

## VORONEZH SYNTHETZKAUCHUK JSC

### SAFETY DATA SHEET

According to EC Regulations 1907/2006 (REACH), 1272/2008 (CLP) & 453/2010

### BUTADIENE RUBBER (BR) GRADE BR -1203 Ti (polybutadiene, solution)

Version: 2.2  
Created: 01/11/2013

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

##### 1.1 Product identifier

Name of Substance:	Cis-(poly)butadiene
Name of IUPAC	buta-1,3-diene polymer
Synonyms	Butadiene Rubber cis-1,4-(poly)butadiene; Polybutadiene (cis); 1,3-Butadiene, homopolymer
TRADE NAMES:	BR-1203 Ti
Registration #: for 1.3-butadiene (CAS #106-99-0; EC #203-450-8) <i>Index No(CLP): 601-013-00-X</i>	01-2119471988-16-0034 01-2119471988-16-0033

##### 1.2 Relevant identified uses of the substance

1.2.1 Identified use(s): 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  $\geq 1$  % by weight for non-gaseous mixtures posing human health or environmental; or
- in an individual concentration of  $\geq 0.1$  % 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

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(round the clock)

**1.4 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

2.1.1 Classification according to Directive 67/548/EEC  
Not classified as a dangerous substance.

2.1.2 Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)  
Not classified as a hazardous substance.

### 2.2 Label elements

2.2.1 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 vapors may form when product is heated at high temperatures. Processing vapors may contain 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 at least 99.0% polymerised 1,3-butadiene and antioxidant: about 0.2-0.5% (CAS#119-47-1/EC#204-327-1) or about 0.4-0.1% (CAS#128-37-0 / EC#204-881-4) or about 0.2 – 0.5% (CAS #110553-27-0/EC# 402-860-6). Cis-1,4content: 87-93%.



Formula:  $(-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_2-)_n$  where  $n =$  is the number of polybutadiene block fragments.

Name	EC #	CAS #	Content, %	Classification EC#67/548/EEC and EC#1272/2008 (CLP)
Cis-(poly)butadiene	none	9003-17-2	$\geq 99.0$	none

The product does not contain impurities or additives that could affect product's labelling and classification according to Regulation (EC) No 67/548/EEC and Regulation (EC) No 1272/2008 (CLP) in the concentration ranges specified.

## SECTION 4. FIRST-AID MEASURES

### 4.1 Description of first aid measures

#### General information:

Butadiene rubber at normal conditions is stable, non-volatile, causes non-exhaustive effects. Spontaneous penetration of butadiene rubber into human organism is impossible.

Inhalation poisoning is unlikely.

Contact with eyes may cause mechanical damage.

Contact with skin has no effects.

If eye/skin contact with hot product occurs, obtain immediate medical attention.

Rubber thermo destruction is possible, if product was heated over  $300^{\circ}\text{C}$ .

Thermal decomposition products inhalation may irritate respiratory system, eye irritation.

#### Inhalation:

No hazard in normal use of product.

In case the molten substance vapours penetrate the respiratory airways, do the following:

Immediately move an 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:

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 aid.

#### Skin contact:

There are no risks in normal industrial use conditions.

If molten material comes in contact with the skin, do not apply ice but cool under ice water or running stream of water. DO NOT attempt to remove the material from skin. Removal could result in severe tissue damage. Seek medical attention immediately.

#### Eye contact:

Rinse immediately eye with plenty of low pressure water for at least 15 minutes.

Remove any contact lenses. Consult a physician if required.



#### **4.2 Most important symptoms and effects, both acute and delayed**

Inhalation Symptoms: Thermal decomposition products inhalation may irritate respiratory system, eye irritation.

Skin Contact Symptoms: Contact with hot product may cause serious burns.

Eye Contact Symptoms: Eye contact may cause mechanical damage, irritation of eyes mucous. Contact with hot product may cause serious burns.

Ingestion/aspiration Symptoms: Ingestion/aspiration may cause irritation of digestive tract. May cause gastrointestinal blockage.

#### **4.3 Notes for the doctor:**

If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### **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:**

The substance is combustible. 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:**

Take precautionary measures against static discharges.

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 30°C.

Keep away from direct sunlight, atmospheric precipitation and incompatible substances in a closed container.

### **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 Control parameters**

#### **8.1.1 Occupational Exposure Limits:**

For butadiene rubber (CAS: 9003-17-2): not established

#### **8.1.2 DNEL/ PNEC values for butadiene rubber:**

DN(M)ELs for workers have not been derived.

DN(M)ELs for the general population have not been derived.

DNEL and PNECs for freshwater, saltwater, sediment and soil have not been derived.



## 8.2 Exposure controls:

### 8.2.1 Technical safety measures:

Provide adequate 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.

### 8.2.2. Personal protection equipment:

Use of personal protective equipment must be consistent with good occupational hygiene practices.  
 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).

### Eye/Face protection:

Wear goggles giving complete protection to eyes (BS EN 166).

