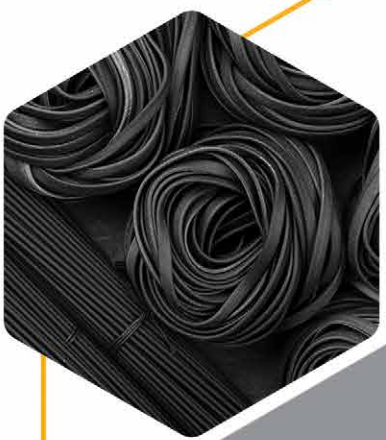
BCS

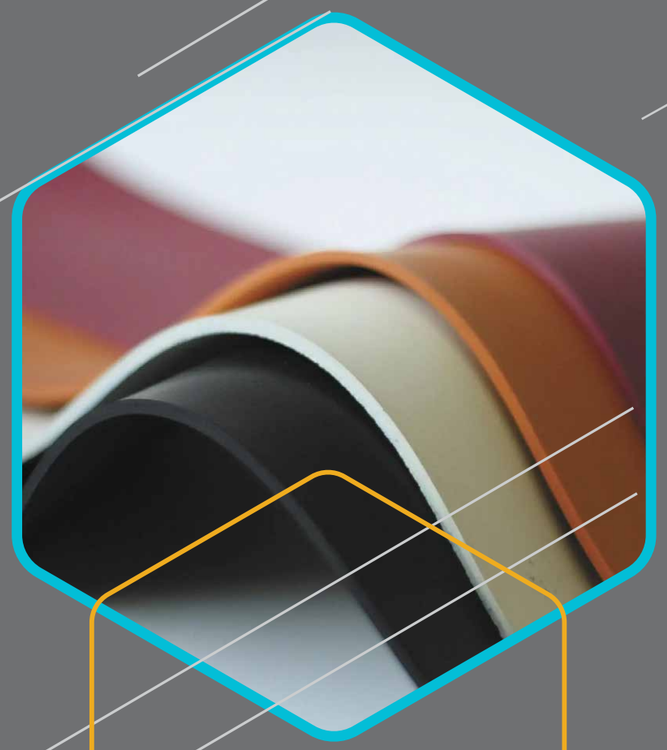
BASPAR CHEMI SEPIDAN



Where science meets innovation

Rubber 2023 Compound

Where Science Meets Innovation



“Where science meets innovation”

Baspar Chemi Sepidan Holding, with the trademark BCSTM, is a knowledge-based startup laboratory focused on developing an innovation ecosystem.The Holding was founded with four main centers: business development and organizational innovation, research and innovation, production sites, and Sales & commercialization offices. Its result is the production and supply of advanced industrial and engineering polymers. It started its activities in 2011 by supplying various polymers for use in different industries such as home appliances, automotive, electrical, construction, etc. Gradually, with the establishment of commercialization offices and market research in different countries such as Germany, Turkey, China, the United Arab Emirates, Taiwan, India, Serbia, Vietnam, Malaysia, South Korea, and Italy, it has succeeded in achieving a leading position in the supply, production, and innovation of polymer products in the country›s industry.

One of BCS›s goals is to expand the value chain by converting raw polymer materials and additives into high-value specialized raw materials. Over the past decade, it has successfully launched several production units for compounds, masterbatches, and rubber compounds. With an emphasis on continuous improvement of product quality and the expansion of knowledge-based activities, BCS equipped and operated a specialized polymer materials laboratory and a research and development (R&D) unit in 2015 and 2016. In 2021, the integration and development of these organizational units led to the establishment of a research and innovation center located at Isfahan University of Technology. All these effective processes have transformed BCS into a leading and technologically advanced knowledge-based production entity with a capacity of over 75,000 tons per year, supplying raw materials and additives for industries such as household appliances, automotive, textiles, construction, agriculture, film and packaging, electronics, rubber, and chemicals in the region.

Baspar Rubber Sepidan Company, as one of the subsidiary companies of BCS, operates in the rubber compound production unit. With access to a complete and advanced production line for rubber compounds, including an automatic weighing system, two banbury mixers with capacities of 75 liters and 35 liters, four roll mills, and a batch-off system, it has provided an annual production capacity of over 2,500 tons of rubber compounds.

