

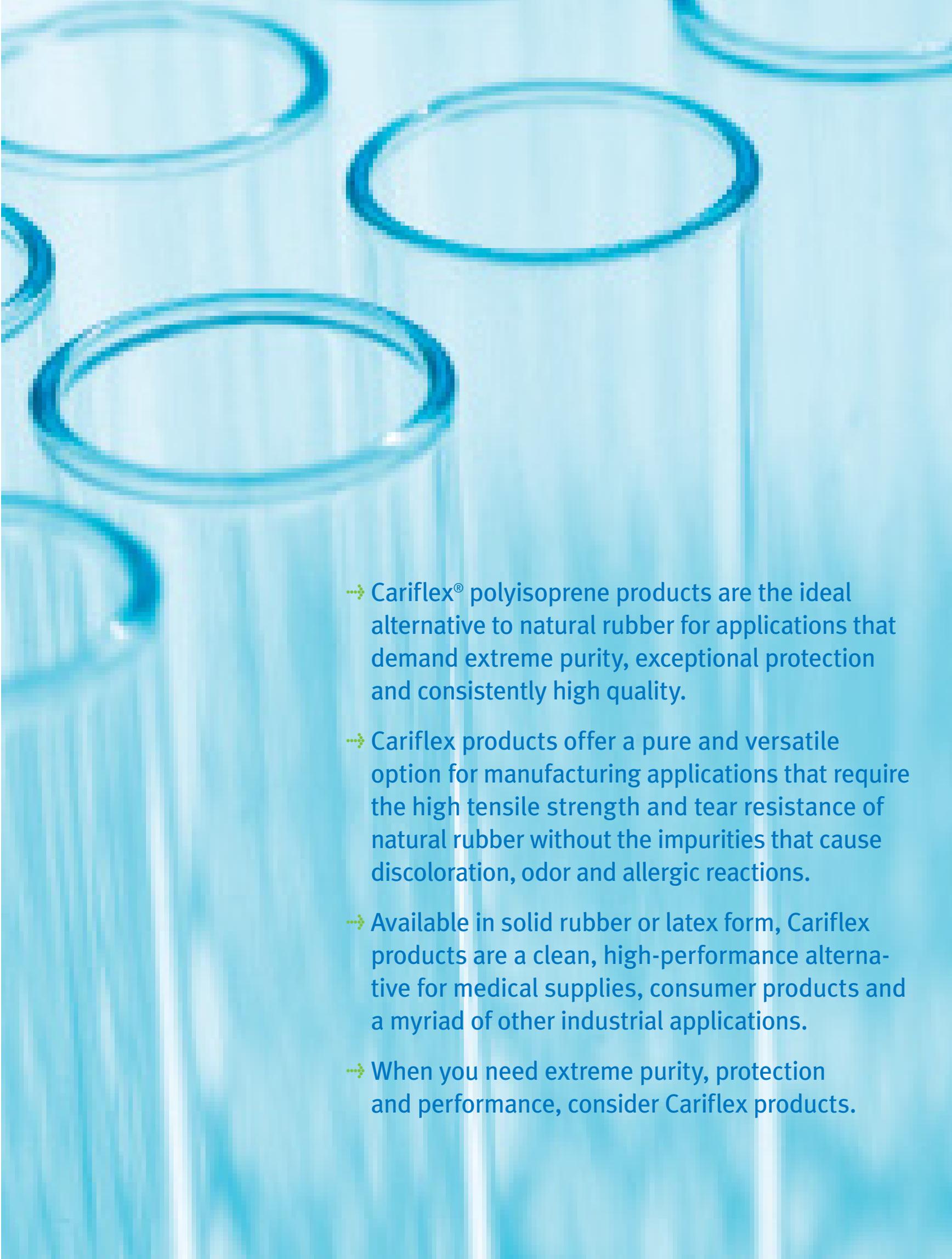
# Cariflex<sup>®</sup>

Polyisoprene Products

## Pure. Strong. Soft.

The perfect balance of comfort, purity and strength in a natural rubber alternative.



