

The background of the entire page is a photograph of a large industrial facility, likely a refinery or chemical plant, at dusk or dawn. The structure is composed of numerous levels of steel walkways, railings, and a complex network of pipes and ducts. Several bright yellow lights are visible, illuminating parts of the structure and creating a strong contrast with the blue and grey tones of the metal. In the upper right quadrant, there is a white octagonal shape containing the SIBUR logo.

**SIBUR**

# NBR CATALOGUE





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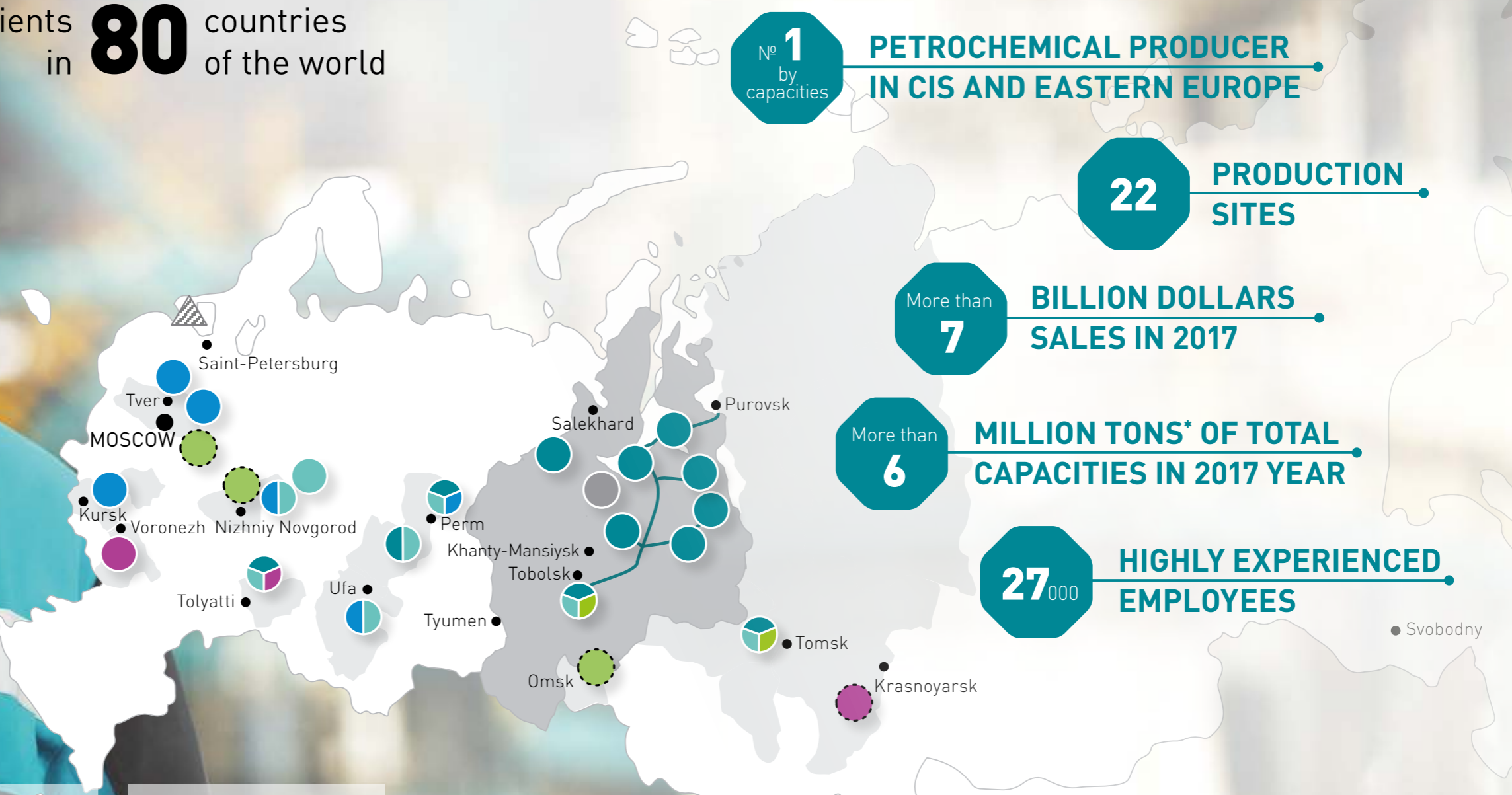




