

High-performance polyolefin and styrenic compounds

For extrusion and thermoforming applications



A premium surface finish

Your customers can count on long-lasting protection against chips and scratches with our LYB high-performance polyolefin and styrenic compounds. Our innovative solutions enable paintable and paint-free applications that look as good as they last – even in the harshest outdoor environments. And last they will, with fade-resistant color retention and stain resistance, combined with a strength that goes right through to the core.

The flexibility and the versatility of these remarkable materials make them a cost-effective replacement for many traditional materials, allowing you to differentiate and customize your applications.

The secret is in the science

These weatherable polymers are the future of surface finish technology and an innovative approach to Class “A” decorative surfaces. This patented thermoplastic olefin technology is suitable for a variety of processes, including thermoforming, film and sheet extrusion and profile extrusion. Parts formed from these resins exhibit high resistance to bubbling, chipping, staining and fading and provide superior color and product protection.

These materials are based on TPO, ASA, ASA/PC and ASA/AES polymers and offer a broad range of engineered properties that can be customized for your unique application needs. They offer exceptional UV resistance, lasting durability, extreme toughness, paintability and excellent color retention, and they are available in a broad range of gloss levels and custom colors.

Your materials of choice

The LYB polyolefin and styrenic compounds offer superior advantages over conventional materials including painted metal or plastic, laminated paint films, acrylic laminates and coatings:

- High-quality appearance with mold-in-color technology and paintable applications for class “A” finishes
- No chipping or cracking – even in extreme temperatures or high-stretch thermoforming processes
- Process versatility
- Customized color and color-matching
- Cost-effective performance
- Designed for recycling



Enhanced polyolefin and styrenic polymer systems

Markets/applications



Agriculture and heavy equipment

Resistance to fading from environmental exposure, as well as protection from fertilizers, pesticides and other chemicals, make these polymers perfect for combines, tractors and other large farm machinery. Another added benefit is a higher tolerance toward cracking under vibrational loads. Enhanced polyolefins can be applied to a variety of applications including roof, hood, fender and other body panels.



RV, heavy truck and bus

Enhanced polyolefins are suitable for large transportation applications such as heavy trucks, buses and RVs. Side and roof panels, bumper covers, fender skirts, AC shrouds, propane tank covers, nose cones and interior decorative finishes are just some of the many applications in this market.



Power sports

Snowmobiles, ATVs, jet skis and motorcycles are all perfect applications for enhanced polyolefins which are not only impact-resistant, flexible, durable and ductile under sub-zero temperatures but also lightweight and fade-resistant. Side panels, wheel covers, hood panels and other areas are a great fit for these polymers.



Industrial components

Stiffness, ductility and resistance to weather, chemicals, stress and vibrational cracking make enhanced polyolefins ideal for shrouds, housings and panels in high abuse environments.



Personal watercraft

Power and pontoon boats along with kayaks all benefit from enhanced polyolefins which are lightweight, durable and can withstand constant environmental exposure. Applications can range from interior consoles and headliners to rail skirts and storage compartments.



Lawn and garden

Personal use lawn and garden equipment, such as mowers and garden tractors, gains added resistance from chipping, cracking and bubbling by using enhanced polyolefins. These polymers are ideal for applications like wheel wells, vehicle hoods and body panels.



Automobile

LYB provides comprehensive color-matching capabilities, catering to a broad spectrum of automotive market needs, from solid shades to pearlescent and metallic finishes.

Select the LYB capstock grade that’s right for you

These capstock resins provide many exciting benefits in performance and appearance with a broad range of gloss levels depending on your application requirements

Capstock Grades							
Properties	Method	Units	Polytrope STR	Polytrope STR	Indure	Polytrope STR	Hifax
			3035EU-01 UV NAT	3571EU-01 UV NAT	E1500HG UV NAT	3566-01 UV NAT	ETA4161 UV NAT
GENERAL							
Melt Flow Rate	ISO 1133	g/10 min	0.4	4.5	2.5	3	0.5
Specific gravity	ISO 1183	-	1.06	0.93	0.9	0.9	0.91
Hardness	ISO 868	Shore D	74	70	70	74	70
Gloss - Smooth Sheet After Forming	Gardner 60°	-	2-10	<20	85-95	85-95	30-40
THERMAL							
Heat Deflection @ 0.45 Mpa	ISO 75	°C	75	76	72	77	80
Heat Deflection @ 1.80 Mpa	ISO 75	°C	50	50	48	50	50
MECHANICAL							
Flex Modulus	ISO 178	MPa	1900	750	950	1000	1200
Tensile Yield Strength	ISO 527	MPa	24	21	25	24	25
Tensile Elongation at Break	ISO 527	%	410	510	500	500	250
		Key Attributes	Durable, Low Gloss, Hard Mar Resistant Surface	Excellent Clarity, Low Gloss, Durable	High Gloss Polyolefinic Cap Layer	High Clarity, Gloss, Improved Durability, Non-Blush	Cap Layer To Promote Reduced Stress Whitening