The content

Baspar Chemi Sepidan Holding History

2017
- Localization of technical know-how for the production of PP-based compounds obtained from South Korea;
- Localization of technical know-how for the production of the PA-based compounds obtained from the Netherlands;
- Production of compound and masterbatch for use in household appliances, Automotive, films, packaging, and electrical industries;

2016
- Establishment of Research and Development (R&D) Unit in Isfahan Technology University;
- Policy making and design of development projects at production and R&D scales;

2014-2015
- Equipping and establishing a specialized laboratory for polymers;
- Supplying various additives for plastic industries, PVC, dyes, and resins;
- Start of the operations of Baspar Chemi Sepidan factory, First unit, with the production capacity of 30,000 Tons;

2013
- Development of sales capillary networks and market development;
- Design and construction of First Compound & Masterbatch unit;

2012
- Establishment of foreign offices in Germany, South Korea, Turkey, China, India, etc;
- Establishment of logistical and warehouse infrastructures in Tehran;

2011
- Establishment of Baspar Chemi Sepidan Holding;
- Supplying various polymers for different industries;

2018-2019
- Improvement of technical capabilities and registration of products (compound and masterbatch) as knowledge-based products;
- Design and construction of Second Compound & Masterbatch unit;
- Development of organizational, marketing, CRM, financial and logistical systems;

2020
- Start of the operations of Baspar Rubber Sepidan factory, Second unit, with the production capacity of 2000 Tons;
- Design, and construction of Third Compound & Masterbatch unit;
- Establishment of sales offices in Isfahan and Mashhad regions;
- Development of logistical and warehouse infrastructures
- Creation and implementation of a 5-year strategic plan;

2021
- Start of the operations of Sepid Chemi Parto factory,
- Third unit, with the production capacity of 45,000 Tons;
- Establishment of Compound & Masterbatch Research and Innovation Center (R&I);
- Equipping the prototyping workshop in industrial dimensions.
- Increasing the production of Rubber Compound
- Development and implementation of branding and communication roadmap;

2022
- Start of the operations of Research and Innovation Center;
- Exploiting the development plan of Baspar Rubber Sepidan and Sepid Chemi Parto factories;
- Establishment of coworking & workspace;
- Become a member of the Asian Science Park association (ASPA)

2023
- **Design and construction of Forth Compound & Masterbatch unit;**
- **Establishment of Start-up laboratory**
- **Developing of Export roadmap**

Achievements and Honors

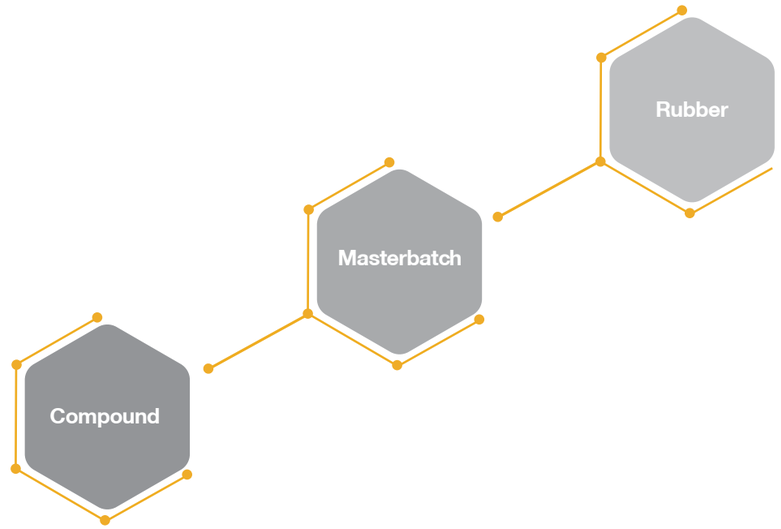
- Holder of knowledge-based company certificate
- **Achieving the top position and Excellence Prize of the Asia Science and Technology Parks Association (ASPA)**
- Receiving the top rank of industry, mining and trade of Isfahan province
- Obtaining the tile of job creating unit in polymer industry from the provinces polymer industry association
- Registration of 40 knowledge-based products
- Achieving more than 150 active grades development in our R&I center.
- Recieved ISO certificates:

[ISO 2015-9001(IQNET)
ISO 2018-10004(QM)
[ISO 2018-10002(QM)
ISO 2015-9001(CSQ)

- Received the title of the best research and development company among technological companies among technological companies in ISTT.
- Obtaining Food grade licence for products issued by medical treatment and education, Ministry of Health and Isfahan University of Medical Sciences
- Member of the Board of Directors of the National Association of Compound and Masterbatch
- Member of the Association of Knowledge-Based Companies of Istahan Province
- Member of Agricultural Engineering and Natural Resources Organization of Isfahan province
- Member of Plastic and Polymer Industry Association of Isfahan province
- Member of Research and Technology Network of Isfahan province
- Member of Tehran and Isfahan Chamber of Commerce

WINNER
Achieving the top position and Excellence Prize of the Asia Science and Technology Parks Association (ASPA)

