Section-1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance/mixture:

Commercial name: Relflex Stylamer SBR (SBR1723, SBR1739)

Chemical name: Styrene-Butadiene copolymer emulsion polymerized with Oil

Synonyms: Styrene-Butadiene copolymer emulsion polymerized with Oil

1.2 Use of the substance/mixture: Production of various rubber final applications

1.3 MANUFACTURER & SUPPLIER: Reliance Industries Limited

Emergency Coordination Centre contact details:

<table>
<thead>
<tr>
<th>SSM Office</th>
<th>Phone numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazira Mfg. Division, Village-Mora, Post-Bhattha, Surat-Hazira road, Surat Dist: Surat, Gujarat, India, 394510</td>
<td>+91 261-2835050 / +91 261-2835056</td>
</tr>
</tbody>
</table>

SSM: Site Shift Manager

Section 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance/mixture: Hazard class and category code.

GHS Category:

<table>
<thead>
<tr>
<th>Health</th>
<th>Environmental</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
<td>Flammable Category – Not Classified</td>
</tr>
</tbody>
</table>

NA: Not available

Data reference: Official Journal of the European Union regarding EU GHS

GHS Category table for reference:

<table>
<thead>
<tr>
<th>Study/hazard statement</th>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Category 4</th>
<th>Category 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Oral LD₅₀</td>
<td>≤ 5 mg/kg</td>
<td>&gt; 5 – 50 mg/kg</td>
<td>&gt; 50 – 300 mg/kg</td>
<td>&gt; 300 – 2000 mg/kg</td>
<td>&gt; 2000 – 5000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Fatal if swallowed</td>
<td>Toxic if swallowed</td>
<td>Harmful if swallowed</td>
<td>May be harmful if swallowed</td>
<td></td>
</tr>
<tr>
<td>Acute Dermal LD₅₀</td>
<td>≤ 50 mg/kg</td>
<td>&gt; 50 – 200 mg/kg</td>
<td>&gt; 200 – 1000 mg/kg</td>
<td>&gt; 1000 – 2000 mg/kg</td>
<td>&gt; 2000 – 5000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Fatal in contact with skin</td>
<td>Toxic in contact with skin</td>
<td>Harmful in contact with skin</td>
<td>May be harmful in contact with skin</td>
<td></td>
</tr>
<tr>
<td>Acute Inhalation Dust LC₅₀</td>
<td>≤ 0.05 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 0.5 – 2.0 mg/L</td>
<td>&gt; 0.5 – 1.0 mg/L</td>
<td>&gt; 1.0 – 5 mg/L</td>
</tr>
<tr>
<td>Gases LC₅₀</td>
<td>≤ 0.05 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 1.0 mg/L</td>
</tr>
<tr>
<td>Vapours LC₅₀</td>
<td>≤ 0.05 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 0.5 mg/L</td>
<td>&gt; 1.0 mg/L</td>
</tr>
<tr>
<td>Flammable liquids</td>
<td>Flash point &lt; 23 degrees C and initial boiling point ≥ 85 degrees C. Extremely flammable liquid and vapour</td>
<td>Flash point &lt; 23 degrees C and initial boiling point ≥ 110 degrees C. Highly flammable liquid and vapour</td>
<td>Flash point ≥ 23 degrees C and initial boiling point ≥ 60 degrees C. Flammable liquid and vapour</td>
<td>Flash point &gt; 60 degrees C. Combustible liquid</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Note: Gases concentration are expressed in parts per million per volume (ppmV).

NOTE 1: Category 5 is for mixtures which are of relatively low acute toxicity but which under certain circumstances may pose a hazard to vulnerable populations. These mixtures are anticipated to have an oral or dermal LD₅₀ value in the range of 2000-5000 mg/kg bodyweight or equivalent dose for other routes of exposure. In light of animal welfare considerations, testing in animals in Category 5 ranges is discouraged and should only be considered when there is a strong likelihood that results of such testing would have a direct relevance for protecting human health.

