SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Product name: Rubber Mulch Feedstock
Brand: Liberty Tire Recycling
Product uses: Various Uses
Supplier: Liberty Tire Recycling, LLC
Manufacturer: Liberty Tire Recycling, LLC
1251 Waterfront Place, 4th Floor
Pittsburgh, PA 15222-4261

Emergency Telephone Number: 412-562-1700

SECTION 2 – HAZARDS IDENTIFICATION

Emergency Overview
WHMIS Classification: Not a WHMIS controlled substance
OSHA Hazards: No known OSHA hazards
GHS label elements, including precautionary statements
Signal Word: None
Hazard statement(s): None
Precautionary statement(s): P281: Use personal protective equipment as required

HMIS Classification
Health hazard: 1
Flammability: 1
Physical hazards: 1

Potential health effects
Inhalation: Odor/vapors may be a nuisance in some individuals. In some individuals, short term exposure of material may produce mild and temporary discomfort to the respiratory tract resulting in wheezing, tightness in the chest, shortness of breath and coughing. Dust and small pieces of material may aggravate bronchitis, asthma, and emphysema if inhaled. Small cuts to the airway may result if pieces of metal are inhaled.

Skin: Material contains small fibers, particulate matter and dust that may result in irritation (redness/itching) or other effects with some individuals. Small pieces of metal that protrude from some pieces of material may be able to create small cuts.

Eyes: Material is abrasive if it enters the eye, which can cause irritation to sever damage if left untreated.

Ingestion: Irritation of mucus membranes of mouth, throat, esophagus and stomach along with nausea may occur. Abrasion to the mouth, esophagus, stomach and intestinal tract may occur.

Repeated exposure: Repeated exposure to material may result in sensitization in susceptible individuals.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration (%wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>9006-04-6</td>
<td>232-689-0</td>
<td>N/AV</td>
<td>15 – 40</td>
</tr>
<tr>
<td>Synthetic rubber</td>
<td>9003-55-8</td>
<td>N/AV</td>
<td>N/AV</td>
<td>15 – 40</td>
</tr>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>215-609-9</td>
<td>N/AV</td>
<td>20 – 35</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>215-222-5</td>
<td>030-013-00-7</td>
<td>0.1 – 1</td>
</tr>
<tr>
<td>Sulfur</td>
<td>7704-34-9</td>
<td>231-722-6</td>
<td>016-094-00-1</td>
<td>0.1 – 0.5</td>
</tr>
<tr>
<td>Synthetic fibers, fillers, accelerators,</td>
<td>N/AP</td>
<td>N/AP</td>
<td>N/AP</td>
<td>10 – 20</td>
</tr>
<tr>
<td>anti-ozonants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Notes: The majority of fiber is not in a free form, but contained within the rubber material. Fibers do protrude from material, so they may become free or break off with mechanical agitation.

The wire content of the product is less than 0.1% steel wire by weight.
SECTION 4 – FIRST AID MEASURES

**General advice**
If negative symptoms develop while handling the product, move out of the area to prevent further exposure. Consult a physician as a precautionary measure if symptoms develop after being subjected to unprotected exposure of the material. Show this safety data sheet to the doctor in attendance.

**If inhaled**
In emergency situations, use proper respiratory protection and immediately remove the affected person from exposure. Keep at rest. Administer artificial respiration if breathing has stopped. Seek medical attention.

**In case of skin contact**
Wash exposed skin thoroughly with soap and water. If irritation develops and is prolonged and/or sore, consult a physician.

**In case of eye contact**
Flush eyes with plenty of water for at least 15 minutes. Avoid rubbing the eye. If experiencing prolonged irritation or soreness, seek medical attention.

**If swallowed**
Do not induce vomiting. Rinse mouth well with water. Never give anything by mouth to an unconscious person. Seek medical attention.

SECTION 5 – FIREFIGHTING MEASURES

**Conditions of flammability**
Non-flammable under standard use conditions. Material must be heated above 392°F (200°C) and an ignition source introduced before burning will occur.

**Suitable extinguishing media**
Fire extinguishing substances: dirt, sand, dry chemical, CO₂, alcohol-resistant foam, or F500 encapsulating agent.
If safe to do so, smothering the fire with large quantities of dirt or sand is usually the best option for extinguishing fires.
The material will be extremely hot if in liquid form. Be sure to keep distance between personnel and the fire.
If the fire is small and localized, CO₂ or foam are acceptable extinguishing substances. Due to the potential of pyrolytic oil being produced during uncontrolled burning, use of water may result in highly contaminated run-off that will require containment.
For large fires, trained firefighting personnel should be placed in charge of firefighting measures.