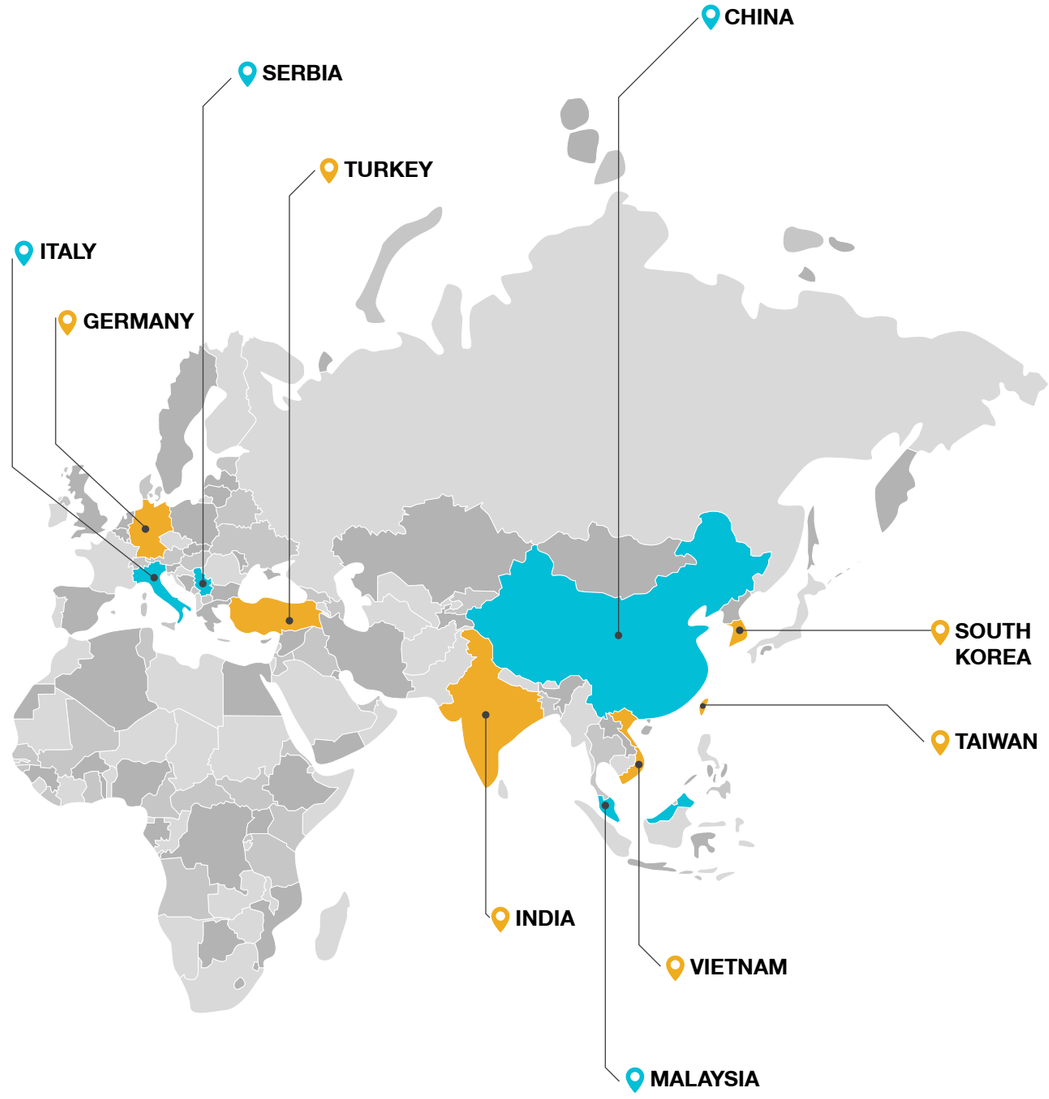
Core production of Baspar Chemi Sepidan Holding



Division	Product
Compound	PE, PP, ABS, SAN, PC, MABS, PMMA, PA
Masterbatch	Color,White,Black,Addetive
Rubber	NR,SBR,PBR,EPDM,NBR,CR,Silicon,IIR,FKM

