VORONEZHSYNTHETEKAUCHUK JSC

SAFETY DATA SHEET

STYREN-BUTADIENE RUBBER (SBR)
Emulsion type

SBR-1723 TDAE

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

1.1 Product identifier
Name of Substance: Synthetic styrene-butadiene rubber (emulsion type)
Name of IUPAC: SBR-1723 TDAE
Synonyms: benzene, ethenyl-, polymer with buta-1,3-diene
Registration # for 1,3-butadiene:
(CAS #106-99-0; EC #203-450-8) 01-2119471988-16-0034
Index No(CLP):601-013-00-X 01-2119471988-16-0033
Registration for styrene:
(CAS #100-42-5; EC #202-851-5) 01-2119457861-32-0016
Index No(CLP): 601-026-00-0
Index No(CLP):649-454-00-7
for oil filler:
(CAS #64741-88-4; EC #265-090-8) 01-2119488706-23-0018

1.2 Relevant identified uses of the substance
1.2.1 Most common technical function of styrene butadiene rubber (emulsion type): tyre production, technical rubber parts (profiles, hoses, shoe soles, belt production, technical rubber goods), rubber compound.
1.2.2 Uses advised against: Uses other than those given in section 1.2.1 are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled.

DISCLAIMER
This product is a polymer and is not classified as dangerous under criteria of Directives No 67/458/EEC, No 1999/45/EC and Regulation (EC) No 1272/2008 (Regulation CLP). This polymer does not contain substances classified as dangerous under Article 59.2 Regulation (EC) No 1272/2008, namely:
- in an individual concentration of ≥ 1 % by weight for non-gaseous mixtures posing human health or environmental; or
- in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures that is carcinogenic category 2 or toxic to reproduction category 1A, 1B and 2, skin sensitiser category 1, respiratory sensitiser category 1, or has effects on or via lactation or is persistent, bioaccumulative and toxic (PBT) in accordance with the criteria set out in Annex XIII or very persistent and very bioaccumulative (vPvB) in accordance with the criteria set out in Annex XIII; or
- a substance for which there are Community workplace exposure limits.
In accordance with mentioned above, this product does not require and official e-SDS as per Regulations (EC) No 1907/2006 (articles 31.1; 31.2) and Commission Regulation (EU) No 453/2010.
This e-SDS is developed in good faith to provide a customer with sufficient information allowing to take necessary measures to comply with relevant HSE requirements.
1.3 Details of the supplier of the safety data sheet

Only representative

Company name: Gazprom Marketing and Trading France
Address: 68 avenue des Champs-Elysées, 75008, Paris, France
Contact Telephone: +33 1 42 99 73 50
Fax: +33 1 42 99 73 99
Email Address: Yury.severinchik@gazprom-mt.com

Suppliers

Company name: Voronezhsynthezkauchuk JSC
Address: 2, Leninsky prospect, Voronezh, Russia, 394014
Phone: +7 473 220 68 88
Fax: +7 473 220 68 69
Email Address: VSK-office@vsk.sibur.ru
Emergency phone: +7 473 249 09 00, +7 473 220 76 30 (round the clock)

Emergency phone in the country of delivery: 112 (Please note that emergency numbers may vary depending upon the country of delivery though 112 remains valid as universal number)

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)
Not classified as a hazardous substance.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)
Not applicable.

2.3 Specific hazard
No significant health hazard in normal industrial use conditions.
Contact of melted/ heated product may cause thermal burns.
Processing vapours may form when product is heated at high temperatures. Processing vapours may content thermal decomposition products which can irritate eyes and respiratory tract. Combustible solid.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a synthetic rubber, consisting of 64 - 69% co-polymer from styrene and butadiene (21 - 26% bound styrene), 24 - 31% oil filler (CAS#64741-88-4/EC#265-090-8), 4.0 - 5.8% organic acids (fatty acids C14-18), 0.3 - 0.7% antioxidant (amino-phenolic) or 0.35 - 0.55% antioxidant (CAS#82209-88-9). May contain traces of styrene (< 0.05%).