NOTE 2: These values are designed to be used in the calculation of the ATE for classification of a mixture based on its ingredients and do not represent test results. The values are conservatively set at the lower end of the range of Categories 1 and 2, and at a point approximately 1/10th from the lower end of the range for Categories 3 – 5.

GHS Category table for reference: Continued
### Study/hazard statement

<table>
<thead>
<tr>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Irritation</strong>&lt;br&gt;Effects on the cornea, iris or conjunctiva that are not expected to reverse or that have not fully reversed within 21 days. Causes severe eye damage.</td>
<td>2A: Effects on the cornea, iris or conjunctiva that fully reverse within 21 days. Causes severe eye irritation. 2B: Effects on the cornea, iris or conjunctiva that fully reverse within 7 days. Causes eye irritation.</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Skin Irritation</strong>&lt;br&gt;Destruction of skin tissue, with sub categorization based on exposure of up to 3 minutes (A), 1 hour (B), or 4 hours (C). Causes severe skin burns and eye damage.</td>
<td>Mean value of $2.3 &gt; 4.0$ for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed); inflammation that persists to end of the (normally 14-day) observation period. Causes skin irritation.</td>
<td>Mean value of $2.3 &lt; 2.3$ for erythema / eschar or edema in at least 2 of 3 tested animals from gradings at 24, 48, and 72 hours (or on 3 consecutive days after onset if reactions are delayed). Causes mild skin irritation.</td>
</tr>
<tr>
<td><strong>Environment</strong>&lt;br&gt;Acute Toxicity Category 96 hr LC$<em>{50}$ (fish) $&lt; 1$ mg/L 48 hr EC$</em>{50}$ (crustacea) $&lt; 1$ mg/L, 72/96 hr ErC$_{50}$ (aquatic plants) $&lt; 1$ mg/L. Very toxic to aquatic life</td>
<td>96 hr LC$<em>{50}$ (fish) $&gt; 1 &lt; 10$ mg/L 48 hr EC$</em>{50}$ (crustacea) $&gt; 1 &lt; 10$ mg/L 72/96 hr ErC$_{50}$ (aquatic plants) $&gt; 1 &lt; 10$ mg/L. Toxic to aquatic life</td>
<td>96 hr LC$<em>{50}$ (fish) $&gt; 10 &lt; 100$ mg/L 48 hr EC$</em>{50}$ (crustacea) $&gt; 10 &lt; 100$ mg/L 72/96 hr ErC$_{50}$ (aquatic plants) $&gt; 10 &lt; 100$ mg/L. Harmful to aquatic life</td>
</tr>
<tr>
<td><strong>Flammable Aerosol</strong>&lt;br&gt;Extremely flammable aerosol</td>
<td>Flammable aerosol</td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>Flammable solids</strong>&lt;br&gt;Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire and (b) burning time $&lt; 45$ seconds (or burning rate $&gt; 2.2$ mm/second) Using the burning rate test, metal powders that have burning time $&lt; 5$ minutes. Flammable solid</td>
<td>Using the burning rate test, substances or mixtures other than metal powders: (a) wetted zone does not stop fire for at least 4 minutes and (b) burning time $&lt; 45$ seconds or burning rate $&gt; 2.2$ mm/second. Using the burning rate test, metal powders that have burning time $&gt; 5$ minutes. Flammable solid</td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>Flammable gases</strong>&lt;br&gt;Gases, which at 20 degrees C and a standard pressure of 101.3 kPA: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. Extremely flammable gas</td>
<td>Gases, other than those of category 1, which, at 20 degrees C and a standard pressure of 101.3 kPA, have a flammable range while mixed in air. Flammable gas</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**GHS Label:** None  
**Signal word:** None  
**Details of statements:**

