Reliance Sibur
Elastomers Private Limited
A partnership of excellence

A PARTNERSHIP OF EXCELLENCE

Synthetic rubbers catalogue

CONTENTS

ABOUT US

India's first world-scale Butyl Rubber facility has been set up by Reliance Sibur Elastomers Private Limited (RSEPL) in the Jamnagar, India

Capacity of 120,000 metric tonnes per annum

IIR start-up in 2019, HIIR start-up in 2021

Partnering with customers in 25+ countries across the globe

India's largest private sector company Reliance Industries Ltd and Russia's largest integrated petrochemicals company Sibur have forged a partnership to seize the opportunities within the synthetic rubber industry. This has led to the formation of Reliance Sibur Elastomers Private Limited, a joint venture wherein Reliance holds 74.9 % stake and SIBUR owns 25.1%. This joint venture set up South Asia's first butyl and halogenated butyl rubber production facility at Jamnagar, India with a world scale capacity of 120,000 metric tonnes per annum.

Butyl Rubber is known for its excellent air retention characteristics, apart from very good weather, heat and chemical resistance property in comparison to other general purpose rubbers. These attributes make it first choice of polymer for several critical products like Automotive Inner Tubes, Tyre Curing Bladders and Air Bags, Cable Insulation, Rubber Sheets, Pharmaceutical Closures, Ball Bladders, Sealants, Roofing Membranes, Condenser packing, Printing Rolls, and Acid Tank Linings etc. Special grade may be used even for Chewing Gums. Its unique molecular structure possesses greater delayed elastic response and it's this damping and shock absorption attribute is being utilized in automotive suspension assembly.

Key raw material is obtained from Reliance's Jamnagar refinery, the largest and most complex site with 1.4 million barrels per day (MMBPD) crude processing capacity and a complexity index of 21.1 – the highest in the world. The integration of world-class refinery to our IIR and HIIR plant, ensure an uninterrupted supply of elastomers from RSEPL and in turn secure timely supply of product to our customers.

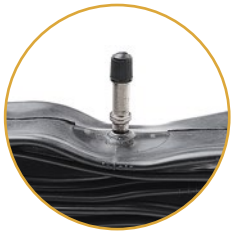
Apart from a successful own production facility, RSEPL is also offering Sibur's essential synthetic rubbers to the Indian market and creating added value to the end-users.

REGULAR BUTYL RUBBER – IMPRAMER R

Inner Tubes for tires

Tire Curing Bladders

Inner Tube Valves



Pharmaceutical Closures

Pond Liners

Butyl rubber is a synthetic polymer, a copolymer of isobutylene with isoprene. The key advantages butyl rubber offers is superlative air-barrier performance with superior flex properties. Butyl Rubber abbreviated as IIR (Isobutylene-Isoprene copolymer) is extensively used to manufacture tire's Inner Tube. It offers matchless ozone & weather resistance along with heat stability.

SPECIFICATION

Parameter	R1675	R1675M	Test Method
Mooney Viscosity ML 1+8 (125°C)	46–56	40–50	ASTM D 1646
Unsaturation, % mol	1.4–1.8	1.4–1.8	RSEPL Test Method
Volatile Matter, % wt	≤ 0.3	≤ 0.3	ASTM D 5668
Non-Staining Antioxidant, % wt	≥ 0.3	≥ 0.3	RSEPL Test Method
Ash, % wt	≤ 0.3	≤ 0.3	ASTM D 5667
Calcium Stearate, % wt	≤ 1.2	≤ 1.2	RSEPL Test Method

BROMOBUTYL RUBBER – IMPRAMER B

Tubeless Tire Inner Liners

Super Clean Pharmaceutical Closures

Ball Bladders

Bromobutyl rubber is a derivative of butyl rubber which is produced by brominating butyl rubber in a continuous halogenation process.

Bromobutyl is very similar to Chlorobutyl in structure and properties. However it has higher reactivity than Chlorobutyl therefore offering highly versatile curing system.