Offices & Production sites

International offices

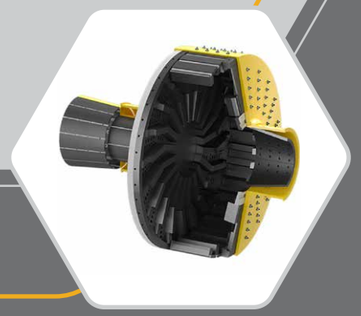


Baspar Rubber Sepidan Activities

one of the BCS holdings subsidiaries

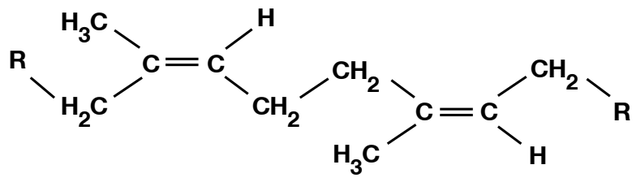
- Home Appliances rubber parts
- Mining Rubber Products
- Research & development center
- BRS Baspar Rubber Sepidan
- Rubber lining
- Automative Rubber parts
- Rubber Compound sheet

Rubber compound products



Natural Rubber (NR)

Natural rubber is a versatile material and ideal polymer for dynamic or static engineering applications.
Natural rubber can also be compounded to add specific properties, such as additional hardness, extra resilience, and sound dampening qualities.



Advantage

- High tensile strength and elasticity
- Good dynamic properties
- High fatigue resistance
- High abrasion resistance
- High tear resistance
- Temperature service (-55 to 70°C)
- Excellent dimensional stability after curing

Application

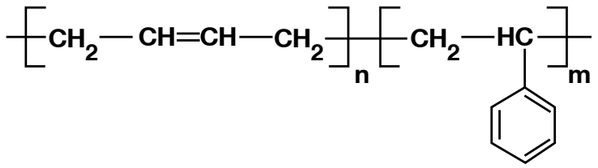
Heavy Equipment
- Shock mounts
- Vibration isolators
- Gaskets
- Seals
- Rolls
- Hose and tubing

Industrial
- Rubber nozzles
- Rubber sheet
- Ducting
- Flooring
- Tires

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
NR Compound						
14501	Black	70-75	19	450	80	Fender
13701	Black	85	12	200	25	Wheel
13201	Black	55-60	12	200	20	Adhesive
13101	Black	55	8	680	20	Rubber lining
14402	Black	70	14.5	260	29	Roll covering
24401	Black	65	11	300	55	Shoe soles

Styrene Butadiene Rubber (SBR)

Thanks to SBR's excellent abrasion resistance and an ability to adhere to metals, SBR compound is a great option for rubber gaskets, seals and other products. SBR compound also excels in extreme temperatures due to good heat resistance and heat-aging qualities.



Advantage

- High abrasion and thermal resistance
- Excellent shockability
- Temperature service (-50 to 100°C)
- Good resilience
- Crack initiation resistance

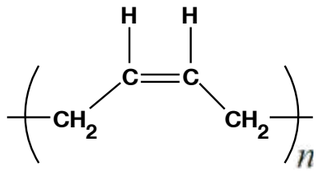
Application

- SBR rubber pads (Mining)
- Synthetic Rubber Seals
- Rubber gaskets
- Custom molded rubber components for plumbing applications

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Sh-A	MPa	%	Kgf/cm	-
SBR Compound						
34702	Black	80-85	10	120	24	Piece
34401	Black	65-70	13	320	35	Rubber Lining
31801	Black	85-90	12.5	140	25	weight lifting
34301	Black	65	8	280	28	Washing machine gearbox lock

Poly Butadiene Rubber (PBR)

PBR Compound has a high resistance to abrasion and is mostly used in the manufacture of tire. For long-term applications, the operating temperature is between 60°C and 100°C, while for short-term applications the operating temperature is between 60°C and 120°C.



Advantage

- High elasticity
- Good abrasion and tear resistance
- High flexibility
- High resistance to dynamic fatigue at low temperatures
- High resistance to wear and cracking

Application

Industrial
- Conveyor belts
- V-belt
- Hose production

Construction
- Wire insulation
- Cable insulation

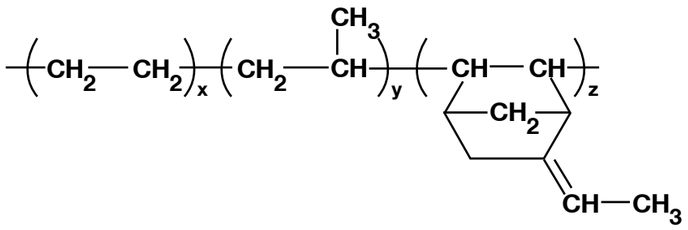
Automotive
- Tire
- Air filled wheel
- Hoses

Sport
- Golf Ball
- Shoe sole

Properties	Color	Hardness	Tensile	Elongation	Tear	Abrasion	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	ASTM D5963	-
Unit	-	Shore A	MPa	%	Kgf/cm	mm3	-
PBR Compound							
41304	Black	60-65	16	370	50	90	Rubber Lining
41301	Black	60-65	13	330	29	70	Rubber Lining
41303	Black	60-65	12	450	40	100	Rubber Lining