Formula: [(-C₄H₆⁻)ᵣ (-C₉H₁₀⁻)ₙ]
According to CLP Regulation the product is a mixture of poly(styrene-co-butadiene), oil filler (distillates (petroleum), solvent-refined heavy paraffinic):

<table>
<thead>
<tr>
<th>Name</th>
<th>EC #</th>
<th>CAS #</th>
<th>Content, %</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(styrene-co-butadiene)</td>
<td>none</td>
<td>9003-55-8</td>
<td>64.0 - 69.0</td>
<td>none</td>
</tr>
<tr>
<td>Distillates (petroleum), solvent-refined heavy paraffinic (oil filler)</td>
<td>265-090-8</td>
<td>64741-88-4</td>
<td>26.0 - 29.0</td>
<td>none*</td>
</tr>
</tbody>
</table>

*The substance is not classified as carcinogenic (GHS08, Carc 1B, H350) as it complies with Note L (IP 346 < 3%; viscosity > 20.5 mm²/s at 40 °C) having polynuclear aromatic hydrocarbon content < 3% determined in accordance with IP 346 (dimethyl sulfoxide extraction) (Annex VI – Regulation EC 1272/2008).

The product does not contain impurities or additives that could affect product’s labelling and classification according to Regulation (EC) No 1272/2008 (CLP) in the concentration ranges specified.

SECTION 4. FIRST-AID MEASURES

General information
Spontaneous penetration of styrene-butadiene rubber into human organism is impossible. Styrene-butadiene rubber at normal conditions is stable and non-volatile. Under high temperatures and during rubber processing release of monomer vapors are possible which in poor ventilated areas may cause irritation of eyes mucous and upper respiratory ways. Contact with eyes may cause mechanical damage, irritation of eyes mucous, delacrimation. No significant health hazard in normal industrial use conditions. Contact with melted/heated product may cause thermal burns.

Inhalation
In emergency and in case of poisoning by rubber combustion products or if decomposition or thermal destruction products are inhaled: Move any exposed person to fresh air at once. Keep warm and at rest. If there is respiratory distress give oxygen. If respiration stops or shows signs of failing, apply artificial respiration. Get medical attention.

Ingestion
In case of accidental swallowing. Wash out mouth with water and give plenty of water to drink, provided person is conscious. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have the exposed person lean forward. Get medical attention.

Skin contact
There are no risks in normal industrial use conditions. In the case of contact with hot product remove contaminated clothing and wash skin with plenty of running water, under a shower if affected area is large enough to warrant this. Get medical attention.

Eye contact
Rinse immediately eye with plenty of low pressure water for at least 15 minutes. Remove any contact lenses. Get medical attention.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Use foam, dry chemical, carbon dioxide, sand or water spray.
5.2 Fire fighting procedures
Keep away from sources of ignition, no smoking.
Extinguish fire keeping safe distance. Not yet ignited rubber briquettes to be kept cool by means of water spraying.

5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
Combustion generates irritating and toxic fumes.
Burning causes emissions of carbon oxide.
Unusual fire & explosion hazards: None.

5.4 Special Protective Equipment for fire-fighters
Wear canvas protective suit, gloves, helmets, face shields, rubber or kersey boots, gas mask.
In proximity to fire wear full protective clothing and MSHA/NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation.
For additional information, refer to Section 8, Exposure Controls and Personal Protection equipment.

6.2 Individual safety measures
Remove sources of ignition, provide workplace ventilation, air monitoring of the workplace, avoid contact with skin and eyes.

6.3 Environmental precautions
Do not allow penetration of the product into water reservoirs, surface and ground water, sewer ducts and soil.
Preventing disposal into water reservoirs of contaminated water without treatment.
Monitor content of hazardous substances in the air.
Provide sealing of process equipment.

6.4 Spill clean-up methods
When the product gets into water or ground collect the product in a separate container for recycling or disposal.

6.5 Reference to other sections
For additional information, refer to Section 8, Exposure Controls and Personal Protection equipment.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice.
Avoid all sources of ignition.
Avoid contact with eyes and skin. Do not swallow.
Do not ingest or inhale combustion or decomposition products.
Provide input-extract and local ventilation of work zones.
Regularly control work zone air.
Workers should be protected from the possibility of contact with molten product.

### 7.2 Storage precautions
Store in a dry, well-ventilated area, at temperature not exceeding 40 °C. Keep away from direct sunlight, atmospheric precipitation and incompatible substances in a closed container. Prevent from freezing.

### 7.3 Specific end use(s)
Please check the identified uses given in Section 1.2 of this safety data sheet.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Exposure limits
Not listed.

#### 8.2 Personal protective equipment

**Respiratory tract**
Not required (if is used workplace conditions). In emergency or in case of increase of hazardous substances concentration at the workplace wear positive pressure MSHA/NIOHS-approved self-contained breathing apparatus.