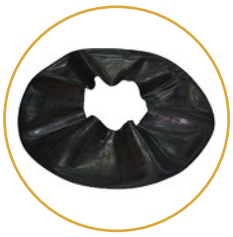
SPECIFICATION

Parameter	B2232	B2239	B2247	Test Method
Mooney Viscosity ML 1+8 (125°C)	28–36	36–42	41–51	ASTM D 1646
Bromine, % wt	1.6–2.0	1.6–2.0	1.6–2.0	RSEPL Test Method
Ash, % wt	≤ 0.7	≤ 0.7	≤ 0.7	ASTM D 5667
Non-Staining Antioxidant, % wt	≥ 0.05	≥ 0.05	≥ 0.05	RSEPL Test Method
Volatile Matter, % wt	≤ 0.7	≤ 0.7	≤ 0.7	ASTM D 5668

CHLOROBUTYL RUBBER – IMPRAMER C

Heavy Duty Inner Tubes

Curing Envelops



Tubeless Tire Inner Liners

Inner Linings for Storage Tanks

RSEPL Chlorobutyl is produced by re-acting IIR with chlorine. Chlorobutyl has ability to Co-vulcanize With other general purpose rubber keeping all the characteristic advantages of butyl and can be used In applications requiring high heat and weather resistance with different curing systems.

SPECIFICATION

Parameter	C1139	Test Method
Mooney Viscosity ML 1+8 (125°C)	33–43	ASTM D 1646
Chlorine, % wt	1.15–1.35	RSEPL Test Method
Ash, % wt	≤ 0.5	ASTM D 5667
Non-Staining Antioxidant, % wt	≥ 0.05	RSEPL Test Method
Volatile Matter, % wt	≤ 0.5	ASTM D 5668

ISOPRENE RUBBER

Isoprene Rubber (IR) has same molecular structure as Natural Rubber (NR). It can be used in NR compounds to provide stable performance resulting in sustainable high quality of finished goods. Isoprene rubber is produced by using the complex catalysts of stereospecific polymerization in solvents.

Depending on the customer needs, SIBUR offers the grades with different viscosity making the tire and rubber goods manufacturing process more effective.

Baby bottle nipples, pacificiers, teething toys

Synthetic rubber cords

- **No protein**
- **Good mechanical properties**
- **High consistensy**
- **Eazy processing**

Shoe Midsoles & Outsoles

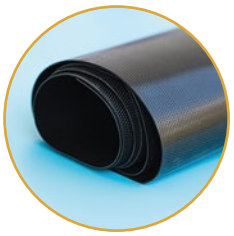
Non-latex rubber bands and tapes

Gaskets for Infusion Caps

Esmarch Bandages

Medical Tubes

Latex-free Rubber Sheets



SPECIFICATION

Parameter	IR 970*	IR 980 NS**
Antioxidant Type	Staining	Non Staining
Mooney Viscosity ML 1+4 (100 °C)	65–74	75–90
Stearic Acid (wt %)	0.6–1.4	0.6–1.4
Applications	Tires for passenger cars and medium / heavy commercial vehicles, conveyor belts, hoses, etc.	Personal care products, shoe midsoles & outsoles, medical tubes, esmarch bandage

Production site: Nizhnekamsk. * IR 970 is conventional grade of synthetic isoprene rubber based on staining antioxidant.
** IR 980 NS is new grade of synthetic isoprene rubber based on non-staining antioxidant.

BUTADIENE RUBBER

- **Excellent abrasion resistance**
- **Low glass temperature**
- **Low heat build up**
- **Eazy processing**

High-cis Neodymium Butadiene Rubber is modified polymeric structure with excellent performance: long service life and high wear resistance, contributing to boost rolling resistance and reduce fuel consumption. This subfamily have narrow molecular weight distribution combined with a low vinyl-content and a very high 1.4-cis content.

Titanium Butadiene Rubber keeps the whole package of characteristics and at the same time demonstrate good balance of performance and processing with the outstanding low-temperature properties.

Lithium Butadiene Rubber is a product of solution polymerization of 1.3-butadiene over organolithium catalyst which is normally could be applied in a variety of applications such as plastics modification and tire formulations.