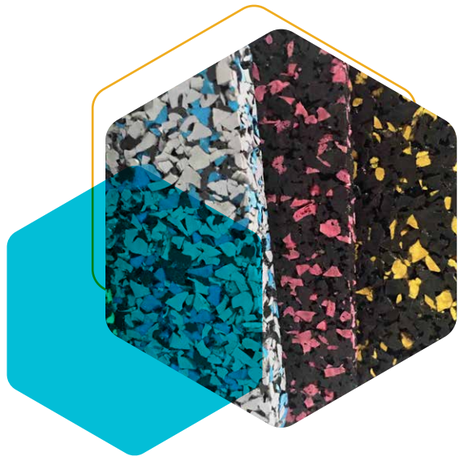
Ethylene Propylene Rubber (EPDM)

EPDM compound is primarily used for outdoor applications due to its excellent resistance to aging cause by weather and sunlight. It's also very stable in high and low temperatures and can last for long periods of time with proper use.



Advantage

- Good weather resistance
- Good acid, ozone, chemical resistance
- Good dynamic properties
- High fatigue resistance
- Good thermal resistance
- Temperature service (-40 to 150°C)

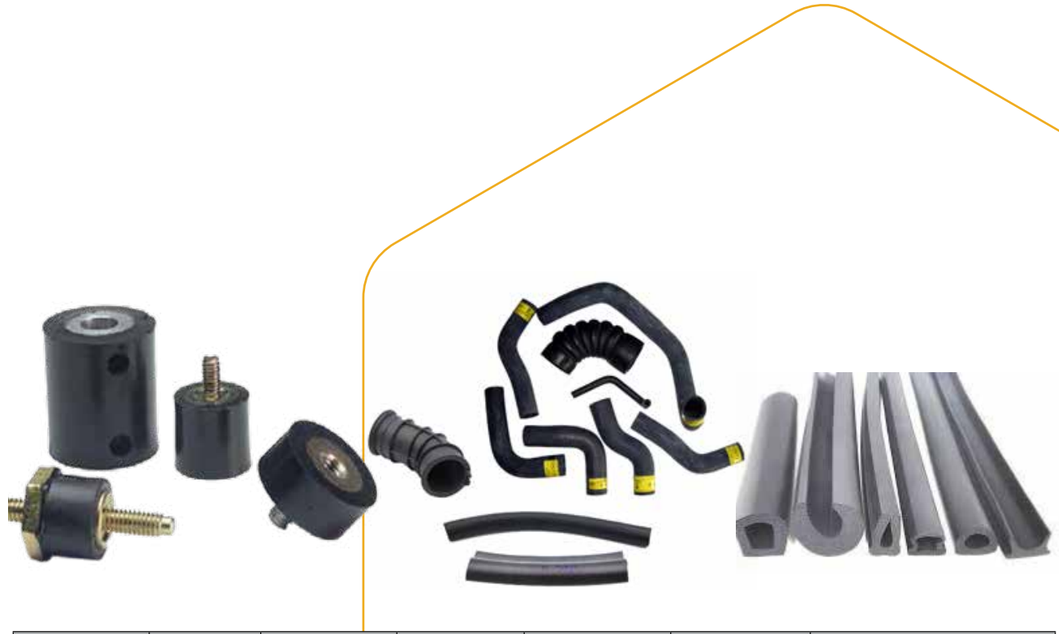


Application

Industrial
- Water system O-rings and hoses
- Tubing, grommets, and belts
- Electrical insulations and stinger cov

Automotive
- Weather stripping and seals
- Wire and cable harnesses
- Window spacers
- Hydraulic brake systems
- Door, window and trunk seals

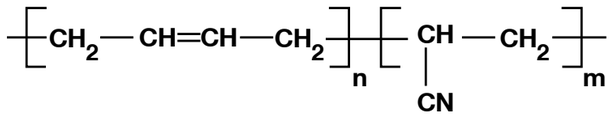
HVAC
- Compressor Grommets
- Mandrel formed drain tubes
- Pressure switch tubing
- Panel gaskets and seals



Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	Mpa	%	Kgf/cm	-
EPDM Compound						
59601	Black	80	7	260	30	Insulation Piece
50303	Black	60-65	10	320	24	Automotive Piece
55401	Black	65-70	11	290	23	Window Gasket
55101	Black	50	11	335	25	Washing machine con-nector
50205	Black	55-60	8.5	560	20	Rubber lining

Nitrile Rubber (NBR)

Nitrile, also known as NBR or Buna-N, is a versatile, general-purpose polymer, with good solvent, oil, water, and hydraulic fluid resistance. These resistances make nitrile rubber Compound excellent for sealing applications. Nitrile rubber can also be compounded for temperatures up to 250°F (121°C), making it a natural choice for industries where resistance to heat aging is a must.