<table>
<thead>
<tr>
<th>Hazard Statements</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precautionary Statement Prevention</td>
<td>None</td>
</tr>
<tr>
<td>Precautionary Statement Response</td>
<td>None</td>
</tr>
<tr>
<td>Precautionary Statement Storage</td>
<td>None</td>
</tr>
<tr>
<td>Precautionary Statement Disposal</td>
<td>Follow local regulation</td>
</tr>
</tbody>
</table>

This product is classified as not dangerous as it meets the Directive 2005/69/EC and Annex XVII Reg. EC 1907/2006.  
**2.2 Information pertaining to particular dangers for human:** The preparation is not hazardous in the form in which it is placed on the market and
under the normal and recommended conditions of storage and use. See also sections 4 and 11.

2.3 Information pertaining to particular dangers for the environment:
The preparation is stable under normal conditions of storage and use. It is not hazardous to the environment in its normal state.

2.4 Other adverse effects: Not Applicable

Route of entry:

<table>
<thead>
<tr>
<th>Skin Contact</th>
<th>Skin Absorption</th>
<th>Eye Contact</th>
<th>Inhalation</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

DATA REFERENCE: Licensor’s Data

Health hazards:

<table>
<thead>
<tr>
<th>Source</th>
<th>Carcinogenicity</th>
</tr>
</thead>
</table>

DATA REFERENCE: TDAE Oil MSDS from Vendor & COA of Vendor

Section 3 – COMPOSITION & INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients / Hazardous</th>
<th>CAS No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene Butadiene Copolymer</td>
<td>9003-55-8</td>
<td>~ 66-68%</td>
</tr>
<tr>
<td>TDAE Oil</td>
<td>64741-88-4</td>
<td>~ 27 %</td>
</tr>
</tbody>
</table>

Data reference: Licensor's Data

Section 4 – FIRST AID MEASURES

4.1 General advice: No special measures required.

IMMEDIATE MEDICAL ATTENTION IS REQUIRED AFTER INHALATION OR AFTER SWALLOWING.

In case of health troubles or doubts, seek medical advice immediately and show this (Material) Safety Data Sheet.

4.2 Inhalation
Move the affected person away from the contaminated area into fresh air; seek medical assistance.
SYMPTOMS AND EFFECTS: Fines or gas/vapors released, which can lead to irritation of the respiratory organs.

4.3 Skin contact
Wash with plenty of water. In case of contact with melted material, cool down with cold water and seek medical assistance. Do not remove the product that solidified on skin. Treat as a burn.
SYMPTOMS AND EFFECTS: Fines can irritate skin. No effect expected by contact with the elastomer at room temperature. Melted product cause burns.

4.4 Eye contact
Wash with plenty of water. If irritation persists, seek medical assistance.
SYMPTOMS AND EFFECTS: Fines or gas/vapors released which can lead to red eyes.

4.5 Swallowing
No specific measure requested in case of ingestion. If needed seek medical assistance.
SYMPTOMS AND EFFECTS: Abdominal pain.
Specific and immediate treatment means to be available at the workplace:
Eye wash fountain.

Section 5 – FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media:
Water, water spray, foam, dry chemicals, carbon dioxide.
Cool down the containers using water spray.
5.2 Extinguishing media to be avoided:
Not Applicable
5.3 Caution about specific danger in case of fire and fire-fighting procedures:
The preparation, when involved in a fire, burns with a sooty flame and release fumes made up of water, carbon dioxide, carbon monoxide (when starved of oxygen).
Overheating/pyrolysis evolve vapors made up of monomers, low molecular weight polymers and their oxidation products.
5.4 Special protective equipment for fire-fighters:
Use suitable personal protective equipment (self-contained breathing apparatus, helmet, goggles, fire resistant gloves and boots).