**Hand protection**
Wear approved protective gloves.

**Eye protection**
Wear approved safety goggles.

**Skin protection**
Wear protective clothing and footwear, in contact with the hot product wear thermally resistant gloves.

#### 8.3 Hygiene measures
Personal hygiene and industrial sanitation in the production at the facility (wash hands at the end of each work shift and before eating, drinking, smoking or using the toilet).

#### 8.4 Technical safety measures
Forced-air and exhaust ventilation in work zones. Compulsory monitoring of air conditions in work areas. Sealing and grounding of equipment and communications. Usage of intrinsically safe equipment.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state at 20 °C and 1013 hPa</td>
<td>elastic solid (firm homogeneous spongy mass)</td>
</tr>
<tr>
<td>Appearance</td>
<td>rubber is produced in the form of briquettes</td>
</tr>
<tr>
<td>Odour</td>
<td>peculiar, at processing temperatures slight odour of organic compounds is possible</td>
</tr>
<tr>
<td>Colour</td>
<td>from brown to dark-brown</td>
</tr>
<tr>
<td>pH value</td>
<td>not applicable, insoluble</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>0.928</td>
</tr>
<tr>
<td>Solubility</td>
<td>insoluble in water</td>
</tr>
<tr>
<td></td>
<td>soluble in aromatic and aliphatic solvents</td>
</tr>
</tbody>
</table>
**SECTION 10. STABILITY AND REACTIVITY**

10.1 Stability
Stable under normal temperatures and pressures.

10.2 Reactivity
Oxidizes, hydrogenates.

10.3 Materials to avoid
Acids, alkalis, organic solvents, aliphatic and aromatic hydrocarbons, oxidising agents

10.4 Conditions to avoid
Avoid naked flame. Avoid high temperatures. Avoid prolonged heat. Avoid long term exposure to direct sun beams. Avoid contact with incompatible substances.

10.5 Hazardous decomposition products
Carbon oxides.

**SECTION 11. TOXICOLOGICAL INFORMATION**

General information
No significant health hazard in normal industrial use conditions.
According to CLP Regulation the product is a mixture of poly (styrene-co-butadiene) rubber, oil filler (distillates (petroleum), solvent-refined heavy paraffinic):

<table>
<thead>
<tr>
<th>Property</th>
<th>Synthetic poly (styrene-co-butadiene) rubber (CAS #9003-55-8)</th>
<th>Distillates (petroleum), solvent-refined heavy paraffinic (oil filler) (CAS #64741-88-4; EC #265-090-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>LD50/oral/rat: &gt; 5000 mg/kg LD50/dermal/rabbit: &gt;2000 mg/kg</td>
<td>LD50/oral/rat : &gt;5000 mg/kg (OECD guideline 401)</td>
</tr>
<tr>
<td></td>
<td>Inhalation toxicity: very low toxicity.</td>
<td>LD50/dermal/rabbit: &gt;5000 mg/kg (OECD guideline 403)</td>
</tr>
<tr>
<td></td>
<td>The substance is a non-volatile elastic solid</td>
<td>LC50/inhalation/4h/rat : &gt;5.0 mg/l (OECD guideline 402)</td>
</tr>
<tr>
<td></td>
<td>and is produced in the form of briquettes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is therefore no potential for inhalation exposure.</td>
<td></td>
</tr>
<tr>
<td>Irritation and corrosion</td>
<td>Not irritating or corrosive.</td>
<td>Not irritating or corrosive.</td>
</tr>
<tr>
<td>Sensitisation</td>
<td>Not sensitising.</td>
<td>Not sensitising.</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not carcinogenic.</td>
<td>Not carcinogenic.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Non mutagenic.</td>
<td>Non mutagenic.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>Not investigated.</td>
<td>Not classified. NOAEL (oral) = 1000 mg/kg bw/day (OECD 421).</td>
</tr>
<tr>
<td>Repeated dose toxicity</td>
<td>Not investigated.</td>
<td>Not classified.</td>
</tr>
<tr>
<td>Other information</td>
<td>Not investigated.</td>
<td>STOT- single exposure: not classified STOT-repeated exposure: not classified Aspiration hazard: not classified.</td>
</tr>
<tr>
<td>Reference</td>
<td>Russian Register of Potentially Hazardous Chemical and Biological Substances /FBEPH.</td>
<td>SDS for oil filler from supplier.</td>
</tr>
</tbody>
</table>

