

Catalloy Reactor TPOs

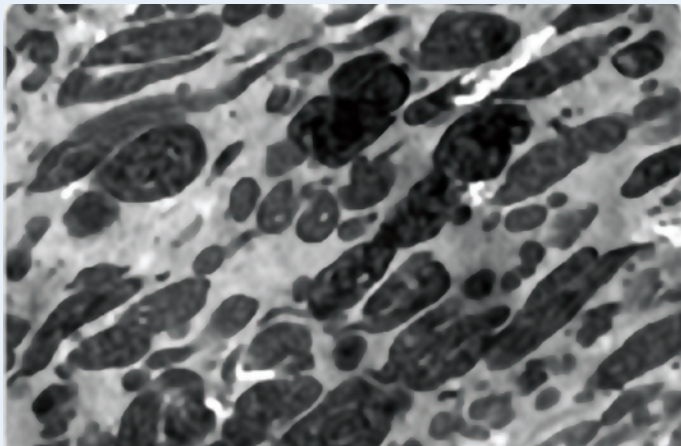
Innovative materials for sheet extrusion and thermoforming applications



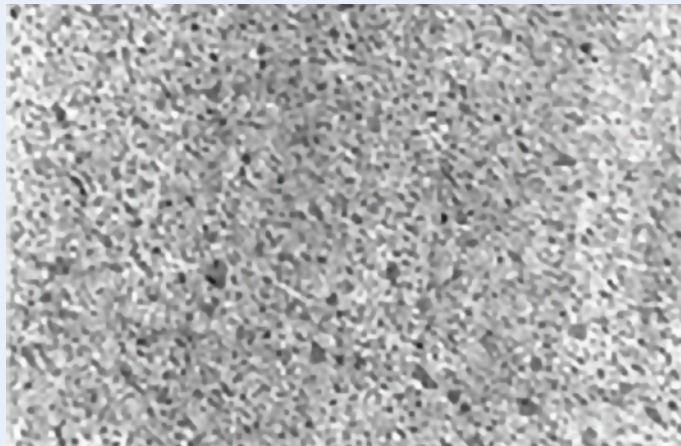
Product information

Catalloy process resins are reactor thermoplastic polyolefins (reactor TPO) that combine the thermal advantages of polypropylene (PP) with the high impact capabilities of ethylene-propylene rubber (EPR). The process manufactures reactor-based alloys which feature high amounts of uniformly dispersed rubber within the crystalline PP matrix, enabling a unique property balance which cannot be achieved using conventional PP and polyethylene (PE) resins.

Photos taken at same magnification.



Conventional mechanically-compounded TPO



Hifax CA10A Catalloy reactor TPO

The proprietary, multiple gas-phase reactor, *Catalloy* process produces unique grades such as *Hifax*, *Adflex*, *Softell* and *Hiflex* reactor TPOs. These product families offer enhanced properties compared to conventional PP and PE resin. These enhanced characteristics include:

- High coefficient of friction (COF) for anti-skid properties
- Ability to maintain physical properties at high and low temperatures
- Excellent puncture and tear resistance
- High dimensional stability (low CLTE)
- Light weight compared to compounded TPO's (Density = 0.88 g/cc)
- Compatible with PP and PE (in both compounded and coextruded solutions)
- Products with unique flexibility, appearance and haptics
- Ability to incorporate high filler loading while maintaining a good physical property balance
- Achieve long-term durability and colorfastness requirements for indoor/outdoor applications when properly stabilized
- Good chemical resistance, similar to PP
- High melt strength and grain retention during thermoforming process

Application examples



Floor mats
& mud flaps



Truck flooring
& cargo liners



Marine flooring



Instrument
panel skins



Building &
construction

"Note: Transmission Electron micrographs (TEM) of *Hifax* CA10A and a mechanically compounded grade. The uniform dispersion of the amorphous rubber phase (dark areas) in the *Hifax* CA10A material yields more consistent processing and end-use properties."

Product selection guide

The LYB extensive product offering of *Catalloy* process resins allows for the development of customized solutions in sheet and thermoforming applications.

Property	Mechanical							Thermal			Optical	Features
	Mfr 230°C, 2,16kg	Flexural Modulus	Tensile stress at break	Tensile elongation	Charpy notched impact			Shore D Hardness (15 seconds)	Heat deflect. Temp.	Vicat softening temp.	Gloss at 60°	
				At break (%)	23 °C	-20 °C	-40 °C					
Test Method	ISO 1133	ISO 178	ISO 527	ISO 527	ISO 179/1eA			ISO 868	0.45 MPa ISO 75	ISO 306	ASTM D2457	
Units	g/10 min	MPa	MPa	%	kJ/m²				°C	°C		

PP Homopolymer, Product

Softell CA02A	0.60	30	10	-500	NB	NB	9	75*	38	41	NA	Flexibility softness, low gloss, impact resistance
Hifax CA10A	0.60	90	11	-500	NB	110	5	30	40	60	85	Flexibility softness, low gloss, impact resistance
Softell CA7469A	0.50	130	7	500	NB	NB	80	87*	39	50	NA	Soft touch, flexibility, matte finish, impact resistance
Adflex Q200F	0.80	150	13	500	60	87	2.1	49	44	76	6	Flexibility, high melt temperature, impact resistance
Hiflex CA7700A	1.40	170	10	450	NB	NB	110	33	40	75	NA	Flexibility and softness, low temp. impact
Adflex KS021P	0.90	350	10	500	70	98	3.2	38	52	67	49	Soft touch, matte finish, impact resistance
Adflex Q402F	0.65	480	21	800	86	3.2	2.2	49	57	108	87	Stiffness and impact balance
Hifax CA138A	2.80	500	10	400	70	100	50	41	58	90	20	Stiffness and impact balance, low temp. impact, low gloss

*Denotes a value of Shore A Hardness



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