**Special protective equipment for firefighters**
Respiratory and eye protection are required for firefighting personnel.
A self-contained breathing apparatus (SCBA) meeting NFPA standards should be used for any significant indoor or outdoor fires.
For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of a SCBA may not be required.
Contact with the smoke and fumes should be avoided. With burning or high heating, the material may melt, resulting in a sticky, molten material.

**Hazardous combustion products**
Thick, black, acrid smoke. Oxides of carbon, nitrogen and sulfur.
Uncontrolled burning may result in products of incomplete combustion including polynuclear aromatic hydrocarbons (naphthalene, anthracene, etc); aromatic hydrocarbons including benzene, toluene, xylene, styrene, etc; paraffinic oils; particulate and ash residues.

**Explosion data – sensitivity to mechanical**
Not explosive on impact

**Explosion data – sensitivity to static discharge**
Not explosive when subject to static discharge

SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Ensure adequate ventilation to keep material component levels below workplace exposure limits. Avoid excessive dust formation and accumulation. Avoid prolonged exposure to vapors/odors and dusts created by material.

**Environmental precautions**
Precautionary measures to prevent large quantities of the product from entering and/or accumulating in drains should be implemented. In case of emergency, prevent further leakage or spillage if safe to do so.

**Methods and material for containment and cleaning up**

| LAND SPILL | Contain area and try to recover material as best possible without disturbing surroundings. |
| WATER SPILL | Sweep or vacuum material to prevent slip hazard. Try not to create dust. Collect for reuse if possible. |
**SECTION 7 – HANDLING AND STORAGE**

**Precautions for safe handling**
For any application, use in a well-ventilated area or set engineering controls (ventilation) to keep airborne concentrations below the workplace exposure limits and prevent the build up of dust. Handle and open containers with care. Do not handle or store near an open flame or sources of heat.

**Conditions for safe storage**
Keep material away from incompatible materials or conditions. Material can be can be safely stored outdoors in a contained or sectioned off area. If material is stored inside, it should be kept in a well-ventilated location to keep airborne concentrations below the workplace exposure limits.

**SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Value</th>
<th>Control Parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>9006-04-6</td>
<td>TWA</td>
<td>0.0001 mg/m$^3$</td>
<td>USA. ACGIH (inhalable proteins), USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Synthetic rubber</td>
<td>9003-55-8</td>
<td>N/AV</td>
<td>N/AV</td>
<td>No occupational exposure limits set for material</td>
</tr>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>TWA</td>
<td>3.5 mg/m$^3$</td>
<td>Canada. British Columbia OEL, USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>TWA</td>
<td>2 mg/m$^3$</td>
<td>Canada. British Columbia OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 mg/m$^3$</td>
<td>Canada. Alberta OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 mg/m$^3$</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Sulfur</td>
<td>7704-34-9</td>
<td>TWA</td>
<td>10 mg/m$^3$</td>
<td>Canada. Alberta OEL</td>
</tr>
<tr>
<td>Synthetic fibers, fillers, accelerators, anti-ozonants</td>
<td>N/AP</td>
<td>N/AP</td>
<td>N/AP</td>
<td>No occupational exposure limits set for material</td>
</tr>
</tbody>
</table>

Remarks: If multiple exposure limits exist for a substance, the limits from the State(s), Province(s) or Territory with the highest and lowest values in the country are reported.

**Personal Protection Equipment**

**Respiratory protection**
Respiratory protection is typically not required. Where protection from nuisance levels of dust are desired, use of a dust mask is recommended. Typical certified dusts masks types are N95 (US) or P1 (EN 143).

**Hand protection**
Short term exposure does not require gloves. Gloves are recommended for continuous or prolonged exposure of material. Any type of protective gloves is recommended to avoid prolonged or repeated skin contact. If gloves are disposable, dispose of contaminated gloves after use in accordance with applicable laws and work place practices. If gloves are re-usable, wash periodically to avoid build up of material matter. Wash and dry hands.

**Eye protection**
If dust or fines are likely to become airborne, safety glasses with side shields or goggles should be worn. When using eye protection, equipment should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin and body protection**
Long sleeved clothing and full length pants should be worn if repeated or prolonged direct contact is likely to occur.

**Hygiene measures**
Handle in accordance with good industrial and commercial hygiene and safety practices. Wash hands before breaks and at the end of the work day.

**Specific engineering controls**
Material can be stored outside. Use in a well-ventilated area or set engineering controls to keep airborne concentrations below the exposure limits.

