



# POLYWAX Polyethylenes

Specialty polymers and waxes to meet your needs

## Chemical nature and physical properties

Baker Hughes 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	Melting Point (°C)	Viscosity @ 149°C/*99°C (cP)	Penetration @ 25°C (dmm)	Heat of Fusion (ΔH) (Jg)
Test Method	ASTM D-127	ASTM D-3236	ASTM D-1321	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

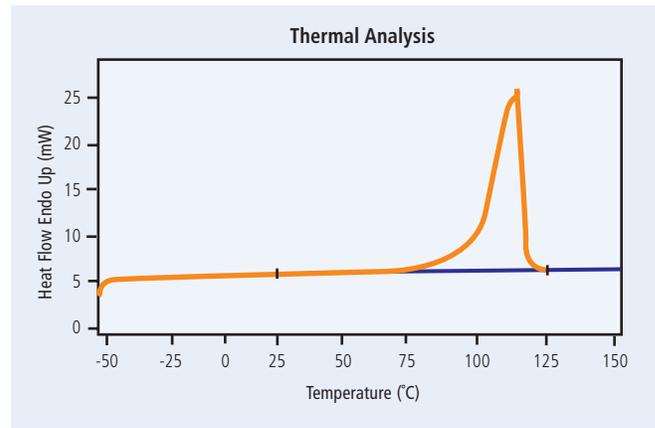
POLYWAX polyethylenes are insoluble (<1%) in all solvent systems at room temperatures. They have varying levels of solubility in certain solvents at elevated temperatures. In each case, the elevated temperature would be below the boiling point of the solvent.

### 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

## 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

Features	Benefits	Application Examples
High crystallinity/high $\Delta H$	Limited solubility in solvents	<ul style="list-style-type: none"> <li>Solvent resistance in inks</li> </ul>
	Controlled solubility and recrystallization	<ul style="list-style-type: none"> <li>Uniformity of EPS cell size</li> </ul>
	Hardness relative to molecular weight	<ul style="list-style-type: none"> <li>Abrasion resistance in inks and coatings</li> </ul>
	Fast set time from melt phase	<ul style="list-style-type: none"> <li>Early adhesive bond strength</li> <li>Improved transfer of toner</li> </ul>
Fully linear and saturated	Fast migration to surface	<ul style="list-style-type: none"> <li>Internal anti-block in plastics</li> <li>Surface slip and mar</li> <li>Improved transfer of toner</li> </ul>
	Excellent heat resistance	<ul style="list-style-type: none"> <li>Less yellowing in high temperature applications</li> </ul>
	Low melt viscosity	<ul style="list-style-type: none"> <li>Rheology modifier for hot melt adhesives and inks</li> </ul>
Low polydispersity	Narrow melt/congeal ranges	<ul style="list-style-type: none"> <li>Precise performance for mold release applications</li> <li>Improved image quality in printing</li> <li>EPS cell nucleation</li> </ul>

### 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 Hughes polymers FDA product guide

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

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

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