SPECIFICATION

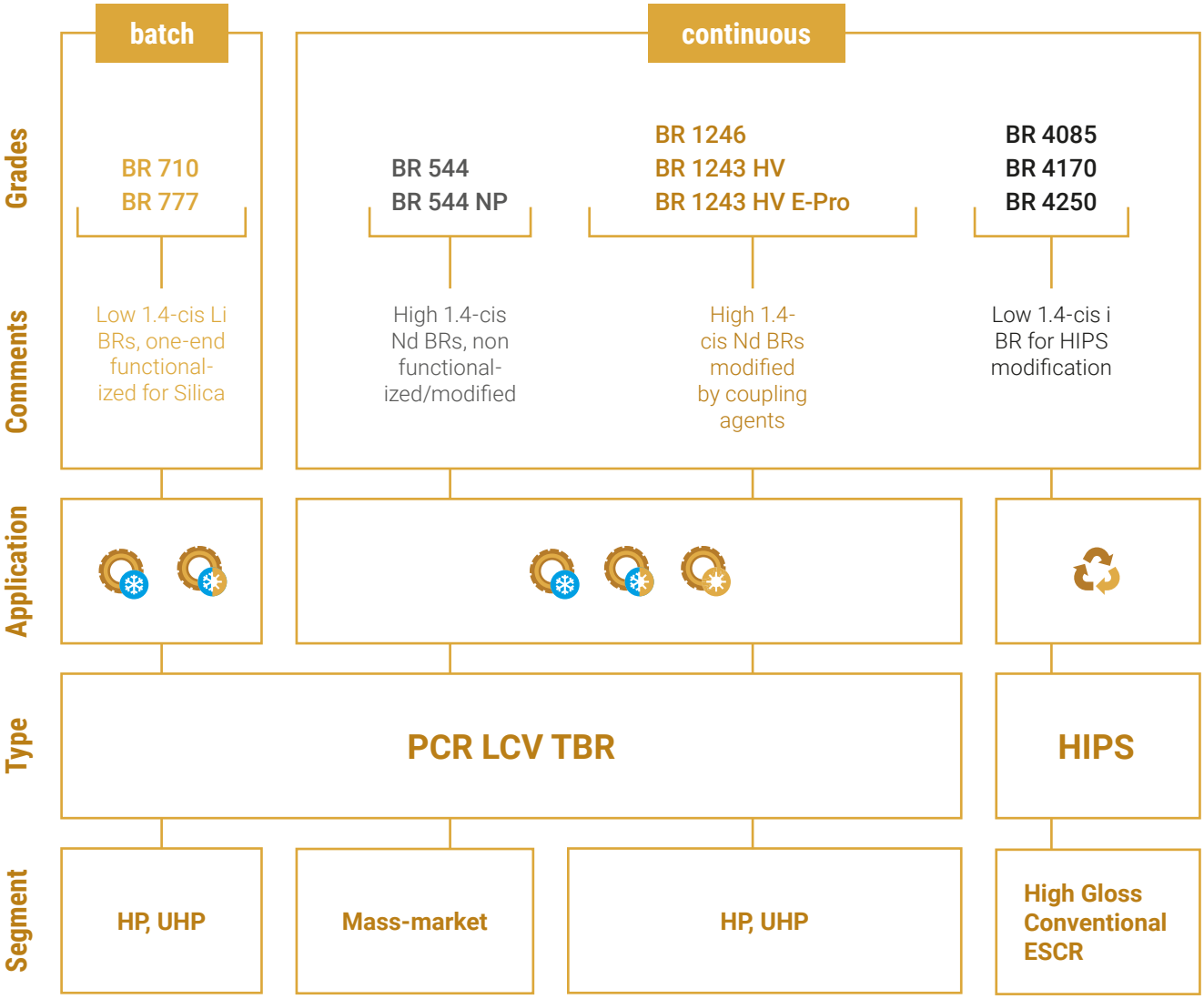
Parameter	BR 544[1]	BR 544 NP[1]	BR 1243 HV[2]	BR 1243 HV E-Pro[2]*	BR 1246[2]*
Cat.	Nd	Nd	Nd	Nd	Nd
Mooney Viscosity ML 1+4 (100 °C)	40–49	40–49	58–68	30–49	40–50
1.4-cis, wt %	≥ 96	≥ 96	≥ 97	≥ 97	≥ 97
Polydispersity Mw/Mn	3.0–4.0	≤ 2.6	≤ 2.6	≤ 2.6	≤ 2.6
Applications	Tires for passenger cars, light commercial vehicles, trucks and buses, retreading, conveyor belts, hoses, shoe soles, etc.				

Parameter	BR 4170[1]	BR 4085[1]	BR 4250[1]	BR 710[1]	BR 777[1]
Cat.	Li	Li	Li	Li	Li
Mooney Viscosity ML 1+4 (100 °C)	45–65	35–55	65–75	50–80	55–85
1.4-cis (wt %)	34–40	34–40	34–40	34–40	34–40
Vinyl (wt %)	10–15	10–15	10–15	9–19	74–80
Solution Viscosity, mPa×s	151–200	30–100	201–280	–	–
Applications	Plastic Modification (high impact polystyrene), rubber goods			Tires for passenger cars, light commercial vehicles, trucks and buses, rubber goods	

Production site: 1 — Nizhnekamsk; 2 — Voronezh
*modified grades

BUTADIENE RUBBER

APPLICATIONS CHART



SOLUTION STYRENE-BUTADIENE RUBBER

- **Reduced rolling resistance**
- **Excellent mechanical properties**
- **High wet grip**
- **Eazy processing**

SSBR is a perfect fit for car tire treads, particularly for high performance tire treads. SSBR gives outstanding strength, abrasion resistance and rolling resistance to products owing to a varying range of microstructure characteristics.