### SECTION 12. ECOLOGICAL INFORMATION

#### General information
No significant ecological hazard in normal industrial use conditions.

<table>
<thead>
<tr>
<th>Property</th>
<th>Synthetic poly (styrene-co-butadiene) rubber (CAS #9003-55-8)</th>
<th>Distillates (petroleum), solvent-refined heavy paraffinic (oil filler) (CAS #64741-88-4; EC #265-090-8)</th>
</tr>
</thead>
</table>
| General information                                                     | At normal conditions rubber is a very stable product.          | Product does not meet the criteria for classification as an environmental hazard. As this substance is a complex petroleum product with unknown and variable composition belonging on the group of petroleum products having variable and low water solubility, aquatic toxicity testing is not technically feasible for this product itself. Aquatic and chronic toxicity is evaluated based on the aquatic toxicity test results of different petroleum products and using toxicity predictions obtained using the PETROTOX model for petroleum substances (CONCAWE; appendix 5 in CSR of other lubricant oils). Based on the available information this substance is not considered to possess acute or chronic aquatic toxicity.
|                                                                          | Does not form toxic compounds with other substances in air and water. Pollution of water ponds and soil with polymer flakes may occur only if production, handling and transportation rules are not followed, in case of effluent discharge without treatment, as a result of emergencies and accidents. |                                                                  |
| Aquatic toxicity                                                        | Not investigated.                                               |                                                                  |
|                                                                          | **Short-term aquatic toxicity**                                  |                                                                  |
|                                                                          | Toxicity to fish (*Pimephales promelas*):                       |                                                                  |
|                                                                          | LL50 (96 h): >100 mg/l;                                        |                                                                  |
|                                                                          | NOEL: >= 100 mg/l (OECD 203).                                   |                                                                  |
|                                                                          | Toxicity test on aquatic invertebrates (*Daphnia magna*):       |                                                                  |
|                                                                          | EL50 (48 h): >10 000 mg/l;                                      |                                                                  |
|                                                                          | NOEL >= 10 000 mg/l (OECD 202).                                 |                                                                  |
|                                                                          | Toxicity to algae growth inhibition (*Pseudokirchnerella subcapitata*): |                                                                  |
|                                                                          | NOEL (72 h) >=100 mg/L (OECD 201).                              |                                                                  |
|                                                                          | Toxicity to other organisms: not applicable.                    |                                                                  |
| **Biodegradation** | Abiotic degradation: \( t_{\frac{1}{2}} \): > 30 d extremely stable. | Product is not readily biodegradable (OECD guidelines 301 B and 301F): 31 % degradation after 28 d (O\(_2\) consumption). /Biodegradation for this complex hydrocarbon UVCB-substance is based on the test results of different petroleum products and modelling of hydrocarbon blocks using PETRORISK model (CONCAWE). |
| **Chemical degradation** | Not investigated. | Resistant to hydrolysis because this product lacks a functional group that is hydrolytically reactive. |
| **Bioaccumulative potential** | Not investigated. | In accordance with the results of CONCAWE modelling, potential of bioaccumulation or adsorption to soil cannot be neglected. /As this substance is a hydrocarbon UVCB, testing of BCF-factor and partition-coefficient is not technically feasible. Therefore, bioaccumulation is evaluated based on the hydrocarbon blocks of different petroleum products using PETRORISK model (CONCAWE). |
| **Mobility in soil** | Not investigated. | No data available. |
| **Results of PBT and vPvB assessment** | Can be stated that the substance does not fulfil the PBT criteria (not PBT) and not the vPvB criteria (not vPvB). | No hydrocarbon structure that meets the PBT/vPvB criteria (CONCAWE 2010b). |
| **References** | Russian Register of Potentially Hazardous Chemical and Biological Substances /FBEPH. | SDS for oil filler from supplier. |

Water hazard classification: According to the German VwVwS: WGK- 0 (not classified).

**SECTION 13. DISPOSAL CONSIDERATIONS**

**13.1 General information**
Place into a suitable closed container for disposal.

**13.2 Disposal methods**
Dispose of in accordance with local and national regulations. Waste water containing rubber should be treated. Packaging waste (paper bags) shall be collected and send for recycling. Plastic waste shall be removed to disposal.

