonged contact or if hot product contacts the skin. Remove contaminated clothing immediately and wash affected area with water.

**Skin Absorption:** Product is not known to be absorbed through the skin.

**Ingestion:** Immediately contact local poison control before giving anything by mouth. Ingestion may cause irritation, discomfort and burning of the mucous membranes of the gastrointestinal tract. Symptoms may include nausea, vomiting, difficulty swallowing, diarrhea, and abdominal pain.

**Symptoms or Effects:**
- **Acute Symptoms/Effects** – May cause irritation to the eyes and skin. Respiratory symptoms may include coughing, difficulty breathing and shortness of breath.
- **Delayed Symptoms/Effects** – Unique delayed effects are not anticipated after exposure. See Section 11 for additional information on chronic effects.

5. Fire-fighting Measures

**Extinguishing Media and Restrictions:** Water, carbon dioxide, foam, or sand is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide inside confined spaces.

**Autoignition Temperature:** Not available

**Special Firefighting Procedures:** As in any fire wear NIOSH-approved self contained breathing apparatus and appropriate protective clothing for the situation.

**Specific Hazards, Anticipated Combustion Products:** Toxic carbon monoxide, carbon dioxide and oxides of sulfur may be produced as products of combustion.

**Unusual Fire and Explosion Hazards:** None noted.

**NFPA Rating (Scale 0-4):**

- Health = 1
- Fire = 1
- Reactivity = 0

6. Accidental Release Measures

**Steps to be Taken In Case Material Is Released or Spilled:** Immediately notify safety and environmental personnel. For a large spill in a clean area, dike and recover for reuse. Dispose of contaminated material. For a small spill, mix with absorbent material and dispose. Spills may present a slipping (physical) hazard. Follow all local, state, federal and provincial regulations for disposal.

7. Handling and Storage

**Precautions to be Taken In Handling and Storage:** Wear personal protective equipment and follow the exposure control measures recommended in Section 8. Avoid contact with eyes, skin and prolonged breathing of vapor. Avoid contact with acids and strong oxidizers. Follow good hygienic and housekeeping practices especially before eating, drinking or smoking.

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8. Exposure Control Measures/ Personal Protection

Exposure Limits/Guidelines:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS#</th>
<th>Percent</th>
<th>Agency</th>
<th>Exposure Limits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall Oil</td>
<td>8002-26-4</td>
<td>100</td>
<td>OSHA</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH</td>
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</tr>
</tbody>
</table>

Personal Protective Equipment:
RESPIRATORY PROTECTION – Use local and general exhaust ventilation to effectively remove and prevent buildup of mist/vapors/fumes generated from handling this product. If ventilation is not available a NIOSH approved half-face piece respirator equipped with appropriate chemical and/or particulate cartridges may be used. Use respiratory protection in accordance with regulatory requirements such as the OSHA respiratory protection standard 29 CFR 1910.134 following a determination of risk from potential exposures.

PROTECTIVE GLOVES – Use impervious butyl or neoprene gloves when handling product.

EYE PROTECTION – Wear chemical goggles and face shield if splash hazard is possible.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT – Apron, boots, face shield, or rubber suit may be needed when handling large amounts.

WORK/HYGIENE PRACTICES – Eyewash stations and safety showers should be readily accessible where there is the possibility for splash hazards. Avoid all contact with skin and eyes. Follow good hygienic and housekeeping practices.

Ventilation:
LOCAL EXHAUST – 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 vapors from handling or thermal processing.

MECHANICAL (GENERAL) – Not applicable.

SPECIAL – Not applicable.

9. Physical/Chemical Properties

Physical Description/Odor: Amber to dark brown viscous liquid with an odor of burnt resin.

Auto-ignition temperature: Not available

Boiling Point (@ 760 mm Hg): >500°F (260 °C)

Decomposition temperature: Not available

Evaporation Rate (Butyl Acetate = 1): Not available

Freezing Point: Not available

Flash Point: Not available

Flammability: Not applicable

Melting Point: Not available

Evaporation Rate: Not available

Partition Coefficient (n-octonal/water): Not available

Odor Threshold: Not available

pH: 2.5-5

Solubility in Water (% by weight): Not available

Specific Gravity (H2O = 1): 0.9-1.3

Upper/Lower Explosive Limits: Not available
9. Physical/Chemical Properties (cont.)

Vapor Density (air = 1; 1 atm): Not available
Relative Density: Not available
Vapor Pressure (mm Hg): Not available
Viscosity: Not available
% Volatile by Volume [@ 70°F (21°C)]: Not available

10. Stability and Reactivity

Stability: ☐ Unstable ☑ Stable
Conditions to Avoid: Information not available.
Incompatibility (Materials to Avoid): Avoid strong oxidizing agents and strong mineral acids.
Hazardous Decomposition or By-Products: Will not spontaneously decompose.
Hazardous Polymerization: ☐ May occur ☑ Will not occur
Sensitivity to Mechanical Impact: Not applicable
Sensitivity to Static Discharge: Not applicable

11. Toxicological Information

Acute toxicity: Oral, rat, LD₅₀ > 5,000 mg/kg : Source, 2001 EPA High Production Volume Chemical Challenge Program and Pine Chemicals Association evaluations of a Test Plan for Tall Oil and Related Substances.
Resin Acids: Composition of tall oil is highly variable based on differing raw materials and the efficiency of the extraction process. There is little specific data in the literature concerning evaluations of crude tall oil as a complex mixture when determining the degree of skin and eye toxicity or irritation. The resin acid components of crude tall oil (e.g. oleic and abietic acids) were evaluated individually and it was determined that the weight of the available evidence indicates that a crude tall oil mixture would likely be a Category 2 skin and eye irritant (mildly irritating to the skin and eyes).
Carcinogenicity:
IARC: Listed by IARC - No
NTP: Listed by NTP - No
OSHA: Listed by OSHA – No
Respiratory or Skin Sensitization: Not a sensitizer.
Aspiration Hazard: No information available.
Reproductive effects: Reproduction/Developmental NOEL = 500 mg/kg/day in rats in combined Repeated Dose Toxicity Study with Reproduction/Developmental Toxicity Screening Test.
Acute Health Hazards – May cause irritation to the eyes and skin. Respiratory symptoms may include coughing, difficulty breathing and shortness of breath.
Chronic Health Hazards – No information available.