As per customer requirements, SIBUR offers a broad portfolio of SSBR grades: with different microstructures (vinyl/styrene), oil content, Mooney viscosity. Some grades are functionalized by polar groups for the better interaction with such fillers as carbon black and silica

SPECIFICATION

Parameter	SSBR 620*	SSBR 621*	SSBR 628*	SSBR 610*	SSBR 615*
Oil (wt %)	–	–	–	–	–
Mooney Viscosity ML 1+4 (100 °C)	66–80	63–77	68–82	70–84	73–87
Vinyl (wt %)	53–59	61–67	57–63	38–44	27–33
Bound Styrene (wt %)	19–22	19.5–22.5	25–28	9–12	13.5–16.5
Applications	Tires for passenger cars (LRR, HP/UHP), light commercial vehicles, trucks and buses, electric cars				

Production site: Nizhnekamsk
*functionalized grades

Note:
LRR — Low rolling resistance tire;
HP — High Performance tire;
UHP — Ultra High Performance tire

SOLUTION STYRENE-BUTADIENE RUBBER

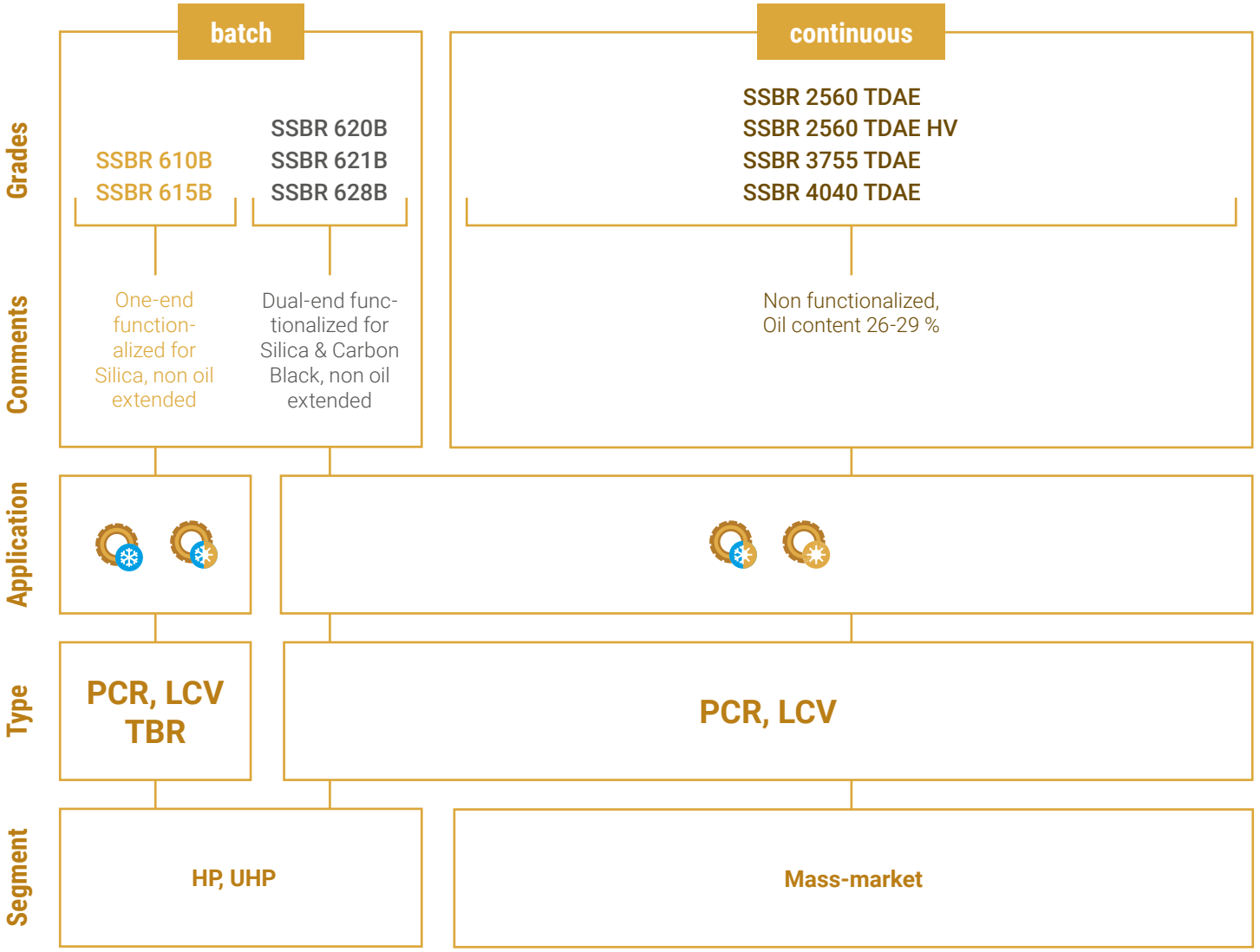
SPECIFICATION

Parameter	SSBR 2560 TDAE	SSBR 2560 TDAE HV	SSBR 4040 TDAE	SSBR 3755 TDAE
Oil (wt %)	26–29	26–29	26–29	26–29
Mooney Viscosity ML 1+4 (100 °C)	46–54	59–67	46–54	65–75
Vinyl (wt %)	61–67	56–70	36–44	52–58
Bound Styrene (wt %)	24–26	23–27	37–41	36–39
