SECTION 1: IDENTIFICATION

Product Identifier
Product Name: Crude Tall Oil J-29
Synonyms: CTO; Tall oil

Intended Use of the Product
Feedstock for tall oil refineries

Name, Address, and Telephone of the Responsible Party
Manufacturer
CHEMTRADE LOGISTICS INC.
155 Gordon Baker Road
Suite 300
Toronto, Ontario M2H 3N5
For MSDS Info: (416) 496-5856
www.chemtradelogistics.com

Emergency Telephone Number
Emergency number : Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300
Chemtrade Emergency Contact: (866) 416-4404
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture
Classification (GHS-US)
Resp. Sens. 1 H334
Skin Sens. 1 H317
Aquatic Acute 2 H401
Aquatic Chronic 2 H411

Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US) :

Signal Word (GHS-US) : Danger
Hazard Statements (GHS-US) :
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements (GHS-US) :
P261 - Avoid breathing mist, spray, vapors
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear eye protection, protective clothing, protective gloves
P284 - Wear respiratory protection
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
P321 - Specific treatment (see Section 4)
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P362+P364 - Take off contaminated clothing and wash it before reuse
P391 - Collect spillage
Other Hazards

Other Hazards Not Contributing to the Classification: Product may release Hydrogen Sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>Name</th>
<th>Product identifier</th>
<th>% (w/w)</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Tall oil fatty acids</td>
<td>(CAS No) 61790-12-3</td>
<td>25 - 45</td>
<td>Skin Sens. 1, H317</td>
</tr>
<tr>
<td></td>
<td>Tall-oil pitch</td>
<td>(CAS No) 8016-81-7</td>
<td>25 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>Rosin</td>
<td>(CAS No) 8050-09-7</td>
<td>20 - 35</td>
<td>Resp. Sens. 1, H334</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 2, H401</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic 2, H411</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Ingestion: Rinse mouth. Do NOT induce vomiting.

Most Important Symptoms and Effects Both Acute and Delayed

General: May cause sensitization by inhalation and by skin contact.

Inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Contact: May cause an allergic skin reaction.

Eye Contact: Direct contact with the eyes is likely irritating.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None known.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Alcohol foam, carbon dioxide, dry chemical. Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use water jet. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but will burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions. Under heated conditions or on contact with acids will produce the toxic gas sulfur dioxide. May release poisonous hydrogen sulfide.

Advice for Firefighters

Precautionary Measures Fire: Not available

Firefighting Instructions: Exercise caution when fighting any chemical fire.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reference to Other Sections
Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all eyes and skin contact and do not breathe vapor and mist. Do not allow product to spread into the environment.

For Non-Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).

For Emergency Personnel
Protective Equipment: Equip cleanup crew with proper protection.
Emergency Procedures: Ventilate area.

Environmental Precautions
Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Material for Containment and Cleaning Up
For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Do not use combustible absorbents such as: saw dust or cellulosic materials.

Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling
Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including Any Incompatibilities
Technical Measures: Product may release Hydrogen Sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.
Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use.
Incompatible Materials: Strong oxidizers.
Specific End Use(s) Feedstock for tall oil refineries

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Rosin (8050-09-7)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>OEL TWA (mg/m³)</td>
</tr>
<tr>
<td>Québec</td>
<td>VEMP (mg/m³)</td>
</tr>
</tbody>
</table>

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits. Ensure all national/local regulations are observed.


Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Not available

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Viscous, Brown</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>2 - 4</td>
</tr>
<tr>
<td>Relative Evaporation Rate (butylacetate=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>121.1 °C (250°F)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>195 °C (379.4°F) (ASTM D93)</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Flammable Limit</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper Flammable Limit</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative Vapor Density at 20 °C</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.95 – 1.0</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water: Insoluble in Water (Not Volatile)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosion Data – Sensitivity to Mechanical Impact</td>
<td>Not expected to present an explosion hazard due to mechanical impact.</td>
</tr>
<tr>
<td>Explosion Data – Sensitivity to Static Discharge</td>
<td>Not expected to present an explosion hazard due to static discharge.</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY
Reactivity: Hazardous reactions will not occur under normal conditions. Under heated conditions or on contact with acids will produce the toxic gas sulfur dioxide. May release poisonous hydrogen sulfide.
Chemical Stability: Stable at standard temperature and pressure.
Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Conditions to Avoid: Sparks, heat, open flame and other sources of ignition.
Hazardous Decomposition Products: Carbon oxides (CO, CO2).