### Skin Protection (Hand and Body):

Wear approved protective gloves (Nitrile rubber. BS EN 374)  
 If contact with hot product is anticipated, gloves should be heat-resistant and thermally insulated.  
 Wear insulating gloves BS EN407 (heat).  
 Wear apron or other protective clothing and antistatic boots.

### Respiratory Protection:

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/NIOSH-approved self-contained breathing apparatus (BS EN 14387:2004).

### 8.2.3. Environmental Exposure Controls:

None specific.  
 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.  
 Provide sealing of process equipment.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	Method	Remarks
Physical state (at 20 °C and 1013 hPa):	Elastic solid (rubber is produced in the form of briquettes)	visual method	
Colour:	From light to yellow	visual method	
Odour:	Peculiar, at processing temperatures slight odor of organic compounds is possible	sensory examination	
pH (Value):	Not applicable, insoluble	-	
Melting Point (°C):	Not available (above 300°C)		

Property	Value	Method	Remarks
	is the destruction of rubber)		
Glass transition temperature(°C):	102		
Initial boiling point/boiling range (°C):	Not available	-	
Ignition temperature (°C):	292	ISO 4589-84 (GOST 12.1.044)	
Auto Ignition Temperature (°C):	332	ISO 4589-84 (GOST 12.1.044)	
Evaporation rate:	Not available	-	
Flammability (solid, gas):	Does not ignite spontaneously, burn only upon entering into a source of fire		
Upper/low flammability or Explosive limit ranges:	Not available	-	
Vapour Pressure (hPa):	Not available (does not evaporate)	-	
Vapour Density (Air=1):	Not available (does not evaporate)	-	
Density (g/cm <sup>3</sup> ):	0.90-0.97	ASTM D 792	
Solubility (Water):	Insoluble		
Solubility (Other):	soluble in aromatic and aliphatic solvents (benzene, toluene, heptane, hexane, benzine) under normal conditions		
Partition Coefficient n-Octanol/Water:	Not available		
Decomposition Temperature (°C):	≥300°C	-	
Viscosity according to Muni (MML 1+4):	35-60 conv.units (at 100°C)	ASTM D 1646 (GOST R 54552)	
Explosive properties:	Non explosive	-	
Oxidising properties:	Not available	-	
Granulometry	Not applicable, substance is not marketed or used in granular form	-	
<b>Other information:</b>			



**SECTION 10. STABILITY AND REACTIVITY**

**10.1. Reactivity:**

Stable under all ordinary circumstances at ambient temperatures.

May undergo oxidation, hydrogenate.

**10.2. Chemical stability:**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions:**

None specific.

**10.4. Conditions to avoid:**

Avoid naked flame, prolonged heat, contact with incompatible substances.

Keep away from heat and sources of ignition.

**10.5. Materials to avoid:**

Acids, alkalis, organic solvents, aliphatic and aromatic hydrocarbons, oxidising agents.

**10.6. Hazardous decomposition products:**

None under normal conditions at ambient temperatures.

Combustion products: Carbon oxides.

**SECTION 11. TOXICOLOGICAL INFORMATION**

**General information:**

No significant health hazard in normal industrial use conditions.

Property	Results	Remarks
<b>Routes of Exposure:</b>	At ambient temperature the product is a non-volatile elastic solid. There is no potential for inhalation exposure.	
<b>Acute toxicity:</b>		
Oral	LD50: >20 000 mg/kg bw (rat) (for Cis-1,3-polybutadiene)	FBEPH. BT#001360, 1998
Inhalation	Not classified. No data available	
Dermal	Not classified. No data available	
<b>Irritation/Corrosivity:</b>		
Skin irritation/corrosion	Not classified. Skin contact with melted/heated product may cause serious thermal burns.	
Eye irritation	Not classified. Contact with eyes may cause mechanical damage. Eye contact with melted/heated product may cause serious	



Property	Results	Remarks
	thermal burns. Thermal decomposition products may cause irritation of eye.	
Respiratory tract	Not classified. Thermal decomposition products inhalation may cause irritation of respiratory system.	
<b>Sensitization:</b>		
Skin sensitization	Not classified. No data available	
Respiratory system	Not classified. No data available	
<b>Repeated dose toxicity</b>		
Chronic oral toxicity:	Not classified. No data available	
Chronic inhalation toxicity:	Not classified. No data available	
Chronic dermal toxicity:	Not classified. No data available	
<b>Germ cell mutagenicity:</b>		
In vitro data	Not classified. No data available	
In vivo data	Not classified. No data available	
<b>Carcinogenicity:</b>	Not classified. No data available	
<b>Toxicity for reproduction:</b>		
Effects on fertility	Not classified. No data available	
Developmental toxicity	Not classified. No data available	
<b>STOT - single exposure:</b>	Not classified. No data available	
<b>STOT - repeated exposure:</b>	Not classified. No data available	
<b>Other effects:</b>	none	

## SECTION 12. ECOLOGICAL INFORMATION

### General information:

At normal conditions rubber is a very stable product.