Applications	Tires for passenger cars, light commercial vehicles, trucks and buses, electric cars			

Production site: Voronezh

SOLUTION STYRENE-BUTADIENE RUBBER

APPLICATIONS CHART



NITRILE-BUTADIENE RUBBER

- **Oil & fuel resistance**
- **Abrasion resistance**
- **Excellent process-ability**
- **Excellent mechanical properties**

Due to high resistance to aggressive agents NBRs are widely used for manufacture of various oil-and-petrol resistant industrial rubber articles. NBR NT is new subfamily with low chain branching which makes rubber compounding and processing easier.

SIBUR technology of production NBR-PVC allows to significantly increase the homogeneity of PVC distribution in rubber leading to better properties of final products.

Powdered NBR that is used as an impact modifier and non-migrating plasticizer. Compatible with a number of different polymers.

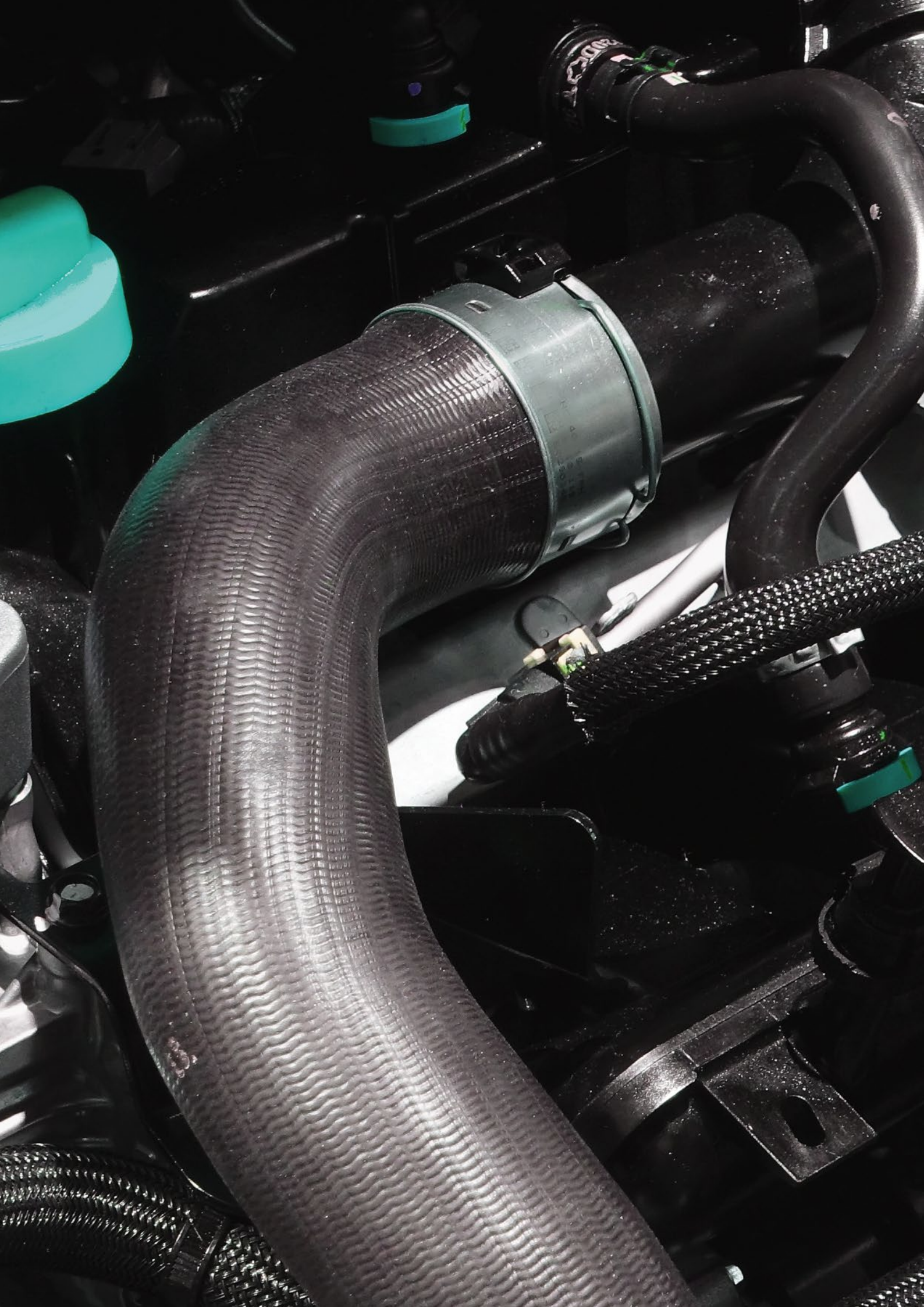
NBR crosslinked obtained by modification on the latex stage. Provides good dimensional stability and impact modification, improves the surface of final products. Upon customers requirements, NBR crosslinked can be produced in powder or bales.