More than  
**1.400**  
clients  
in **80** countries  
of the world

# SIBUR IS A GLOBAL PLAYER

OF THE WORLD'S PETROCHEMICAL MARKET



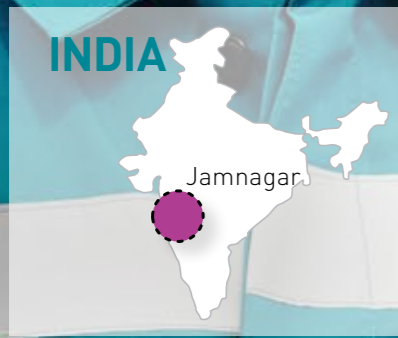
**Nº 1** by capacities  
**PETROCHEMICAL PRODUCER IN CIS AND EASTERN EUROPE**

**22** PRODUCTION SITES

More than **7** BILLION DOLLARS SALES IN 2017

More than **6** MILLION TONS\* OF TOTAL CAPACITIES IN 2017 YEAR

**27,000** HIGHLY EXPERIENCED EMPLOYEES



INTERNATIONAL OFFICES:



- | ENERGY PRODUCTS   | PETROCHEMICALS                 | JOINT VENTURES                  | LOGISTICS                |
|---|--------------------------------|---------------------------------|--------------------------|
| ● gas processing & fractionation, MTBE & other fuel additives | ● basic polymers               | ○ facilities operated under JVs | — raw NGL pipeline       |
|   | ● synthetic rubbers            |                                 | ▲ transshipment facility |
|   | ● plastics & organic synthesis |                                 |                          |
|   | ● intermediates                |                                 |                          |
|   | ● other chemicals              | ○ International offices         |                          |

\* Including facilities operated under JVs.



# SYNTHETIC RUBBERS R&D AND PRODUCTION SITES

WORK SIMULTANEOUSLY TOGETHER TO ACHIEVE SUPERB RESULTS FOR OUR CLIENTS

**SIBUR PRODUCES** a variety of rubbers used to manufacture tyres, rubber technical goods, cable and shoe products, in modern road construction, consumer goods manufacturing, paper industry, and plastic modification.

**INTEGRATED R&D CENTERS** along with production sites carry out scientific and technological research.

SIBUR capacities

## 571 kt

of rubbers at **3** plants

### VORONEZHSINTEZKAUCHUK, VORONEZH

- SBR 80 kt
- BR-Ti 91 kt
- SSBR 40 kt
- BR-Nd 30 kt
- SBS 85 kt

326 kt

### KRASNOYARSK SYNTHETIC RUBBER, KRASNOYARSK

- NBR 42,5 kt

42.5 kt

### TOLYATTIKAUCHUK, TOLYATTI

- SBR 60 kt
- SKI 82 kt
- IIR 60 kt

202 kt

ALL MANUFACTURING FACILITIES ARE CERTIFIED UNDER INTERNATIONAL STANDARDS:

- ISO 9001 (Quality Management)
- ISO 14001 (Environmental Management)
- Reach Registration
- FDA registration

R&D system contains of **4** main centers

### SYNTHETIC RUBBERS R&D CENTER, VORONEZH

#### R&D

- ▶ 78 employees
- ▶ Rubber compounds and TPE compositions testing and research laboratory

#### CLIENT TECHNICAL SUPPORT CENTER

- ▶ 15 employees
- ▶ Technical support team

#### NIOST, TOMSK

- ▶ 12 years of active development
- ▶ 213 employees
- ▶ SIBUR's R&D center for chemical technologies
- ▶ Simulation of real processes in laboratories

#### RESEARCH CENTER, KRASNOYARSK

- ▶ 8 employees
- ▶ Testing and research laboratory
- ▶ NBR product modification and development

#### RESEARCH CENTER, TOLYATTI

- ▶ More than 50 years of active development
- ▶ 44 employees
- ▶ Technical support and technology expertise



# OUR VALUE PROPOSITION

IS BASED ON THREE PILLARS

- № 1** Superior quality and wide product range
- № 2** Services ought to support our clients in achievement of their most ambitious goals
- № 3** Attitude to our clients which results in ease and pleasure doing business with SIBUR



# NBR PRODUCT PORTFOLIO

COMBINES WIDE RANGE OF GRADES AND SPECIAL PROPERTIES

Krasnoyarsk Plant produces more than **20** NBR grades of **5** main groups

## NBR-PVC

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



## NBR STANDARD GRADES

Due to high resistance to aggressive agents NBR is widely used for manufacture of various oil- and-petrol resistant industrial rubber products.



## POWDER NBR (LINEAR)

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



## NBR FAST CURING

Fast Curing grades significantly reduce tendency to residue formation on the curing surface of rubber molds and allow to reduce production cycle time.



