

Hifax TPO

Offering Functionality And Long-lasting Performance In Single-ply Roofing

For more than 15 years, LyondellBasell's thermoplastic polyolefins (TPO) have been specified by customers for waterproofing membranes. These products are recognized in the industry as tough, versatile materials, combining ease of installation, durability and long service life.

Since their introduction into Europe and the USA more than a decade ago, TPO materials have taken part in a growing success story. Today, membrane producers around the world use LyondellBasell's *Hifax* TPO to address today's demanding waterproofing applications. With a vast range of benefits, it's no surprise that *Hifax* TPO is a widely used single-ply roofing material, which has been in service longer than any other TPO.

Unlike conventional TPOs that are merely mechanical blends of elastomers in a polypropylene matrix, *Hifax* TPO is an alloy of rubber and polypropylene produced simultaneously in the polymerization reactor.

Manufactured using LyondellBasell's proprietary *Catalloy* process technology, these reactor alloys feature uniformly dispersed rubber within the crystalline matrix, enabling control of key properties such as:

- Stiffness and impact balance
- Thermal resistance
- Low-temperature flexibility
- Melt flow rate (grades with a wide range of rates available)
- Low specific gravity

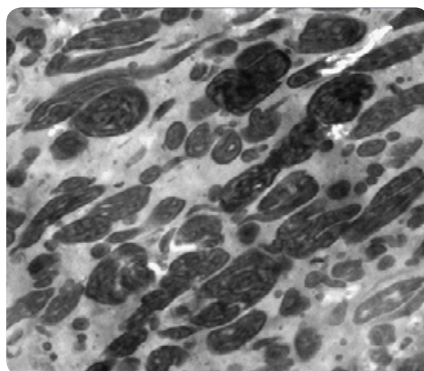
For more information, please contact **Karen Janssens** at +32 478 80.39.34 or email karen.janssens@lyondellbasell.com



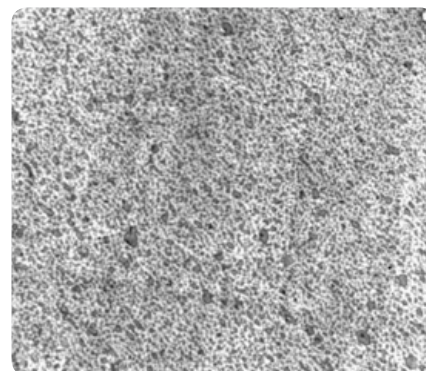
Tempodrome in Berlin, Germany – By courtesy of Sika

Consistent Processing And End-use Properties Through Uniform Dispersion Of The Amorphous Rubber Phase

Pictured below are transition electron micrographs of *Hifax* CA10A and a mechanically compounded grade.



Mechanically compounded grade



Hifax CA10A TPO reactor grade

Note the uniform dispersion of the amorphous rubber phase (dark areas) in the *Hifax* material, which yields more consistent processing and end-use properties.

You can find out more by visiting our website at: lyondellbasell.com

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Hifax TPO Resins Selected For Single-ply Roofing

Hifax and Softell Grades

TPO reactor products that are naturally flexible and heat-weldable, with a long history of proven performance in single-ply roofing.

Reactor Products	Quality, Consistency
Naturally flexible	No risk of change of properties or dimensions due to loss of plasticizers No release of plasticizers in the atmosphere Environmentally friendly
Thermoplastics	Strong, fast, reliable, easy, clean & economical welding on site Fully recyclable Environmentally friendly
High reflectance/emittance when pigmented white/light tints	Minimized heat absorbption, hence energy cost savings Environmentally friendly
Excellent UV performance when properly additivated with UV-heat stabilizers	Long term durability

Hifax and Softell Grades are Base Polymers

Grades require modification with appropriate levels of UV additives, antioxidants, color additives and flame retardants as appropriate before or during the extrusion process.

Properties	Physical Properties			Mechanical Properties				Thermal Properties			Specific Characteristics		
	MFR (230 °C/ 2.16 kg)	Melting temp.	Density	Flexure Modulus	Tensile Strength at Break	Elongation at Break	Hardness		Ductile/ Brittle Transition Temp.	Heat Deflection Temp.	Vicat Softening Temp.	Hot Air Gun-Welding strength	Additive Formulation Package
Test Method	ISO 1133	MTM 15902	ISO 1183 A	ISO 178	ISO 527		ISO 868		MTM 17238	ISO 75B-1, -2	ISO 306 A50	Internal	
Unit	g/10 min	°C	g/cm ³	MPa	MPa	MPa			°C	°C	°C		
Grades													
Hifax													
CA 10 A	0.6	142	0.89	80	20	> 500	30	88	-55	44	56	excellent	STD
CA 212 A	8	142	0.89	80	19	> 500	30	88	-55	44	56	very good	STD
CA 60 A	14	142	0.89	80	18	> 500	30	88	-55	44	56	very good	STD
Softell													
CA 02 A	0.6	142	0.88	20	11	> 500		75	-55		41	good	STD



Basketdome in Athens (Greece) – By courtesy of Flag

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