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- ❖ Cariflex® polyisoprene products are the ideal alternative to natural rubber for applications that demand extreme purity, exceptional protection and consistently high quality.
  - ❖ Cariflex products offer a pure and versatile option for manufacturing applications that require the high tensile strength and tear resistance of natural rubber without the impurities that cause discoloration, odor and allergic reactions.
  - ❖ Available in solid rubber or latex form, Cariflex products are a clean, high-performance alternative for medical supplies, consumer products and a myriad of other industrial applications.
  - ❖ When you need extreme purity, protection and performance, consider Cariflex products.



## Extreme Purity

Cariflex® polyisoprene products offer a pure alternative to natural rubber for a wide variety of uses.

- Suitable for medical and food contact applications
- Ideal for industrial uses requiring clean chemistries
- Matches or exceeds the performance of natural rubber
- Free of impurities that cause allergic reactions to natural rubber
- Environmentally preferred alternative that contains no chlorine or plasticizers



## Exceptional Protection

Designed to provide a strong physical barrier, Cariflex products offer a blend of purity, protection and comfort that is unrivaled by natural rubber or other available synthetic polymers.

- Meets or exceeds the stringent U.S., EU and Japanese government requirements for protection in surgical gloves, condoms and medical stoppers
- Less susceptible to leaking and coring from needles in medical stopper applications
- Designed to balance strength with softness
- Delivers the perfect blend of comfort and protection in end uses such as surgical gloves



## Extraordinary Comfort

Favored for its superior softness and elasticity, Cariflex products are the material of choice for a variety of dipped goods, including premium surgical gloves that have a comfortable fit and feel.

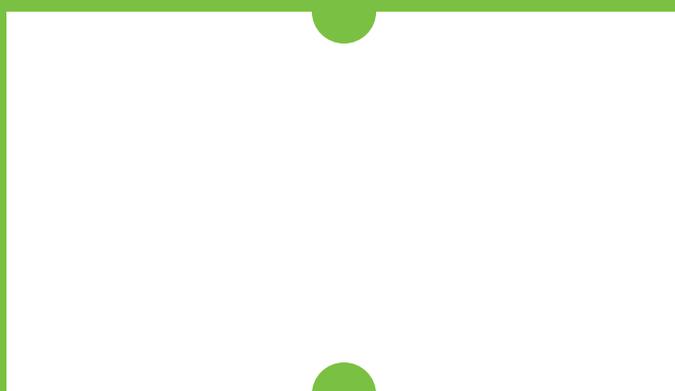
- Soft and pliable to conform to the surgeon's hands
- Skin-like surface finish offers a natural feel and pleasant touch
- Unique softness extends to solid rubber products made from Cariflex
- Ideal for IV and medical bottle stoppers, catheters and needle shields

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## Manufacturing Advantages

Cariflex products have properties that are similar to those of natural rubber – without the impurities.

Manufacturing processes using Cariflex products, whether in solid or latex form, can be performed on existing production lines that were designed for natural rubber just by modifying compound recipes and process parameters. Because it contains no organic solvents, Cariflex polyisoprene latex is a clean alternative that can be substituted for natural rubber latex with minimal capital investment. A synthetic material produced in a precisely controlled environment, Cariflex products are free of the impurities and lot-to-lot variations that are inherent to natural materials. Our consistently high quality simplifies manufacturing processes and enhances quality control.



# Products and Grades

## Solid Rubber

- Manufactured in Belpre, Ohio
- Shipped in 25-kg bales (55 pounds)
- Available in two grades: IR0307 and IR0310

With different molecular weight distributions, each grade performs differently during processing. Your Cariflex IR sales manager can assist you in selecting the grade that is best suited to your equipment and manufacturing processes.

## Polyisoprene Latex

- Produced in Brazil and Japan
- Shipped in 200-liter (55 gallon) steel drums or 1,050-liter (275 gallon) IBC tote containers
- Available in two interchangeable grades: IR0401 BU (Brazil) and IR0401 SU (Japan)

## Simply Better

Cariflex derives its inherent purity from our simple and highly efficient polymerization process. We are the only company in the world using an anionic solution polymerization process to produce this type of synthetic rubber. To further enhance quality and ensure its stability, the latex is pasteurized before shipment.