Advantage

- Good oil, chemical and petroleum product resistance
- High abrasion resistance
- Good processability
- Variety of curing systems
- Excellent resistance to hot air
- Temperature service (-40 to 120°C)

Application

Automotive

- Gaskets
- Seals
- O-rings
- Fuel systems
- Hydraulic hoses
- Tubing

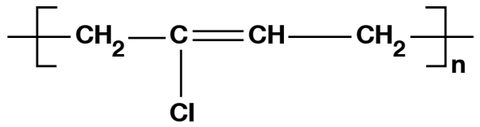
Oil and Gas

- Seals
- Tubing
- Molded shapes
- Rubber-to-metal bonded components
- Rubber connectors

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
NBR Compound						
60201	Black	55-60	12	600	30	Diaphragm
60601	Black	80	13	200	30	Hydraulic packing
60504	Black	70	17	350	50	O-ring
64601	White	80	16	600	50	Oil Seal

Chloroprene Rubber (CR)

Neoprene rubber (CR) is an extremely versatile synthetic rubber, CR Compound is a reasonably-priced multipurpose that can be used in a wide variety of consumer products due to its outstanding toughness and various resistances to flame, oil, chemicals.



Advantage

- Good oil resistance
- Non-flammable
- Good heat resistance
- Excellent resistance to ozone
- Excellent resistance to oxidation and environmental conditions
- Temperature service (-40 to 100°C)

Application

Wire and Cable
- Cable jackets
- Jacketing in lead press cured mining cables
- Conveyer belts
- Industrial hose

Automotive
- Hose covers
- Power transmission belts
- Vibration mounts
- Shock absorber seals

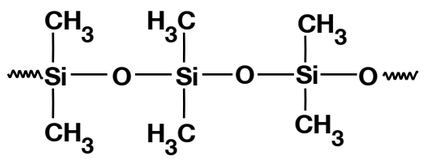
Construction
- Neoprene window seals
- Custom window gaskets
- washers
- O-rings
- Elevator astragals

Mass Transit
- Window seals with a locking strip
- Door and sensitive door seals

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
CR Compound						
76301	Black	65	11	330	29	Piece
76502	Black	70	14	230	24	Roll covering
70501	Black	70-75	20	285	30	Piece

Silicon Rubber (Q)

While some rubber compounds may tear or lose their effectiveness in extreme temperatures, silicone compound operates normally from -100°C to 250°C (-150°F to 480°F). Silicone compound also offers better tensile strength, tear strength, elongation, and compressions at extreme temperatures than standard rubbers compound.



Advantage

- Heat & cold resistance
- Low compression set
- Non-adhesiveness
- Non-flameable

Application

Electrical
- Wire and cable jacketing
- Electrical safety stinger covers
- Conductive profiled silicone seals

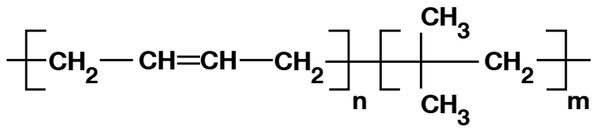
Automotive
- Hoses
- Waterproof connector
- Spark plug boots
- Diaphragms, O-rings

Industrial
- Sound and vibration dampening in automotive drive shaft applications
- Shaft sealing rings
- Window and door seals
- Oven door gaskets

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
Silicon Compound						
80401	Red	75	8	350	17	O-ring
88001	White	50	5	290	11	O-ring

Butyl Rubber (IIR)

Butyl rubber is a copolymer that has exceptionally low gas and moisture permeability. The IIR Compound outstanding resistance to heat, aging, weather, ozone, chemical attack, flexing, abrasion, and tearing. In addition, IIR Compound is resistant to phosphate ester based hydraulic fluids, and has excellent electrical insulation performance. IIR Compound is not recommended for use when in contact with petroleum oils and fluids.



