1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME: SANTOVAC 7™ POLYPHENYL ETHER LUBRICANT

Revision Date: April 12, 2012

Chemical Name: Not Applicable
Chemical Family: Polyphenyl ether
Chemical Type: Substance

Identified Uses:

Sectors and conditions of uses:
   Industry: 
   Professional: 
   Private: 

Company/Undertaking Identification: SantoLubes LLC
                             PO Box 6740
                             Spartanburg, SC  29304

E-Mail (competent person): Steve Burian (sburian@santolubes.com)
Information Contact: 864-585-3661
Emergency Telephone:
FOR CHEMICAL EMERGENCY, Call CHEMTREC – 1-800-424-9300 or 703-527-3887.

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]
   Not classified
2.1.2. Classification according to Directive 67/548/EEC or 1999/45/EC
   Not classified
2.1.3. Adverse physicochemical, human health and environmental effects
   No relevant data available

2.2. Label elements
For classified products a derogation for labeling exists under Annex 1 Section 1.3.4 of the CLP Regulation 1272/2008. Under this derogation the product in the form in which it is placed on the market is not hazardous to human health by inhalation, ingestion, or skin contact or hazardous to the aquatic environments.

2.2.1. Labeling according to Regulation (EC) No 1272/2008 [CLP/GHS]
   No labeling applicable
2.2.2. Labeling according to Directive 67/548/EEC or 1999/45/EC

R-phrases:

2.3. Other hazards

No relevant data available

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>CAS-No.</th>
<th>Wt %</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene,1,3-bis(3-phenoxyphenoxy)-</td>
<td>219-530-0</td>
<td>NA</td>
<td>2455-71-2</td>
<td>100%</td>
<td>NA</td>
</tr>
</tbody>
</table>

4. First Aid Measures

INHALATION: Immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

SKIN CONTACT: Immediate first aid is not likely to be required. However, this material can be removed by washing thoroughly with soap and water. Wash heavily contaminated clothing before reuse.

EYE CONTACT: Immediate first aid is not likely to be required. However, this material can be removed by washing thoroughly with soap and water. Wash heavily contaminated clothing before reuse.

INGESTION: Immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice.

SELF-PROTECTION OF THE FIRST AIDER: First Aider should wear rubber gloves and suitable eye protection to prevent skin and eye exposure.

5. Fire Fighting Measures

SUITABLE EXTINGUISHING MEDIA: Water spray, foam, dry chemical, carbon dioxide or any Class B extinguishing agent.

EXTINGUISHING MEDIA WHICH MUST NOT BE USED FOR SAFETY REASONS: Not applicable

SPECIAL EXPOSURE HAZARDS ARISING FROM THE SUBSTANCE OR PREPARATION ITSELF, COMBUSTION PRODUCTS, RESULTING GASES: Products of decomposition include carbon monoxide, carbon dioxide, and hydrocarbons.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS: Fire fighters or others likely to be exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

ADDITIONAL INFORMATION: Not applicable
6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Wear rubber gloves and safety glasses with side shield. Prevent skin and eye exposure.

ENVIRONMENTAL PRECAUTIONS:
METHODS FOR CLEANING UP: Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush residual spill area with water.
LAND SPILL:
WATER SPILL:
ADDITIONAL INFORMATION: Not applicable

7. HANDLING AND STORAGE

ADVICES ON SAFE HANDLING: Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing.

PROTECTIVE MEASURES: Should require no special protective measures in handling and storage.

MEASURES TO PREVENT AEROSOL AND DUST GENERATION: Not applicable

MEASURES REQUIRED TO PROTECT THE ENVIRONMENT: Not applicable

SPECIFIC REQUIREMENTS OR HANDLING RULES: Not applicable

ELECTROSTATIC ACCUMULATION HAZARD: Not applicable

FURTHER INFORMATION: Not applicable

TECHNICAL MEASURES AND STORAGE CONDITIONS: Not applicable

PACKAGING MATERIALS: Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS: Not Established

BIOLOGICAL LIMIT VALUES: Not Established

DNEL/DMEL AND PNEC-VALUE(S): Not Established

OCCUPATIONAL EXPOSURE CONTROLS: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

TECHNICAL MEASURES TO PREVENT EXPOSURE: Not Applicable

PERSONAL PROTECTION EQUIPMENT: See Exposure Controls Above

RESPIRATORY PROTECTION: Avoid breathing mist. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations
specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR 1910.134.

HAND PROTECTION: Although it does not present a significant skin concern wearing protective gloves is recommended. Wash thoroughly after handling.

EYE PROTECTION: This product does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact.

BODY PROTECTION: Although it does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wash contaminated skin thoroughly after handling.

ENVIRONMENTAL EXPOSURE CONTROLS:

WATER (INCL. SEWAGE PLANT):

AIR:

SOIL:

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid

COLOUR: Light yellow essentially clear liquid

ODOUR: Odorless to slight phenolic

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Method</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH (20 °C):</td>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/range (°C):</td>
<td>472</td>
<td>°C</td>
<td>TCC</td>
<td>Minimum</td>
</tr>
<tr>
<td>Boiling point/range (°C):</td>
<td></td>
<td>°C</td>
<td></td>
<td>Approximate</td>
</tr>
<tr>
<td>Flash point (°C):</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignition temperature (°C):</td>
<td></td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapour pressure (°C):</td>
<td>mm Hg</td>
<td>@ 20°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapour pressure (°C):</td>
<td>mm Hg</td>
<td>@ 38°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density (g/cm³):</td>
<td>1.195 - 1.201</td>
<td>g/cc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific gravity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific gravity (vapour)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water solubility (20°C in g/l):</td>
<td>insoluble</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Partition coefficient n-Octanol/Water (log Po/w)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Viscosity, liquid (mPa s):</td>
<td>cSt</td>
<td>@ 100°F</td>
<td></td>
<td></td>
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<tr>
<td>Dust explosion hazard:</td>
<td></td>
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</tr>
<tr>
<td>Explosion limits:</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Upper:</td>
<td>@ 25°C</td>
<td></td>
<td></td>
<td>Approximate</td>
</tr>
<tr>
<td>Lower:</td>
<td>@ 25°C</td>
<td></td>
<td></td>
<td>Approximate</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

STABILITY: SANTOVAC® 7 lubricant is stable under ordinary handling and storage conditions.