SECTION 11: TOXICOLOGICAL INFORMATION
Information on Toxicological Effects - Product
Acute Toxicity: Not classified
LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Not classified
pH: 2 - 4
Serious Eye Damage/Irritation: Not classified
pH: 2 - 4
Respiratory or Skin Sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ Cell Mutagenicity: Not classified
Teratogenicity: Not available
Carcinogenicity: Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Reproductive Toxicity: Not classified
**Crude Tall Oil J-29**

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**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Symptoms/Injuries After Skin Contact:** May cause an allergic skin reaction.

**Symptoms/Injuries After Eye Contact:** Direct contact with the eyes is likely irritating.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** None known.

**Information on Toxicological Effects - Ingredient(s)**

**LD50 and LC50 Data:**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>LD50/DLC50 Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall oil fatty acids (61790-12-3)</td>
<td><strong>LD50 Oral Rat</strong> 7600 mg/kg</td>
</tr>
<tr>
<td>Rosin (8050-09-7)</td>
<td><strong>LD50 Dermal Rabbit</strong> &gt; 2500 mg/kg</td>
</tr>
<tr>
<td>Tall-oil pitch (8016-81-7)</td>
<td><strong>LD50 Oral Rat</strong> &gt; 3200 mg/kg</td>
</tr>
</tbody>
</table>

**SECTION 12: ECOLOGICAL INFORMATION**

**Toxicity**

**Ecology - General:** Toxic to aquatic life with long lasting effects. Toxic to aquatic life.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Toxicity Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosin (8050-09-7)</td>
<td><strong>EC50 Daphnia 1</strong> 3.8 - 5.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>Tall-oil pitch (8016-81-7)</td>
<td><strong>LC50 Fish 1</strong> &gt; 400 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])</td>
</tr>
<tr>
<td></td>
<td><strong>EC50 Daphnia 1</strong> &gt; 2000 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
</tbody>
</table>

**Persistence and Degradability**

**Crude Tall Oil J-29**

Persistence and Degradability: Not established. May cause long-term adverse effects in the environment.

**Bioaccumulative Potential**

**Crude Tall Oil J-29**

Bioaccumulative Potential: Not established.

**Tall oil fatty acids (61790-12-3)**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulative Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>4.89 - 5.98 (at 25 °C)</td>
</tr>
</tbody>
</table>

**Tall-oil pitch (8016-81-7)**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulative Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>4.3 - 6.9 (at 25 °C)</td>
</tr>
</tbody>
</table>

**Mobility in Soil** Not available

**Other Adverse Effects**

**Other Information:** Avoid release to the environment.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

**Ecology – Waste Materials:** This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

**SECTION 14: TRANSPORT INFORMATION**

14.1 In Accordance with DOT Not regulated for transport

14.2 In Accordance with IMDG Not regulated for transport

14.3 In Accordance with IATA Not regulated for transport

14.4 In Accordance with TDG Not regulated for transport

**SECTION 15: REGULATORY INFORMATION**

US Federal Regulations
Crude Tall Oil J-29

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Tall oil fatty acids (61790-12-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag
Y2 - Y2 - indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

Rosin (8050-09-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tall-oil pitch (8016-81-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations
The product and/or its components does not appear on any state Right to Know lists.

Canadian Regulations

Crude Tall Oil J-29
WHMIS Classification
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Tall oil fatty acids (61790-12-3)
Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification
Uncontrolled product according to WHMIS classification criteria

Rosin (8050-09-7)
Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

Tall-oil pitch (8016-81-7)
Listed on the Canadian DSL (Domestic Substances List) inventory.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 05/01/15
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 2</td>
<td>Hazardous to the aquatic environment - Acute Hazard Category 2</td>
</tr>
<tr>
<td>Aquatic Chronic 2</td>
<td>Hazardous to the aquatic environment - Chronic Hazard Category 2</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Respiratory sensitisation Category 1</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitization Category 1</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H334</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

Party Responsible for the Preparation of This Document
CHEMTRADE LOGISTICS, INC.
For MSDS Info: (416) 496-5856
Crude Tall Oil J-29
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA’S “Right to Know” (29 CFR 1910.1200) and Canada’s WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.