**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**
- **Form**: Solid - irregularly sized rectangular pieces of rubber based material containing small pieces of light colored fibers
- **Color**: Black with light colored fibers protruding from rubber and mixed with material

**Safety data**
- **pH**: Not applicable
- **Melting/freezing point**: No data available
- **Boiling point**: No data available
- **Flash point**: >212°F; > 100°C (ASTM D3828)
- **Ignition temperature**: No data available
- **Autoignition temperature**: No data available
- **Lower explosion limit**: No data available
- **Upper explosion limit**: No data available
- **Vapor pressure**: No data available
- **Density**: 1.18 g/mL
- **Water solubility**: Not soluble
SECTION 10 – STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
No data available

Conditions to avoid
Material may slowly degrade on storage, especially in the presence of iron particles and combined with heat or pressure, subsequently releasing carbon monoxide and carbon dioxide. Heat, ignition sources, and oxidizing agents should be avoided. Although typically present in small amounts, dust may be explosive under certain conditions (i.e. high airborne concentrations) in the presence of an ignition source.

Materials to avoid
Acids, oxidizing agents, iron particles, excess moisture

Hazardous decomposition products
Oxides of metals, carbon and nitrogen under fire or oxidative conditions

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
No data available

Inhalation LC50
No data available

Dermal LD50
No data available

Other information on acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product contains a component (when isolated) that has been reported to be possibly carcinogenic (specifically when inhaled) based on its IARC, ACGIH, NTP or EPA classification. Limited evidence to carcinogenicity in animal studies. IARC: 2B – Group 2B: Possibly carcinogenic to humans (Carbon black)

Reproductive toxicity
No data available

Specific target organ toxicity – single exposure (Globally Harmonized System)
No data available

Specific target organ toxicity – repeated exposure (Globally Harmonized System)
No data available

Aspiration hazard
No data available
### Potential Health Effects

**Inhalation**  
Odor/vapors may be a nuisance in some individuals. In some individuals, short term exposure of material may produce mild and temporary discomfort to the respiratory tract resulting in wheezing, tightness in the chest, shortness of breath and coughing. Dust and small pieces of material may aggravate bronchitis, asthma, and emphysema if inhaled. Small cuts to the airway may result if pieces of metal are inhaled.

**Skin**  
Material contains small fibers, particulate matter and dust that may result in irritation (redness/itching) or other effects with some individuals. Small pieces of metal that protrude from some pieces of material may be able to create small cuts.

**Eyes**  
Material is abrasive if it enters the eye, which can cause irritation to severe damage if left untreated.

**Ingestion**  
Irritation of mucus membranes of mouth, throat, esophagus and stomach along with nausea may occur. Abrasion to the mouth, esophagus, stomach and intestinal tract may occur.

### Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

#### Synergistic Effects

No data available

#### Additional Information

None

## SECTION 12 – ECOLOGICAL INFORMATION

### Toxicity

No data available

### Persistence and Degradability

No data available

### Bioaccumulative Potential

No data available

### Mobility in Soil

No data available

### PBT and vPvB Assessment

No data available

### Other Adverse Effects

Extensive ecological testing has not been performed on the product. Standard good environmental workplace practices should be implemented when handling material in a workplace or external setting.

## SECTION 13 – DISPOSAL CONSIDERATIONS

### Product

The product is not a characteristic nor is listed as hazardous waste. Product materials that are no longer usable or that may have become contaminated should be placed in disposable containers and such materials should be managed and disposed in compliance with applicable federal, state, provincial, and local regulations.

### Contaminated Packaging

Packaging that is no longer usable or may have become contaminated should be placed in disposable containers and managed, recycled, or disposed of in compliance with applicable federal, state, provincial, and local regulations.

## SECTION 14 – TRANSPORT INFORMATION

### DOT (US)

Not dangerous goods

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

## SECTION 15 – REGULATORY INFORMATION

### WHMIS Classification

Not WHMIS controlled  
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### OSHA Hazards

No known OSHA hazards
**SECTION 16 – OTHER INFORMATION**

<table>
<thead>
<tr>
<th>Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared August 30, 2013. The information, recommendations and suggestions in the Material Safety Data Sheet have been compiled from tests and data believed to be reliable. The above information is believed to be correct, but is not under guarantee or warrantee to be all inclusive and shall be used only as a guide. The information contained herein is based on the present state of our knowledge and is only applicable to the product or material set forth in Section 1. The information provided may not be applicable or complete if such product or material is used in combination with any other product or material, or in any process. The information provided on the product or material is with regard to appropriate safety precautions and does not represent any guarantee of the properties of the product. It is the user’s obligation to determine the safety, toxicity and suitability for their own use of the product described herein and to comply with all applicable laws and regulations. Liberty Tire, LLC and its affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.</td>
</tr>
</tbody>
</table>