## Compare Your Options, and Choose Cariflex® Products

Cariflex products are superior, in many respects, to both natural rubber and synthetics produced using titanium/aluminum catalysts. Commonly known as Ziegler-Natta, catalysts of this type leave higher levels of metal residue in the rubber, resulting in a yellowish color and reduced stability that must be addressed by adding substantial levels of antioxidants. Ziegler-Natta catalysts also produce a significant amount of “gel” particles that can have an adverse effect on product quality.

## Comparison between Cariflex polyisoprene rubber, produced in “Ziegler-type” process and natural rubber (NR)

	Cariflex IR	Ziegler IR	NR
1,4-cis content (%w)	91	>96	>98
1,4-trans content (%w)	1.5	0.5	1.0
3,4-vinyl content (%w)	6.5	3.5	<2
Macrostructure	linear	branched	branched
Mw distribution	narrow	broad	very broad
Green strength	low/medium	medium	high
Gel content	zero	medium	high
Ash	low	medium	high
Trace metals (ppm)	<70	400–3,000 (inc. Al)	~1,000
LVN (dl/g)	6–10	2.5–4.5	6–7
Mw (kg/mol)	2,000	1,000	2,000
Mooney visc. (MU)	40–80	60–90	<120
Flow (of compound)	excellent	good	medium/good
Color	white/clear	yellow/amber	dark
Smell	very low/low	low/medium	variable

## Applications

### Medical

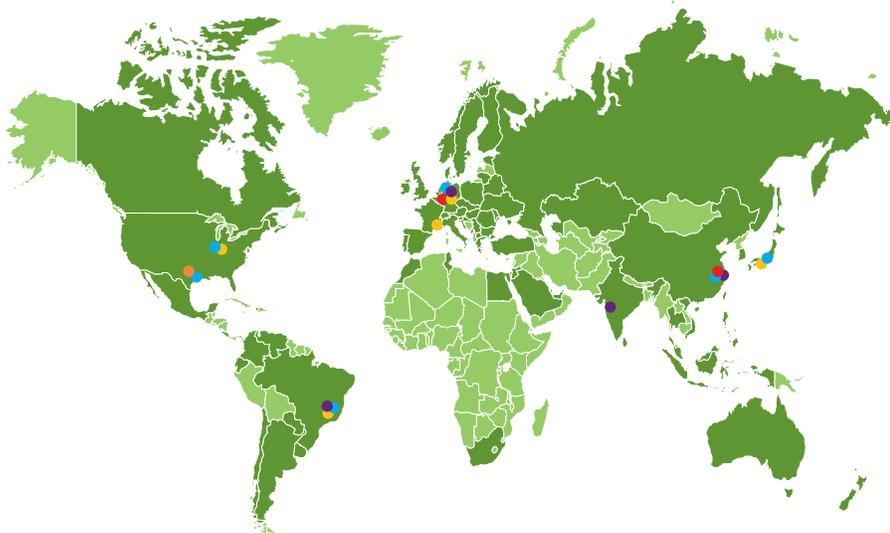
- Surgical gloves
- Catheters
- Tube connectors
- Needle shields
- IV bag and medical bottle stoppers
- Cohesive bandages

### Consumer and Industrial

- Electronics
- Condoms
- Footwear
- Food packaging adhesives
- Paint additives
- Resins

## Company Profile

Kraton Performance Polymers, Inc. is a leading global producer of engineered polymers used to enhance the performance of products that touch virtually every aspect of our lives. The original inventor of styrenic block copolymer (SBC) chemistry in the 1960s, Kraton has a history of innovation dating back more than 50 years. Used in a myriad of applications, Kraton adds utility, value and customer appeal to products ranging from adhesives and coatings, paving and roofing to personal care items, medical supplies, electronic and automotive components. Kraton offers its products to a diverse group of more than 800 customers in over 60 countries worldwide. Dedicated to “Giving Innovators Their Edge,” we also collaborate with manufacturers on custom solutions to specific needs.



## Global Distribution

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- Manufacturing Facility
- Technical Service
- Customer Service

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