12. Ecological Information

Biopersistence and Degradability: Readily biodegradable: 60% after 28 days
Ecotoxicity: Acute Toxicity, Fish: 96-hr LL₅₀ >1,000 mg/l.
Bioaccumulation: NAV
Soil Mobility: NAV
Other Adverse Effects: NAP
13. Disposal Considerations

**Waste Disposal Method:** Do not dispose of this material into the sewer, ground or body of water. Waste material should be tested to determine if it meets applicable definitions of hazardous waste. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

14. Transport Information

**Mode:** (Air, Land, water) Not regulated as a hazardous material by the U.S. Department of Transportation. Not listed as a hazardous material in Canadian Transportation of Dangerous Goods (TDG) regulations. Not listed as a hazardous material for IATA, and IMDG. Not listed as dangerous goods by the European Agreement concerning the international carriage of dangerous goods by road (ADR).

**Proper Shipping Name:** NA
**Hazard Class:** NA
**UN/NA ID Number:** NA
**Packing Group:** NA
**DOT labels required:** NA

15. Regulatory Information

**TSCA:** This product is on the TSCA Inventory.
**CERCLA:** This product does not contain ingredients which are subject to the reporting requirements of CERCLA.
**DSL:** This product is on the Canadian Domestic Substance List Inventory.
**EPA Clean Water Act:** Regulated as non-petroleum based oil. Spills of this material to navigable waters in quantities sufficient to produce “sheen” are reportable.
**OSHA:** This product would be a regulated hazard under the OSHA Hazard Communication Standard (29 CFR 1910.1200) as an irritant.
**SARA 313 Information:** This product does not contain any chemical ingredient(s) with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, section 313 and 40 CFR section 372.
**SARA 311/312 Hazard Category:** This product has been reviewed according the EPA “Hazard Categories: promulgated under SARA Title III, Sections 311 and 312 and is considered, under applicable definitions, to meet the following categories:

- An immediate (acute) health hazard: Yes
- A delayed (chronic) health hazard: No
- A fire hazard: No
- A reactivity hazard: No
- A sudden release hazard: No

**WHMIS Classification:** Not considered a controlled product.

16. Additional Information

**Date Prepared:** 5/27/2015
**Date Revised:** 6/29/2015
**Prepared By:** WestRock Safety and Health Department.
**WestRock SDS available on:** www.westrock.com

**Disclaimer:**

The information and data herein are believed to be accurate and have been compiled by WestRock Safety and Occupational Health professionals from external sources believed to be reliable. WestRock provides the information contained herein in good faith but makes no representation as to its comprehensiveness.
16. Additional Information (cont’d.)

or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose and use in compliance with all applicable laws and standards. WestRock will not be liable for claims relating to any party's use of or reliance on information and data contained herein.

Definition of Common Terms:

ACGIH = American Conference of Governmental Industrial Hygienists
C = Ceiling Limit
CAS# = Chemical Abstracts System Number
DOT = U. S. Department of Transportation
DSL = Domestic Substance List
EC# = Identifying Number Assigned to Chemicals Contained in the European Inventory of Existing Chemical Substances (EINECS)
EC50 = Effective Concentration That Inhibits the Endpoint to 50% of Control Population
EPA = U. S. Environmental Protection Agency
HMIS = Canada-Hazardous Materials Identification System
HNOC = Hazards Not Otherwise Classified
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LC50 = Concentration in Air Resulting in Death To 50% of Experimental Animals
LCLo = Lowest Concentration in Air Resulting in Death
LD50 = Administered Dose Resulting in Death to 50% of Experimental Animals
LDLo = Lowest Dose Resulting in Death
LEL = Lower Explosive Limit
LFL = Lower Flammable Limit
MSHA = Mine Safety and Health Administration
NA = Not Applicable
NIOSH = National Institute for Occupational Safety and Health
NFPA = National Fire Protection Association
NPRI = Canada-National Pollution Release Inventory
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit
PNOR = Particulate Not Otherwise Regulated
PNOS = Particulate Not Otherwise Specified
RCRA = Resource Conservation and Recovery Act
STEL = Short-Term Exposure Limit (15 minutes)
STP = Standard Temperature and Pressure
TCLo = Lowest Concentration in Air Resulting in a Toxic Effect
TDG = Canada-Transportation of Dangerous Goods
TDLo = Lowest Dose Resulting In a Toxic Effect
TLV = Threshold Limit Value
TSCA = Toxic Substance Control Act
TWA = Time-Weighted Average (8 hours)
UFL = Upper Flammable Limit
WHMIS = Canada-Workplace Hazardous Materials Information System
Tall Oil
CAS # 8002-26-4
TRADE NAME (AS LABELED): Tall Oil, Crude Tall Oil

WARNING
May Cause Eye and Skin Irritation.

PRECAUTIONS: - If skin irritation occurs, get medical advice/attention. Do not get in eyes. Wear chemical goggles and face shield if splashing is possible. Use impervious gloves when handling product.

FIRST-AID/RESPONSE: If in eyes, rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye or skin irritation persists get medical advice/attention. Take off contaminated clothing and wash it before reuse. Wash hands after handling.

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