Select the LYB TPO grade that's right for you

Offering a broad product portfolio that has been designed to meet property performance balance through a diverse offering of stiffness, impact and thermal expansion properties

			Sheet Extrusion Grades									
Polytrope STR		Polytrope STR	Sequel	Sequel	Sequel	Sequel	Sequel	Sequel	Sequel	Sequel	Polytrope STR	Polytrope STR
1025 UV Natural		1026EU-01 UV Natural	E3400 UV NAT	E3400 NON UV NAT	E3200 UV NAT	E3200 NON UV NAT	E3200 UV NAT	E3200 NON UV NAT	E3200 UV NAT	E3200 NON UV NAT	1050EU-01 UV Natural	1050EP-01 NON UV Natural
Properties	Method	Units										
GENERAL												
Melt Flow Rate	ISO 1133	g/10 min	1.00	0.75	0.70	0.60	0.75	0.75	0.50	0.50	0.70	
Specific gravity	ISO 1183	-	0.99	1	1.12	1.12	1.08	1.08	1.14	1.14	1.16	
Hardness	ISO 868	Shore D		72	67	66	66	66	68	68	70	
THERMAL												
Flame rating type, all colors	-	Internal	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB
Heat Deflection @ 0.45 Mpa	ISO 75	°C	94	98	102	95	85	85	114	114	117	
Heat Deflection @ 1.80 Mpa	ISO 75	°C		57	56	52	49	49	57	57	57	
CLTE, -30°C to 80°C	ASTM E228	10-5/°C	9.9		4.8	5	5.5	5.5	4	4	5.4	
MECHANICAL												
Flex Modulus	ISO 178	MPa	1725	1930	2100	2100	1450	1450	2950	2950	3800	
Tensile Yield Strength	ISO 527	MPa	21	27	21	22	21	21	24	24	31	
Tensile Elongation at Break	ISO 527	%	>200	>475	>200	>500	>500	>500	300	300	180	
IMPACT												
Izod Impact Strength @ 23 °C	ISO 180	kJ/m²	82	54	82	64	67	67	55		36	
Izod Impact Strength @ -30 °C	ISO 180	kJ/m²	7	5.5	7	6.5	4.8	4.8	4.5		3.1	
Multi Axial Impact, Total Energy (2.2 m/s) -15°C	ASTM D3763	J		17	51	48	40	40	44	44		
Failure Mode -15°C, (D-Ductile, B-Brittle)	-	D/B		100% B	100% D	100% D	Partially D	Partially D	100% D	100% D		
Multi Axial Impact, Total Energy (2.2 m/s) -30°C	ASTM D3763	J	47.4		57	39	28	28				
Failure Mode -30°C, (D-Ductile, B-Brittle)	-	D/B	100% D		100% D	100% D	B	B				
Key Attributes			For applications requiring lower stiffness and high impact.	For applications requiring lower stiffness. Commercially approved for automotive trim applications.	Excellent balance of high stiffness and high impact. Improved melt strength for thermoforming.	Excellent balance of high stiffness and high impact. Improved melt strength for thermoforming. Adjusted for full paint applications.	Adjusted for cost sensitive applications requiring less impact and thermoformability.	Adjusted for cost sensitive applications requiring less impact and thermoformability. Modified for full paint applications.	Designed for high modulus and toughness. Modified for full paint applications.	Designed for high modulus and toughness. Modified for full paint applications.	Balances toughness and exceptionally high stiffness with low temperature impact.	