SPECIFICATION

Parameter	NBR 1855	NBR 1865	NBR 2645	NBR 2655	NBR 2665
ACN, wt %	17–20	17–20	27–30	27–30	27–30
Mooney Viscosity ML (1+4) @ 100 °C	52–58	62–68	42–48	52–58	62–68
Applications	Cable insulation, armored hoses, gaskets, seals, packers, etc.		Fuel & oil hoses, floor coverings, foamed products, gaskets, seals, packers, etc.		

Production site: Krasnoyarsk

Note: NBRs with different ACN and Mooney viscosity can be produced according to customers demand



NITRILE-BUTADIENE RUBBER

SPECIFICATION

Parameter	NBR 3335	NBR 3345	NBR 3365	NBR 4065
ACN, wt %	31–35	31–35	31–35	36–40
Mooney Viscosity ML (1+4) @ 100 °C	32–38	42–48	62–68	62–68
Applications	Cable insulation, hoses, rice rubber rollers, gaskets, seals, packers, conveyor & driving belts, etc.			Fuel & oil hoses, armored petrol feeding hoses, gaskets, seals, packers, etc.

Production site: Krasnoyarsk

Note: NBRs with different ACN and Mooney viscosity can be produced according to customers demand

NITRILE-BUTADIENE RUBBER

SPECIFICATION

Parameter	NBR 2665 NT	NBR 2675 NT	NBR 3345 NT	NBR 3440 NT	NBR 3365 NT	NBR 3380 NT
ACN, wt %	27–30	27–30	31–35	34–35	31–35	31–35
Mooney Viscosity ML (1+4) @ 100 °C	62–68	72–78	42–48	37–43	62–68	77–83
Applications	Fuel & oil hoses, floor coverings, foamed materials, gaskets, seals, packers, etc.		Cable insulation, hoses, rice rubber rollers, foamed materials, gaskets, seals, packers, conveyor & driving belts, etc.			

Parameter	NBR 26 PVC 30	PNBR 3355 CL	PNBR 3365
ACN, wt %	18–22	31–35	31–35
Mooney Viscosity ML (1+4) @ 100 °C	50–65 66–88	50–60	61–70
Applications	Cable insulation, hoses, seals etc.	PVC compounds modification, extruded articles modification	

Production site: Krasnoyarsk

Note: NBRs with different ACN and Mooney viscosity can be produced according to customers demand

CONTACT US

Reliance Sibur Elastomers Private Limited
9th Floor, Maker Chambers IV,
222, Nariman Point,
Mumbai – 400 021 Maharashtra.

E-mail Customercare.rsepl@ril.com
Fax No. +91 22 44780431

www.reliancesibur.com