## NBR CROSSLINKED

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





# NBR STANDARD GRADES

Due to high resistance to aggressive agents NBR is widely used for manufacture of various oil-and-petrol resistant industrial rubber products. Contains non-staining antioxidant.

## Low acrylonitrile content

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Main characteristics & applications
NBR 1845	17-20	45±3	Great combination of low temperature resistance and elasticity. Medium oil and fuel resistance. Operating temperature range: -30 °C to +120 °C. Application: cables, reinforced hoses, hoses, gaskets, seals, oil seals, packers, coatings.
NBR 1855	17-20	55±3	
NBR 1865	17-20	65±3	

## Medium acrylonitrile content

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Main characteristics & applications
NBR 2645	27-30	45±3	Great combination of oil resistance and low temperature resistance. High oil and fuel, abrasion, heat resistance. Operating temperature range: -30 °C to +120 °C. Application: fuel and oil hoses, gaskets, oil seals, packers.
NBR 2655	27-30	55±3	
NBR 2665	27-30	65±3	

## Medium High acrylonitrile content

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Main characteristics & applications
NBR 3335	31-35	35±3	Maintains the balance between low temperature and oil resistance. Excellent oil and fuel, water, abrasion, heat resistance. Operating temperature range: -20 °C to +120 °C. Application: cables, hoses, conveyor and driving belts, gaskets, oil seals, packers, shoe products, chemically blown sponge, industrial and automotive molded parts, glues.
NBR 3345	31-35	45±3	
NBR 3355	31-35	55±3	
NBR 3365	31-35	65±3	
NBR 3375	31-35	75±3	
NBR 3385	31-35	85±3	

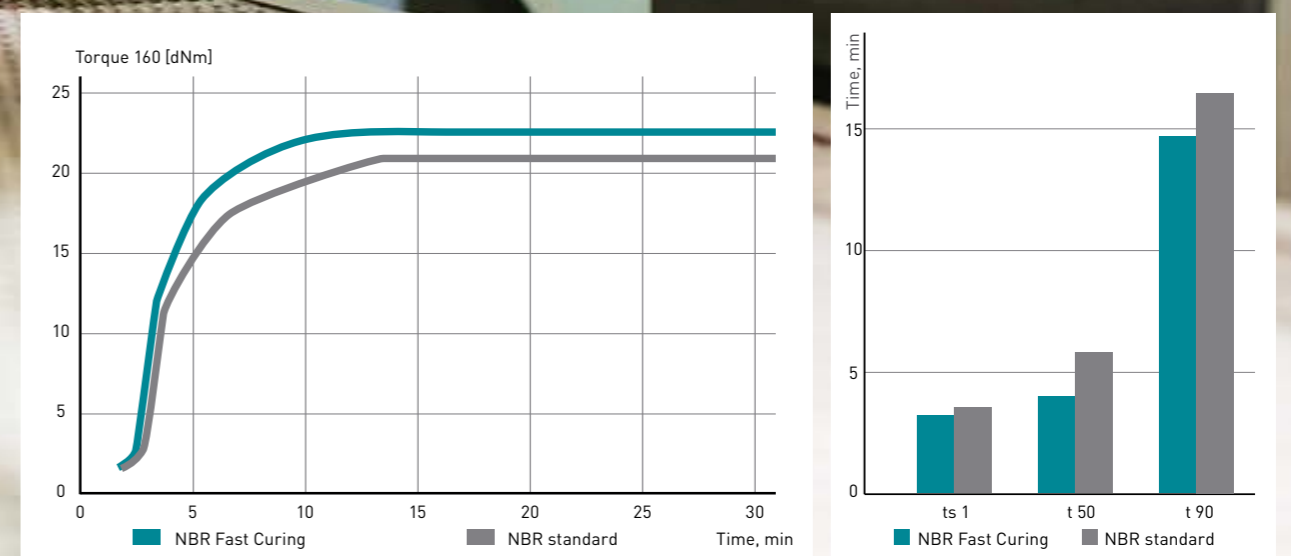
## High acrylonitrile content

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Main characteristics & applications
NBR 4045	36-40	45±3	Highest oil and fuel, abrasion, heat resistance. Operating temperature range: -10 °C to +120 °C. Application: Oil and fuel hoses, gaskets, seals, reinforced hose for transfer oil, petroleum products
NBR 4055	36-40	55±3	
NBR 4065	36-40	65±3	

# NBR FAST CURING

Fast Curing grades significantly reduce tendency to residue formation on the curing surface of rubber molds and allow to reduce production cycle time. Contains non-staining antioxidant.