Select the flame retardant system that's right for you

Our broad portfolio of PP Based polymers can be customized to fit your sheet extrusion and thermoforming processes

Flame Retardant Grades (TPO)						
Properties	Method	Units	Sequel	Polyflam	Polyflam	Polytrope STR
			E3400FR	14N2006	14N5003	2030 EU-01
GENERAL						
Melt Flow Rate, (230 °C, 2.16 kg)	ISO 1133	g/10 min	0.87	1.40	12	0.70
Specific gravity	ISO 1183	-	1.26	1	1	1.31
THERMAL						
Heat Deflection @ 0.45 Mpa	ISO 75	°C	103		85	91
Heat Deflection @ 1.80 Mpa	ISO 75	°C	56			
CLTE	ASTM E228	10-5/°C	5.3			5.4
MECHANICAL						
Flex Modulus	ISO 178	Mpa	2200	1240	1210	2100
Tensile Yield Strength	ISO 527	MPa	20	24	24	19
Tensile Elongation at Break	ISO 527	%	>150	500	300	430
IMPACT						
Notched Izod @ 23 °C	ISO 180	kJ/m²	38	78.4	42	12.7
Notched Izod @ -30 °C	ISO 180	kJ/m²	4			3.1
Multi Axial Impact, Total Energy (2.2 m/s) -15 °C	ASTM D3763	J		35		35
FLAME RATING TYPE						
All Colors	UL	UL@3.0 mm	V1	V0	V0	VO
	Key Attributes		For applications requiring UL 94 V-1 flame retardancy.	For applications requiring UL 94 V-0 flame retardancy.	For injection molding applications requiring V-0 flame retardancy for use as extruded part accessories.	For applications requiring UL 94 V-0 flame retardancy.

Select the weatherable polymer systems that’s right for you

Our broad portfolio of ABS, ASA, ASA/PC and ASA/AES polymers can be customized to fit your sheet extrusion and thermoforming processes

Co-Extrusion Sheet Grades						
Properties	ASTM Standard	Units	Centrex	Centrex	Centrex	Diamond
			485 CS	825A	833A	ST 4800
GENERAL						
Resin Type			ASA - Low Gloss		ASA/AES	ASA/TPE
Melt Flow Rate - (200°C, 5 kg)	D 1238	g/10 min				ABS
Melt Flow Rate - (220°C, 10 kg)	D 1238	g/10 min	5	12	10	0.8
Melt Flow Rate - (230°C, 3.8 kg)	D 1238	g/10 min	1.5	3	1.2	7.3
Specific gravity - (23°C)	D 792	-	1.06	1.05	1.05	1.2
Hardness	D 785	Scale	69R	104R	89R	1.02
Gloss Sheet/Profile - (60°)	D 523	-	20	90	95	101
Gloss, Formed Sheet - (60°)	D 523	-	10	90	90	46D
THERMAL						
Vicat - (1 kg, 120°C/hr)	D 1525	°F	212	215	195	8
Heat Deflection Temperature Under Load, Unannealed - (66 psi, 0.125")	D 648	°F	188	198	185	90
Heat Deflection Temperature Under Load, Unannealed - (264 psi, 0.125")	D 648	°F	155	172	159	101
MECHANICAL						
Tensile Modulus - (73°F, 0.2 in/min)	D 638	psi	210k	331k	294k	169
Tensile Stress at Yield - (73°F, 0.2 in/min)	D 638	psi	3844	6400	5105	6019
Tensile Stress at Break - (73°F, 0.2 in/min)	D 638	psi	2285	4800	4100	4612
Tensile Elongation at Break - (73°F, 0.2 in/min)	D 638	%	50	35	35	17
Flexural Modulus - (73°F, 0.05 in/min)	D 790	psi	1380	305k	249k	276k
Flexural Stress at Yield - (73°F, 0.05 in/min)	D 790	psi	5600	7005	5206	
IMPACT						
Izod Notched Impact Strength - (73°F, 0.125")	D 256	ft-lb/in	2.4	3.9	9.17	8
Izod Notched Impact Strength - (-22 °F, 0.125")	D 256	ft-lb/in		1.7	2.5	
Instrumented Impact, Total Energy - (73°F, 0.125")	D 3763	J	24	38	43	4.11
Instrumented Impact, Total Energy - (-30°F, 0.125")	D 3763	J	6	12	30	
		Key Attributes	Low gloss. 10 - 20 @ 60°	High gloss. 90+ @ 60°	High gloss. 90+ @ 60°	Ultra high impact resistance.

About us

We are LyondellBasell (LYB) – a leader in the global chemical industry creating solutions for everyday sustainable living. Through advanced technology and focused investments, we are enabling a circular and low carbon economy. Across all we do, we aim to unlock value for our customers, investors and society. As one of the world's largest producers of polymers and a leader in polyolefin technologies, we develop, manufacture and market high-quality and innovative products for applications ranging from sustainable transportation and food safety to clean water and quality healthcare. For more information, please visit www.lyb.com or follow [@LyondellBasell](https://www.linkedin.com/company/lyondellbasell) on LinkedIn.

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