Product does not form toxic compounds with other substances in air and water.

The product is poorly biodegradable but does not pose a hazard to the environment.

Pollution of water ponds and soil with rubber 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.

Property	Value	Remarks
<b>Aquatic toxicity:</b> Not expected to be acutely toxic, but material may mechanically cause adverse effects if ingested by waterfowl or aquatic life.		
Fish:	LC50 (96 h): >100 mg/L <i>Salmo iridus</i> (for Cis-1,3-polybutadiene)	FBEPH. BT#001360, 1998



Aquatic invertebrates:	Short-term toxicity ( <i>Daphnia Magna</i> ) LC100 (48 h): >100 mg/L (for Cis-1,3-polybutadiene)	FBEPH. BT#001360, 1998
Algae and aquatic plants	LC50 (48 h): >100 mg/L <i>Scenedesmus quadricauda</i> (for Cis-1,3-polybutadiene)	
Sediment organisms:	Not classified. No data available	
Toxicity to soil macro-organisms/micro-organisms:	Not classified. No data available	
Toxicity to terrestrial plants:	Not classified. No data available	
<b>Persistence and degradability</b>	No specific ecological data are available for this product. This water-insoluble rubber is expected to be inert in the environment. No appreciable biodegradation is expected.	
<b>Environmental distribution</b>	No specific ecological data are available for this product.	
<b>Bioaccumulation:</b>	Effects on nature due to bioaccumulation are not known.	
<b>Results of PBT and vPvB assessment:</b>	Not classified as PBT or vPvB.	
<b>Other adverse effects:</b>	No information available.	

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

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods:

Disposal should be in accordance with local, state and national legislation.  
Waste water has to be treated.

Packaging waste (paper bags) shall be collected and send for recycling. Plastic waste shall be removed to disposal.

### 13.2. Additional Information

European Waste Code (2001/118/EC):  
19 12 04 plastic and rubber

## 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

### 15.1. EU regulations:

Authorisations: Not applicable.

Restrictions on use: None

### 15.2. National regulations:

None known.

### 15.3. Chemical Safety Assessment:

Chemical Safety Assessment (CSA) is not required for the substance since it is not subject to registration as a polymer according to the provisions of Article 2(9) of REACH.

### Chemical Safety Report has been performed for monomer:

1,3-butadiene (CAS #106-99-0; EC #203-450-8).

## SECTION 16. OTHER INFORMATION

### 16.1 Indication of changes

VERSION	Date of change	Section	Description of changes
Version: 1.0	16/03/2010		First edition created according to recommendations of Regulations (EC) #1907/2006 (Article 31.1).
Version: 2.0	07/02/2011	1.1, 2	Section 1.1, 2 was updated.
Version: 2.1	26/12/2011	1.1; 3; 4; 9; 10; 11; 12; 15; 16	1 Product name BR SKD-2 was renamed into BR -1203 Ti. 2. Section 1.1 was updated. 3. DISCLAIMER was added on the first page. 4. "General information" subsection was added in Section 4. 5 "General" subsection was added in Section 11. 6. "Aquatic toxicity" subsection was added in Section 12. 7. Sections 3, 9, 10; 15, 16 were completely updated.
Version: 2.2	01/11/2013	Content	Section 3: Information about substance composition was corrected (antioxidant CAS #110553-27-0/EC#402-860-6 was added). Formula was corrected. 2. Sections 2; 4; 5; 6; 7; 9; 10; 11; 12 were completely reconfigured. 3. Sections 8; 13; 15; 16 were completely updated.

### 16.2 Relevant R-phrases, Hazard- and EU Hazard-statements

**Labelling: none.**

**R-phrases: none.**

**S-phrases: none.**

### 16.3 Abbreviations and acronyms

DNEL Derived No Effect Level

LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)

LC50	Lethal Concentration to 50 % of a test population
PEC	Predicted No Effect Concentration
PNEC	Predicted No Effect Concentration
PBT	Persistent, bioaccumulative, toxic chemical
vPvB	Very Persistent, Very Bioaccumulative
WGK	Wassergefährdungsklasse ( <i>German: Water Hazard Class</i> )

## 16.4 Key literature references and sources

### EU DIRECTIVES

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Regulations. Commission regulation (EU) no 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

DIRECTIVE 1999/45/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations. Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances.

COMMISSION DECISION of 16 January 2001 amending Decision 2000/532/EC as regards the list of wastes (notified under document number (2001/118/EC).

### NATIONAL REGULATIONS (GERMANY)

Major Accident Hazard Legislation 82/501/EWG.

### NATIONAL REGULATIONS (GERMANY)

Major Accident Hazard Legislation 82/501/EWG.

Russian Register of Potentially Hazardous Chemical and Biological Substances (FBEPH).

Cis-(poly)butadiene. Dossier for potentially hazardous chemical and biological substance # BT 001360, 1998, Ministry of Health of the Russian Federation.

### 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