CONDITIONS TO AVOID: Not Applicable

MATERIALS TO AVOID INCOMPATIBILITY: Exposure to highly oxidizing materials should be avoided.
HAZARDOUS DECOMPOSITION PRODUCTS: Continued use at temperature above 425°C may result in the formation of benzene and phenol. If the product is burned, complete combustion produces carbon dioxide and water and partial combustion produces carbon monoxide, smoke, soot and low molecular weight hydrocarbons.

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION: Not Applicable

11. TOXICOLOGICAL INFORMATION

EYE CONTACT: Material can cause slight to moderate irritation.

SKIN CONTACT: Slight to moderate irritation is expected.

INHALATION:

INGESTION:

ACUTE TOXICITY: Data from laboratory studies with OS-124™ polyphenyl ether lubricant are summarized as follows:

Eyes -

Skin -

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50: &gt;34,600 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>Oral</td>
<td>LD50: &gt;34,600 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50: &gt;34,600 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50: &gt; 47 mg/l*</td>
<td>Rat</td>
</tr>
</tbody>
</table>

* No deaths and no signs of toxicity were observed in animals exposed to 47 mg/l, the highest atmospheric concentration achievable by heating the material to 329°C in the study.

IRRITANT AND CORROSIVE EFFECTS:

<table>
<thead>
<tr>
<th>Species</th>
<th>Evaluation</th>
<th>Method</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye</td>
<td></td>
<td></td>
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<tr>
<td>Respiratory tract</td>
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</tr>
</tbody>
</table>

SENSITISATION:

<table>
<thead>
<tr>
<th>Effect dose</th>
<th>Value</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
<th>Evaluation</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-acute oral</td>
<td></td>
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<tr>
<td>Sub-acute dermal</td>
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<tr>
<td>Sub-acute inhalative</td>
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<td></td>
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<tr>
<td>Sub-chronic oral</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sub-chronic dermal</td>
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<td></td>
<td></td>
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<tr>
<td>Sub-chronic inhalative</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Chronic oral</td>
<td></td>
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<td></td>
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<tr>
<td>Chronic dermal</td>
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<td></td>
<td></td>
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<tr>
<td>Chronic inhalative</td>
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</tr>
</tbody>
</table>

Repeated dose toxicity (sub-acute to chronic)

CMR EFFECTS:

<table>
<thead>
<tr>
<th>Effect dose</th>
<th>Value</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogenicity</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mutagenicity</td>
<td></td>
<td></td>
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<tr>
<td>Reproductive toxicity</td>
<td></td>
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</tbody>
</table>
12. ECOLOGICAL INFORMATION

SANTOLUBES LLC has not conducted environmental toxicity studies with this product.

Aquatic toxicity:

Biodegradation:

Bioaccumulation:

13. DISPOSAL CONSIDERATIONS

APPROPRIATE DISPOSAL / PRODUCT: Dispose of in accordance with all federal, state and local environmental regulations.

WASTE CODES / WASTE DESIGNATIONS ACCORDING TO EWC / AVV:

APPROPRIATE PACKAGING:

ADDITIONAL INFORMATION: This material when discarded is not a hazardous waste as defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Recommended method of disposal is by high temperature incineration in a RCRA approved TSDF.

14. TRANSPORT INFORMATION

NOTE: This material is not classified as a hazardous material by the U.S. Department of Transportation (DOT) or by the International Air Transport Association (IATA).

Proper Shipping Name:
Land transport (ADR/RID/GGVSE):
Official transport designation:
Class:
Classification Code:
UN-No.:
Packing group:
Hazard label:
Special provisions:

Sea transport (IMDG-Code/GGVSee):
Proper Shipping Name:
Class:
UN-No.:
Packing group:
EmS:
Marine Pollutant:
Special provisions:

Air transport (ICAO-IATA/DGR):
Proper Shipping Name:
Class:
UN-No.:
Packing group:
Special provisions:
15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Label according to EC Directive 1999/45/EC (Dangerous Preparations Directive)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade name:</strong></td>
</tr>
</tbody>
</table>

**Hazardous substances:**

**Danger Symbols:**

**Risk Phrases**

**Safety Phrases**

**Substance Origin**

SantoLubes LLC  
2155 West Croft Circle  
Spartanburg, SC 29302
16. OTHER INFORMATION

Risk/Safety phrases:

This is for people trained in the National Paint & Coatings Association’s (NPCA) Hazardous Materials Identification System (HMIS) and the National Fire Protection Association (NFPA 704):

![HMIS and NFPA 704 symbols]

HAZARD INDEX

| 0 = Minimal Hazard | 1 = Slight Hazard | 2 = Moderate Hazard | 3 = Serious Hazard | 4 = Severe Hazard |

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