

# POLYWAX™ Polyethylenes

Specialty Polymers and Waxes to Meet Your Needs

## Chemical Nature and Physical Properties

Baker Petrolite Polymers POLYWAX™ polyethylenes are fully saturated homopolymers of ethylene that exhibit a high degree of linearity and crystallinity. These synthetic waxes have narrow molecular weight distributions with a typical polydispersity (Mw/Mn) of 1.08. Product densities at 25 degrees C range from a low of 0.93 g/cc for POLYWAX 400 polyethylene to a high of 0.98 g/cc for POLYWAX 3000 polyethylene. In application, POLYWAX polyethylenes exhibit sharp melt point, fast recrystallization, low melt viscosity, excellent heat stability and resistance to chemical attack.

## Typical Properties

PRODUCT	Melt Point (°C)  ASTM D-127	Viscosity (cPs) 149°C (*99°C)  ASTM D-3236	Penetration dmm 25°C  ASTM D-1321	Heat of fusion, ΔH J/g  ASTM E-793
POLYWAX 400 polyethylene	81	7*	10.0	205
POLYWAX 500 polyethylene	88	8.5*	5.5	220
POLYWAX 600 polyethylene	94	10*	3.0	225
POLYWAX 655 polyethylene	99	7	2.0	225
POLYWAX 725 polyethylene	104	10	1.5	235
POLYWAX 850 polyethylene	107	10	1.0	235
POLYWAX 1000 polyethylene	113	15	1.0	235
POLYWAX 2000 polyethylene	126	55	0.5	255
POLYWAX 3000 polyethylene	129	130	0.5	260

## Solubility Characteristics

POLYWAX polyethylenes are insoluble (<1%) in all solvent systems at room temperatures. They have varying levels of solubility in certain solvents at elevated temperatures. In each case, the elevated temperature would be below the boiling point of the solvent.

### 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

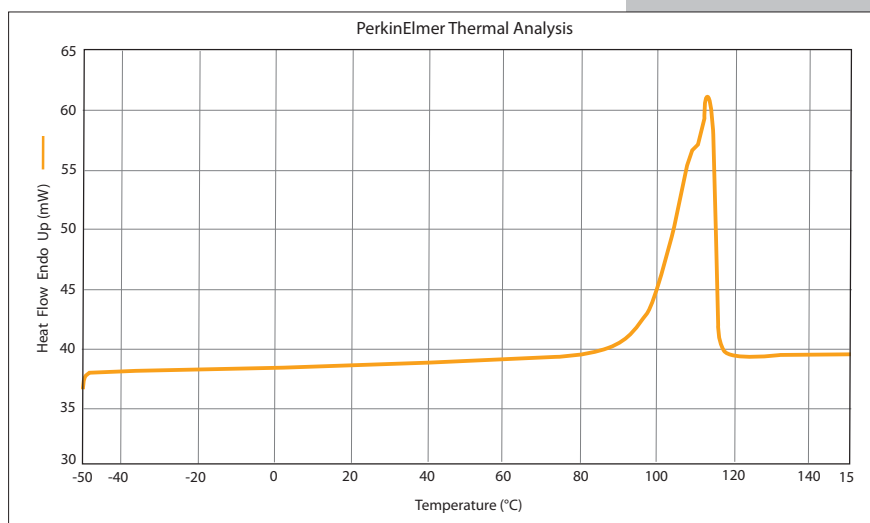


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## Thermal Properties

Due to their linearity and narrow polydispersity, POLYWAX polyethylenes are highly crystalline and offer high heats of fusion and sharp melting points. The DSC chart for POLYWAX 1000 polyethylene (right) illustrates the unique melt properties provided by the POLYWAX polyethylene line.



## Product Benefits

Feature	Benefits	Application Example
High Crystallinity / High $\Delta H$	Limited solubility in solvents	• Solvent resistance in inks
	Controlled solubility and recrystallization	• Uniformity of EPS cell size
	Hardness relative to molecular weight	• Abrasion resistance in inks and coatings
	Fast set time from melt phase	• Early adhesive bond strength • Improved Transfer of toner
Fully Linear and Saturated	Fast migration to surface	• Internal anti-block in plastics • Surface slip and mar • Improved transfer of toners
	Excellent heat resistance	• Less yellowing in high temperature applications
	Low melt viscosity	• Rheology modifier for hot melt adhesives and inks
Low Polydispersity	Narrow melt / congeal ranges	• Precise performance for mold release applications • Improved image quality in printing • EPS cell nucleation

**Standard Product Form and Packaging:**  
Form: Prills and Mini-Prills  
Packaging: 25 KG bags / 40 bags per pallet

**Specialized Product Form:**  
Certain products are available in micronized form

**FDA Status:** Please refer to Baker Petrolite Polymers Group FDA Guide PET-07-14148

For more specific information, please contact your Baker Petrolite representative.

POLYWAX is a trademark of Baker Hughes Incorporated.

Because it has become common for purchasers of our products to file patents for specific end uses of our polymer products, Baker Petrolite Polymers advises its customers to research their particular end use for possible intellectual property issues with respect to third party patents.

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