Advantage

- Low gas permeability
- Good acid, ozone, oxygen resistance
- High tensile strength
- Excellent chemicals resistance
- Very good thermal resistance
- Temperature service (-120 to 120°C)

Application

Industrial

- Shock mounts
- Sealant for rubber roof repair
- Tubeless tire liners
- Inner tubes

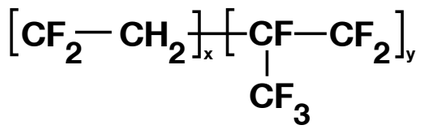
Construction

- O-Rings
- mechanical goods
- Used in sealants and adhesives
- Construction sealants, hoses, and

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
Butyl Compound						
95501	Black	70	7	400	28	Piece

Fluorocarbon Rubber (FKM)

Fluoro-Rubber compound is a high-performance material. This material has a strong reputation as an excellent material in very hot and extremely corrosive environments thanks to its excellent heat stability and resistance to aggressive fuels and chemicals.



Advantage

- Excellent chemical resistance
- Excellent weatherability and ozone resistance.
- Wide temperature range

Application

Automotive

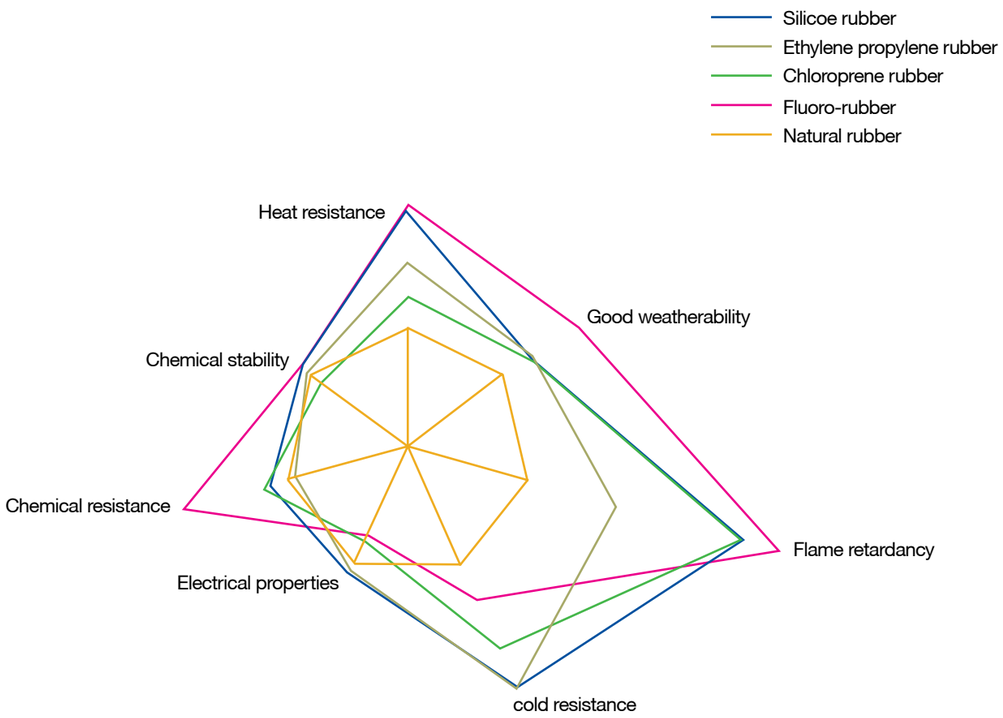
- Gaskets
- Seals
- O-rings

Aerospace & Aircraft

- Manifold gaskets
- Cap-seals
- O-rings used in line fittings,
- Siphon hoses

Properties	Color	Hardness	Tensile	Elongation	Tear	Application
Test Method	Visual	ASTM D2240	ASTM D412	ASTM D412	ASTM D624	-
Unit	-	Shore A	MPa	%	Kgf/cm	-
Fluoro-Rubber Compound						
90301	Black	60-65	14	420	35	Piece
90501	Black	70-75	12.2	330	30	Piece

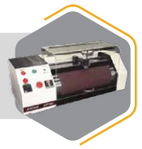
Comparison of properties of various rubbers using natural rubber as a reference



