VYBAR Polymers

Baker Hughes VYBAR™ polymers are hyperbranched polymers. The physical properties of VYBAR polymers are distinctive and depend largely on the amount and length of branching. They are typically harder than other polymers or waxes of similar melting points. There are three product grades: VYBAR™ 103, VYBAR™ 260, and VYBAR™ 343 polymers.

Typical properties

Product	Softening Point °C	Penetration @ 25°C (dmm)	Viscosity @ 99°C (cP)
Test Method	ASTM D36 (mod.)	ASTM D3236 (mod.)	ASTM D1321
VYBAR 103 polymer	74	5	345
VYBAR 260 polymer	54	12	357
VYBAR 343 polymer	41	30	130

Solubility characteristics

VYBAR polymers are insoluble (<1%) in all solvent systems at room temperatures. They have varying levels of solubility in certain solvents at elevated temperatures.

General guidelines:

- No solubility: All solvents/room temperature
- Limited solubility: Ketones, esters, alcohols/elevated temperatures
- Greatest solubility: Cyclic aliphatic, chlorinated and aromatic hydrocarbons/elevated temperatures
- Compatible: Paraffin, microcrystalline waxes, aliphatic resins, hydrogenated rosin esters, and POLYWAX™ polyethylenes
- Incompatible: Oxidized polyethylene, oxidized petroleum wax, and EVA copolymers >18% EVA

Features/benefits of VYBAR polymers

The hyperbranched polymer configuration of VYBAR polymers provides benefits that are unique versus most other hydrocarbon polymers such as low molecular weight polyethylene, polypropylenes and naturally occurring waxes.

Features	Benefits	Application Examples
Hyperbranched polymer configuration	Crystal modifier	Pour point depressant Lower congeal point Modify cool rate
	Oil binding	Prevent oil bleed in high oil content waxes Retain fragrance in candles
	Opacification	Modify surface appearance of paraffin
	Increase hardness	Enhance buffing in polishes and coatings Enhance hardness of soft waxes Gel solvents for paste polishes
	Increased solubility	Mold release for polyurethane foam Dressing for premium leather Liquid polishes and coatings
Controlled branch length	Control melt point	Formulation flexibility Enhanced solubility in solvents

Standard product form and packaging:

VYBAR 103 and VYBAR 260 polymers are available in pastilles form in 55lbs bags

VYBAR 343 polymer is available as a solid in 35lb pails or 380lb drums

FDA and EPA approvals

Please refer to Baker Hughes polymers group FDA guide 31648

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