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Main characteristics & applications
NBR 2645 FC	27-30	45±3	NBR Fast Curing tailored for injection molding applications. Improves the performance of injection molding equipment, reduces mold fouling and wear. Application: automotive and industrial equipment, machinery, molded rubber parts such as seals, membranes, dampers. Also suitable for hoses, conveyor and transmission belts, forming insulating materials, shoe soles.
NBR 2675 FC	27-30	75±3	
NBR 3335 FC	31-35	35±3	
NBR 3345 FC	31-35	45±3	



\*Upon customer's requirements, NBR can be produced with Mooney Viscosity range from 35 to 120, ACN content from 18 to 40%

\*Upon customer's requirements, NBR can be produced with Mooney Viscosity range from 35 to 120, ACN content from 18 to 40%

# NBR-PVC

NBR-PVC is a homogenous mixture of NBR with PVC obtained by joint coagulation of NBR latex with PVC latex. SIBUR technology of production NBR-PVC blend allows to significantly increase the homogeneity of PVC distribution in rubber leading to better properties of final products. Contains non-staining antioxidant.

Grade	Acrylonitrile content (%)	Mooney viscosity ML 1+4 (100 °C)	Acrylonitrile content (blend, wt%)	Main characteristics & applications
NBR-26 PVC-30 grade 1	28-32	50-65	~19	Exceptional resistance to ozone, adverse weather conditions and aggressive environments. Better vulcanizate mechanical properties. Requires less energy for processing, than mechanical blend. Application: cables, seals, membranes, gaskets, packings, hoses, leatherette.
NBR-26 PVC-30 grade 2	28-32	66-80	~19	

# POWDER NBR (LINEAR)

Powdered nitrile rubber that is used as an impact modifier and non-migrating plasticizer. Compatible with a number of different polymers. Contains non-staining antioxidant.

Grade	Acrylonitrile content (%)	Anti-agglomerator (PVC), %	Mooney viscosity ML 1+4 (100 °C)	Particles with less than 1,0 mm, %, not less	Main characteristics & applications
PNBR-3345	31-35	6-12	40-49	99	Modifier in powder form. Improves oil, fuel and grease resistance impact modifier, acts as non-extractable plasticizer, provides excellent dimensional stability. Application: PVC modification - stretch PVC film, hoses, profiles, gaskets, wires and cables, adhesives.
PNBR-3355	31-35	6-12	50-60	99	
PNBR-3365	31-35	6-12	61-70	99	

# NBR CROSSLINKED

NBR Crosslinked obtained by modification on the latex stage. Provides good dimensional stability and impact modification, improves the surface of final products. Subject to customer requirements, NBR Crosslinked can be produced in powder or bales. Contains non-staining antioxidant.

Grade	Acrylonitrile content (%)	Anti-agglomerator (PVC), %	Mooney viscosity ML 1+4 (100 °C)	Particles with less than 1,0 mm, %, not less	Main characteristics & applications
NBR-33 CL (Powder)	31-35	6-12	45-65	99	PNBR Crosslinked in powder was designed for PVC and plastic goods modification. Improves mechanical properties and melt processing. Application: PVC modification, stretch PVC film, hoses, profiles, gaskets, wires and cables, adhesives. The advantages of crosslinked NBR over linear NBR are easily extrusion and calendaring, improved surface characteristics and dimensional stability.
NBR-33 CL (Bale)	31-35	-	35-85	-	



NBR STANDARD GRADES



NBR CROSSLINKED

NBR crosslinked improves quality of finished goods. Typically used in molded parts to provide sufficient molding forces and dimensional stability for extruded and calendared products.



# SIBUR OFFERS WIDE RANGE OF CLIENT-ORIENTED SERVICES

SUPPORTING OUR CLIENTS IN DAILY BUSINESS AND STRATEGICAL DEVELOPMENT

## SUPPLIES GUARANTEE

Safety stock to provide material upon request at a time clients need



## SCHEDULED SHIPMENT

Product shipment within the period strictly specified by the client



## SIBUR ELECTRONIC TRADING SITE

Possibility of interaction via e-commerce channel, which allows both purchase ordering and obtaining additional services



## R&D AND LABORATORY SUPPORT

Usage of SIBUR laboratories and competences to design and rework client's products



## JOINT PRODUCT DEVELOPMENT

Modification of SIBUR product according with the clients requirements



## TECHNICAL SERVICE VISITS

Scheduled and requested visits of technical specialists to the client's factory