Section 6 – ACCIDENTAL RELEASE MEASURES

6.1 Person-related safety precautions:
See section 8.
6.2 Precautions for protection of the environment:
Keep fines away from drains. Do not release into the environment.
6.3 Recommended methods for cleaning and disposal:
Collect mechanically. Reuse if possible or dispose off as required by national and local regulations (see section 13).

Section 7 – HANDLING AND STORAGE

7.1 Information for safe handling:
During processing, ventilation should be ensured and suitable exhaust systems should be in place.
Use gloves and safety glasses. Avoid contact with sources of ignition. Elevated processing temperatures may result in some degree of thermal degradation: as a guideline 200°C is the maximum allowed temperature for very short time.
The preparation is a poor conductor and it is likely to accumulate electrostatic charges. Precautions normally used for materials not conductive and against the accumulation of electrostatic charges should be used during processes which employ powdered materials or produce fines (e.g.: reduce speed to the minimum, install earthing systems, the absolute prohibition to smoke and use free flames, use inert gases in mills and in the closed systems).
Comply with personal hygiene measures and use the personal protective equipment (see section 8). Do not smoke, eat or drink in the workplace. Re-seal opened containers.
7.2 Information for storage:
Store the preparation in a covered place away from sunlight and heat sources.
Ensure the proper ventilation in all storage areas.
7.3 Information for specific use:
Not Applicable.

Section 8 – EXPOSURE CONTROL & PERSONAL PROTECTION

8.1 Occupational Exposure Limits:
Data not available

8.2 Occupational exposure controls:
Traces of monomers and others volatile substances may be given off during processing, particularly at unusually high processing temperatures.
Work rooms must be provided with adequate ventilation and exhaust equipment to collect fines and gas/vapour that may be emitted during the conversion.

Equipment to provide adequate and personal protection:
Respiratory protection:
In normal conditions nose masks should be available to be used when requested.
Eye protection:
Use safety goggles.
Hand protection:
Chemical substances resistant gloves.
Body protection: Standard work clothes.

Hygiene Measures:
No smoking, eating or drinking in the workplace.
Wash hands thoroughly before eating, drinking.

8.3 Environmental exposure controls:
Proceed in accordance with valid air and water legislative regulations.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance: Physical state at 23°C</td>
<td>Solid</td>
</tr>
<tr>
<td>: Form</td>
<td>Bales</td>
</tr>
<tr>
<td>: Colour</td>
<td>Dark Brow/Grey</td>
</tr>
<tr>
<td>Odour</td>
<td>Light Characteristic</td>
</tr>
<tr>
<td>Density at 20°C</td>
<td>~0.95 gm./cm³</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Softening temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Auto flammability</td>
<td>&gt;300°C</td>
</tr>
<tr>
<td>Decomposition Temp °C</td>
<td>&gt;200°C</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Solubility with other solvents</td>
<td>Hexane, Chloroform.</td>
</tr>
</tbody>
</table>

DATA REFERENCE: Licensor’s data

Section 10 – CHEMICAL STABILITY AND REACTIVITY INFORMATION

The preparation is stable and inert in the recommended storage and handling conditions (see section 7).

10.1 Conditions to avoid: Exposure to sunlight and/or heat. Accumulation of electrostatic charges. Oxidizing substances.

10.2 Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: No further relevant information available.
10.3 Material to avoid: Avoid the contact with oxidizing substances. 
AIR AND WATER REACTIONS: Not Applicable 
REACTIVE GROUPS: Not Applicable 
10.4 Hazardous decomposition products: see section 5.
Comply with the advised processing temperatures to avoid the formation of noxious 
gas and vapors.

Section 11 –TOXICOLOGICAL INFORMATION

Specific information on the preparation is not available in the literature. Residual monomers are present in the product at trace level, hindered in the elastomer matrix and therefore not available in normal conditions.

11.1 Dangerous effects from exposure to the preparation: The possible fines may cause irritation to the eyes and/or respiratory organs.
The elastomer does not present any intrinsic health hazard when processed according to correct working procedures.