**SECTION 14. TRANSPORT INFORMATION**

**General**
The product is not covered by international regulations on the transport of dangerous goods. UN: none.
SECTION 15. REGULATORY INFORMATION

Chemical Safety Report has been performed for monomers: 1,3-butadiene (CAS #106-99-0; EC #203-450-8), styrene (CAS #100-42-5; EC #202-851-5) and oil filler: distillates (petroleum), solvent refined heavy paraffinic (CAS #64741-88-4; EC #265-090-8).

SECTION 16. OTHER INFORMATION

16.1 Indication of changes

<table>
<thead>
<tr>
<th>VERSION</th>
<th>Date of change</th>
<th>Section</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version: 1.0</td>
<td>16/03/2010</td>
<td></td>
<td>First edition created according to recommendations of Regulations (EC) #1907/2006 (Article 31.1).</td>
</tr>
<tr>
<td>Version: 2.0</td>
<td>07/02/2011</td>
<td>1.1, 2</td>
<td>Sections 1.1, 2 were updated.</td>
</tr>
<tr>
<td>Version: 2.1</td>
<td>14/02/2012</td>
<td>1; 3-13; 15; 16</td>
<td>1. Product name SKS-30 ARKM-27 (SBR 1723 TDAE) was renamed into SBR-1723 TDAE. 2. Section 1.1 was updated. 3. Section 1.3 was updated (E-mail address, Emergency phone for suppliers). 4. DISCLAIMER was added on the first page. 5. Section 4. General information subsection was added. Inhalation Subsection was updated. 6. Section 5. Subsection updated: Extinguishing media, Special fire fighting procedures. 7. Section 6. Subsections updated: Individual safety measures, Environmental precautions. 8. Section 7. Subsections updated: Storage precautions, Handling. 9. Section 8. Subsections updated: Personal protective equipment, Hygiene measures, Technical safety measures. 10. Section 13. Disposal methods subsection was updated. 11. Sections 3; 9, 10; 11; 12; 15, 16 were fully updated.</td>
</tr>
<tr>
<td>Version: 2.2</td>
<td>31/01/2013</td>
<td>3</td>
<td>Section 3. Composition/Information on Ingredients was updated.</td>
</tr>
<tr>
<td>Version: 2.3</td>
<td>10/03/2015</td>
<td>1.3; 3; 9; 16.1</td>
<td>Section 1.3. Supplier’s address was updated. Section 3. Composition/Information on Ingredients was updated. Section 9. Ignition temperature and Auto-ignition temperature parameters were updated.</td>
</tr>
<tr>
<td>Version: 2.4</td>
<td>21/07/2016</td>
<td>1.3; 2</td>
<td>Section 1.3: Supplier’s contact details were updated. Section 2: Only classification and labelling according CLP are given.</td>
</tr>
<tr>
<td>Version: 2.5</td>
<td>23/08/2016</td>
<td>7.2</td>
<td>Storage temperature was changed to 40 °C.</td>
</tr>
</tbody>
</table>

16.2 Abbreviations and acronyms

EC50  Effective concentration of the substance that causes specific measured effect for 50 % of the test organisms

EL50  EL50 - Effective loading rate of the substance that causes specific measured effect for 50 % of the test organisms
LL50  Lethal loading rate of the substance that kills 50% of the test organisms
LC50  Lethal Concentration to 50% of a test population
LD50  Lethal Dose to 50% of a test population (Median Lethal Dose)
NOAEL No Observed Adverse Effect Level
NOEC No Observed Effect Concentration
OECD Organization for Economic Co-operation and Development
STOT Specific Target Organ Toxicity
PBT Persistent, bioaccumulative, toxic chemical
vPvB Very Persistent, Very Bioaccumulative
UN United Nations
WGK Wassergefährdungsklasse (German: Water Hazard Class)

16.3 Key literature references and sources

EU DIRECTIVES
DIRECTIVE 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances.
NATIONAL REGULATIONS (GERMANY)
Major Accident Hazard Legislation 82/501/EWG.
Russian Register of Potentially Hazardous Chemical and Biological Substances (FBEPH).

DISCLAIMER
This information is based on our current level of knowledge. This information may be subject to revision as new knowledge and experience becomes available, and SIBUR makes no warranties and assumes no liability in connection with any use of this information. Since SIBUR cannot be aware of all aspects of your business and the impact the REACH Regulation has for your company, SIBUR strongly encourages you to get familiar with the REACH Regulation in order to comply with its requirements and timelines.

END OF SDS