Baspar Rubber Sepidan (BRS) Continuous Process Improvement

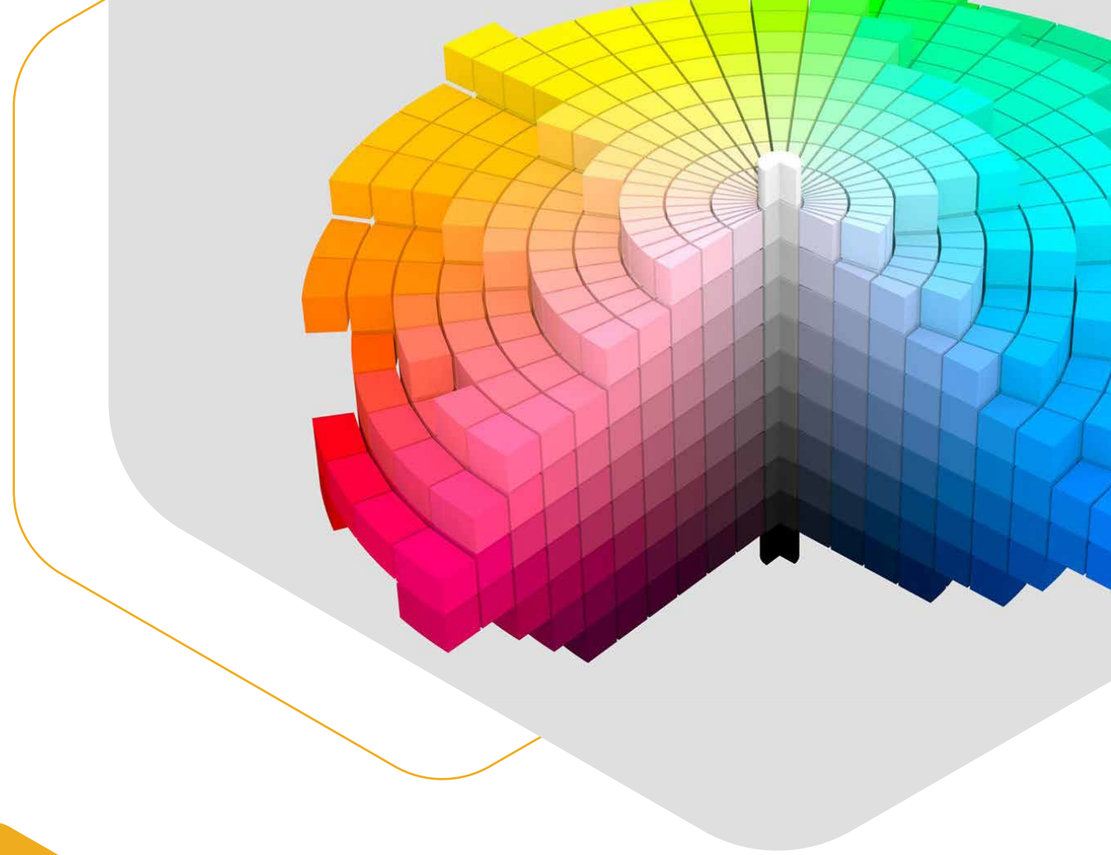
1. Application Definition
2. Knowledge & Resources
3. Formulation &Testing
4. Trial Batch
5. Technical Visit Reports
6. Chemistry Modifications
7. Set Process Levels
8. Continuous Tech Support

Research & development Unit:
The research and development unit of Baspar Rubber Sepidan company with experienced staff and a laboratory equipped with testing devices such as rheometry, tensile, elongation, wear test, pressure resistance, Rheometer, Tensile testing machine,Abrasion, roller and Laboratory press hardness tester, roller and laboratory press, the ability to design formulations according to the customer›s request and carry out the project It has research and technical advice in choosing the right type of compound for production.
carry out the project with choosing the right type of materials for production by research and using of technical device
Baspar Rubber Sepidan (BRS) is one of the leading compounders providing proprietary and standard rubber compounding solutions that address our customers' evolving needs BRS provides wide range of rubber compounds such as NR, SBR, NBR, PBR, EPDM, CR, IIR, Silicone and etc compounds produced based on customer needs BRS helps our customers develop new formulations and materials for innovative new rubber products.

Equipment	property	method	Standard NO.	picture
Rheometer	Vulcanization	Rotorless Cure meters (MDR)	ASTM D2084	
Tensile testing machine	Tensile strength / Elongation	-	ASTM D412	
Tensile testing machine	Tear strength	-	ASTM D624	
Abrasion test	Abrasion resistance	Rotary drum abrader	ASTM D5963	
Durometer	Hardness	Shore A & D	ASTM D2240	
Oven	compression set and Chemical resistance	enviroment temperature High Temperature	ASTM D395	
Lab Hydraulic Press	-	-	-	
Lab two roll mill	-	-	-	

Research & innovation center...

The baspar chemi sepidan Tech center, which has internationally accredited facilities, offers excellent technical services for customers.



Market Development

Technical Service Capabilities

Injection Molding
- Optimization of injection molding process
- Troubleshooting

Extrusion
- Compounding process
- Process analysis by CFD

Material Properties Evaluation
- Laboratory Services
- Material Database
- Reliability Evaluation
- Long - Term Material properties

Product Design
- Design Optimization
- Structural analysis
- Thermal & Mechanical Analysis

Color Development
- Speed
- Accuracy
- Capacity

BCS
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