
LIQUID POLYISOPRENE RUBBER

Item Model

IR-560 Series

Appearance and Odor

Light yellow, transparent liquid. High-viscosity. Mild odor.

Characteristics

The product maintains viscosity at low temperatures, and does not easily degrade at high temperatures (degradation temperature $>180^{\circ}\text{C}$). It is non-flammable, water and acetone resistant. It has high initial adhesion, low surface tension and low polarity. The product can cross-link with rubber with insulating properties.

Applications and Advantages

The main component of liquid polyisoprene rubber is cis-1,4 polyisoprene. Liquid polyisoprene rubber can enhance the ageing resistance in final products, and cannot be easily extracted by solvent. Also, it can reduce the processing time of rubbers while maintaining their physical properties, and thus lower the cost of production. Moreover, liquid polyisoprene rubber can be mixed with other additives to improve their performance. It has a wide range of applications including tires, belts, rubber tube, sealants, adhesives, etc.

Applications in Tires

Liquid polyisoprene rubber is favored by high-performance tires. It can reduce Mooney viscosity, improve rubber's processability, and reduce transfer. Also, it can significantly enhance tires' controllability and abrasion resistance.

Our product has been widely used in the tire industry, as it can be used in tires' specific components to enhance quality and performance. Examples are as follows:

- Bead filler: improve its processability, stability, and dispersibility
- Sidewall rubber: enhance its stability, surface smoothness and adhesion; reduce its rate of contraction
- Tread: enhance physical performance; improve abrasion resistance, slip resistance, and extrudability
- Buffer layer: enhance the surface smoothness and adhesiveness; reduce the extrusion temperature

Applications in the Rubber Industry

Liquid polyisoprene rubber is also used with other rubber products. These include damping rubber, damping plate, conveyor belt, rubber hose and gasket, etc. Mainly, it can improve processability, reduce Mooney viscosity, and reduce transfer when compounded with other rubbers. Furthermore, with low Volatile Organic Compounds (VOC), it can elongate the products' working life.

Applications in the Pressure-sensitive Adhesive(PSA) Industry

Mixed with other nonpolar rubbers, liquid polyisoprene rubber is used as a pressure-sensitive adhesive (PSA). It helps PSA maintain high strength while enhancing its initial

adhesion. The product has a low glass-transition temperature, and can be used under a wide range of temperatures (especially in cold climates).

Compared with other oils, our product is more stable and stays nonvolatile when heated; compared with other liquid rubbers, our product has better compatibility with natural rubbers; Compared with low-molecular-weight natural rubber made with degradation methods, our product has better heat resistance; compared with general acrylic PSA, our product is less irritating to the human body. The operation process is simple, and can be applied to PSA productions of all scale.

Physical Properties

Parameter	IR-563	IR-565
Appearance	Light yellow, transparent	Light yellow, transparent
State	high-viscosity liquid	high-viscosity liquid
Density(25°C, g/cm ³)	0.92 ± 0.03	0.92 ± 0.03
Viscosity(38°C, Pa·s)	80 ~130	430 ~ 530
Glass-transition temperature (°C)	-63	-63
Application temperature (°C)	-50~150	-50~150
Average Molecular Weight (D)	25,000-35,000	45,000-55,000
Cis 1,4 structure content	>70%	>70%
Flash point (°C)	>300	>300
Suitable solvent	N-hexane, Toluene	N-hexane, Toluene

Package

Packed in steel drums, net weight 15KG/Drum; or packed in polyethylene bags, net weight 2KG/Bag. Shelf life is 24 months.

Transportation

This product does not belong to the Dangerous Goods category. During transport, the product should be protected from fire, rain and extensive sunlight exposure. The product should then be stored in a well-ventilated and dry environment. No direct sunlight is allowed. The ideal storage temperature is room temperature (0°C-40°C).

Handling Precautions

This product is non-flammable, and will not incur fire under normal operating temperature (<300 °C). If accidentally caught on fire due to reasons of improper handling, sand, foam fire extinguisher, carbon dioxide fire extinguisher, or water can be used to control fire; In the event of leakage, physical methods can be applied for retrieval.

Health and Environmental Protection

This product is of low toxicity. It is harmless to the human body, and does not cause allergic reactions upon contact. **The product contains low volatile components and presents few risk to the work environment.**