Data Reference: Licensor’s data
11.2 Repeated dose toxicity: Not Available
11.3 Sensitisation: Not Available
11.4 CMR effects (carcinogenicity, mutagenicity, toxicity for reproduction): no evidence of these effects has been reported for the preparation.
11.5 Toxicokinetics, metabolism, distribution: Not Applicable

Section 12 –ECOLOGICAL INFORMATION

12.1 Ecotoxicity data: The preparation is essentially a high molecular weight polymer, not regarded as ecotoxic.
12.2 Aquatic Toxicity: No further relevant information available.
12.3 Persistence and degradability: The preparation is not a biodegradable polymer.
12.4 Bio accumulative potential: Does not accumulate in organisms
12.5 Mobility in Soil: Use according to good working practice, and avoid releasing the product into the environment.
12.6 Results of PBT and vPvB assessment Persistence and Degradation: Not applicable.
12.7 Other adverse effects: No further relevant information available.
Environmental Fate: Not applicable

Section 13 – DISPOSAL CONSIDERATION

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.
For the handling of the residues the same safety advices given for the preparation are to be applied.

13.1 Recommended disposal methods for the substance / mixture
Appropriate methods of disposal of preparation: Residues should be disposed of as required by national and local regulations.
Uncleansed packaging:
13.2 Recommendation: Disposal must be made according to local regulations.
13.3 Recommended cleansing agents: Water, if necessary together with cleansing agents.
13.4 Waste regulation: Follow local regulation.

Section 14 – TRANSPORT INFORMATION

International Transport Regulation:
ADR/RID (Road/Rail), IMDG (Sea) and ICAO/IATA (Air) The preparation is not classified as dangerous for the transport according to the following regulations: ADR/RID, IMO, IATA.
14.1 Proper Shipping Name: Not Defined
Hazard Class: Not Defined
UN Number: Not Defined
Emergency Action Code: Not Defined
14.2 Special transport precautionary measures: None

Section 15 – REGULATORY INFORMATION

MSDS format on a 16 Section based on guidance provided in:
Indian Regulation:
The Factories Act 1948
International Regulations:
European SDS Directive
ANSI MSDS Standard
ISO 11014-1 1994
WHMIS Requirements
United States
Hazard Communication Standard
Canada
Hazardous Products Act and Controlled Products Regulations
Europe
Dangerous Substance and Preparations Directives
Australia
National Model Regulations for the Control of Workplace Hazardous Substances
The Globally Harmonized System of Classification and Labeling of Chemicals endorsed by The UN Economic and Social Council
*RISK PHRASES: R phrases: None
*SAFETY PHRASES: None
*These standard risk and safety phrases for use when interpreting (Material) Safety data Sheets are derived from the European Union Regulation, CHIP Regulations - Chemicals (Hazard Information and Packaging for Supply). They are required to be used in (Material) Safety Data Sheets to identify potential hazards and offer safe handling advice.

Section 16 – OTHER INFORMATION
Training instructions
Personnel handling the product has to be acquainted demonstrably with its hazardous properties, with health and environmental protection principles related to the product and first aid principles.

Tremcard details/Reference: Refer Section 14
Local bodies involved (Applicable only with in India): Local District Authority and Local Crisis Group

Sources of data used to compile the (Material) Safety Data Sheet

**Data compilation reference:** Licensor's Data

<table>
<thead>
<tr>
<th>Date of Revision</th>
<th>Revised Sections</th>
<th>Supersedes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 01, 2015</td>
<td>None First Issue</td>
<td>None</td>
</tr>
</tbody>
</table>

This (M)SDS is issued by the Centre for HSE Excellence, Reliance Industries Limited

Contact Details: For any enquiry/comment regarding this (Material) Safety Data Sheet, kindly contact the Centre for HSE Excellence at HSE.ExcellenceCentre@ril.com

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End of (M)SDS