



Nanotechnology Within Reach



Randy Cameron, CEO

Instrumental Polymer Technologies, (IP TECH) is a privately held company based in Los Angeles, California which is active in the research, development, production and sales of aliphatic polycarbonate polyols and water based emulsions for use

in the materials industry. IP TECH is the first company to supply branched and dendrimeric aliphatic polycarbonate polyols, providing a new standard in urethane performance but at a competitive price.

Our Vision

Instrumental Polymer Technologies is dedicated to designing and providing sustainably derived polymers and dendrimers for a wide range of markets including coatings, adhesives and sealants (CASE) as well as medicine, electronics and cosmetics. Our goal is to improve the performance and functionality of our customer's products, ensuring their products have a sustainable future, while also helping our environment.



How We Got Started

Instrumental Polymer Technologies grew from the need for new high performance polyols for use in polyurethane coatings which meet the tightening EPA regulations within the aviation coatings market. Standard polyester and acrylic polyols were limited in performance and fluorinated polyols were too expensive. We launched polycarbonate polyols to achieve extreme performance at a reasonable cost. We have since then broadened our product line to include dendrimeric aliphatic polycarbonate polymers and water based emulsions which can be used throughout the CASE materials industry. Our linear and branched polycarbonate polyols are marketed under the trade name **PACAPOL™**, our dendrimers as **QUICKSTAR™** and water based emulsions under **IPAQUA™**. *See back panel for additional product information.*



A New Paradigm for Coatings Formulations

Our polycarbonate polyols will change the way you look at formulating high performance coatings. They will make you question why primers are used at all, or in which situations epoxy or polyurethane coatings are used. Their water resistance makes them suitable for formulating urethane coatings which will be constantly submerged in water. Their adhesion is ideal for formulating flexible primers or direct to metal polyurethane topcoats. They combine attributes in a coating which are difficult to achieve, like hardness and flexibility or chemical resistance and crack resistance.

Nanotechnology Using Evolution Polymerization

Instrumental Polymer Technologies has invented a method we call evolution polymerization to produce dendrimeric

polymers, a form of nanotechnology in which the polymer branches from a central core into the shape of a sphere.

Usually dendrimers are made step by step, adding one piece of the polymer to another. In our process the polymers evolve into the spherical shape of a dendrimer, which is much more cost effective. Their spherical shape offers very low viscosity making them very useful in high solids systems. Their highly branched polycarbonate core offers extreme toughness and chemical resistance while their surface functionality of hydroxyls offers fast reactivity with isocyanates. Water soluble, anionic versions are used to toughen water based emulsions and PUDs. The development of this technology has been funded by the National Science Foundation and the Environmental Protection Agency.



Sustainability; It's not only Environmental. It's an Economic Issue.

A particular goal of IP TECH's is to provide a sustainable future for the materials industry. It's estimated that the world petroleum reserves will only last another 50 years and that we will be at 20% production within 25 years. This means the cost of polyester and acrylic polyols, which are derived from petroleum, will begin increasing in price in the near future within the lifespan of products you are developing now. Polycarbonate polyols sold by IP TECH use raw materials which are sustainably/organically sourced. Many of our raw materials have begun dropping in price during the last 10 years and will continue to do so. So the good news is, polycarbonate polyols, the best performing polyols on the market, will soon be the most cost effective as well. Shouldn't you begin formulating with them today?

www.instrumentalpolymer.com

Product List

	Products	Equivalent Weight	Functionality	% Solids	Viscosity	Description
SOLVENT BASED	Pacapol™ A175	175 g/eq	Hydroxyl Functional	100% solids	70 Poise	Economic polyol for high solids coatings. Offers excellent combination of hardness and toughness. Good chemical resistance. Excellent durability and water resistance.
	Pacapol™ A250	235 g/eq	Hydroxyl Functional	100% solids	80 Poise	Economic polyol for high solids coatings. Offers excellent combination of hardness and toughness. Good chemical resistance. Excellent durability and water resistance.
	Pacapol™ F250	225 g/eq	Hydroxyl Functional	100% solids	50 Poise	Slightly branched polyol to improve flexibility and adhesion. Excellent for urethane primers, base coats or primerless topcoats.
	Pacapol™ L500	590 g/eq	Hydroxyl Functional	100% solids	70 Poise	Linear polycarbonate polyol. Excellent for forming prepolymers or flexibilizing coatings.
	Pacapol™ L2000NCX	275 g/eq	Isocyanate Functional	57% solids	10 Poise	Isocyanate capped polycarbonate polyol. Can be used directly as a single component coating, or as an isocyanate curing agent.
	Quickstar™ 240MC	240 g/eq	Hydroxyl Functional	100% solids	>500 Poise	A dendrimeric polyol which is nearly a solid, but dilutes to a much lower viscosity with very little solvent. Fast drying. Offers excellent chemical resistance, hardness and abrasion resistance.
	Quickstar™ 750H	190 g/eq	Hydroxyl Functional	100% solids	20 Poise	Low molecular weight dendrimeric polyol with aliphatic derivatization. Excellent for high solids or 100% solids systems. Excellent chemical resistance, hardness and abrasion resistance.
	Quickstar™ 400PHCS	410 g/eq	Hydroxyl Functional	100% solids	500-700 Poise	Dendrimeric polyol derivatized with cycloaliphatic rings to improve buffability and fast drying capabilities. Viscosity drops quickly in solvent, so is excellent for high solids coatings.
	Quickstar™ 650PHC	667 g/eq on solution	Hydroxyl Functional	90% solids in MAK	200 Poise	Dendrimeric polyol derivatized with cycloaliphatic rings to improve buffability and fast drying capabilities. Viscosity drops quickly in solvent, so is excellent for high solids coatings.
WATERBORNE	Quickstar™ 384X	163 g/eq	Anionic Hydroxyl Functional	100% solids	15 Poise	Very small dendrimeric polyol which is completely water soluble. Use as coalescent in 2K water based urethanes.
	Quickstar™ 94X-AC	163 g/eq	Anionic Hydroxyl Functional	100% solids	5 Poise	Dendrimeric polyol as a replacement to aziridines and carbodiimides to toughen one component pud and acrylic emulsions. Can be formulated and stored in emulsion. Crosslinks the emulsion at room temperature when coating dries.
	Ipaqua™ AE0101	Not Applicable	Not Applicable	50% solids	18-30 Poise	Water based styrene acrylic emulsion.
	Ipaqua™ AE0201	Not Applicable	Not Applicable	32% solids	3-10 Poise	Water based polyurethane dispersion. Near 0 VOC.

For product SDS and TDS sheets or for more information, please contact us at (314) 566-7802 or iptech@verizon.net.