

# Scope of Accreditation For Polymer Solutions Incorporated

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In recognition of a successful assessment to ISO/IEC 17025 2005, accreditation is granted to **Polymer Solutions Incorporated** to perform the following tests:

Accreditation granted through: **June 4, 2014**

## Testing – Chemical

Technology	Range, when necessary	Methods Used	Product Types	Remarks
Fourier Transform Infrared Spectroscopy (FTIR)	400 to 4000 cm <sup>-1</sup>	ASTM E 168 ASTM E 1252 ASTM E 573 ID 880, ID 898, ID 892	A&S, C, R&RP, PP&RSC, P&P, R	Transmission, ATR, Microscope
X-Ray Photoelectron Spectroscopy (XPS or ESCA)		ID 1700	A&S, C, R&RP, PP&RSC, P&P, R	
Gas Chromatography (GC)		ID 1100, ID 1096	A&S, C, R&RP, PP&RSC, P&P, R	Capillary
Light Microscopy		ASTM E 883 ID 899	A&S, C, R&RP, PP&RSC, P&P, R	Reflected, Polarized, Transmission (Digital Imaging)
Dilute Solution Viscometry (IV)		ASTM D 2857 ASTM D 4603 ID 1007, ID 1016 ID 1008, ID 1015	P&P, R	Polyesters, Polyamides, Polyolefins, HFIP
Brookfield Viscometry		ASTM D 2196 ID 1006	A&S, R&RP, R, PP&RSC, C	

<b>Technology</b>	<b>Range, when necessary</b>	<b>Methods Used</b>	<b>Product Types</b>	<b>Remarks</b>
Scanning Electron Microscopy with Energy Dispersive X-Ray Analysis (SEM-EDS)		ID 901, ID 903	A&S, C, R&RP, PP&RSC, P&P, R	
Size-Exclusion Chromatography (SEC/GPC)		ISO 16014-2 ISO 16014-3 ID 1353, ID 1113 ID 3434	A&S, C, R&RP, PP&RSC, P&P, R	Organic and Aqueous, Absolute Molecular Weight Determination
Soxhlet Extraction		ASTM G 120-01 ASTM C 613 ID 953	A&S, C, R&RP, PP&RSC, P&P, R	
Nuclear Magnetic Resonance Spectroscopy (NMR)		ASTM E 386 ASTM D4875 ASTM D4273 ASTM D5017 ID 885	A&S, C, R&RP, PP&RSC, P&P, R	Proton and Carbon 13
Titration		ASTM D5523 ASTM E1899 ID 1013	A&S, C, R&RP, PP&RSC, P&P, R	Hydrolyzable Chlorine Hydroxlnumber
Karl-Fischer Titration		ASTM D 6869 ID 1025	P&P, R, R&RP	
Rheometry		ASTM D 4440 ID 914	R&RP, P&P	Sub-ambient to 300°C, Parallel Plate or Cone in Plate
Dynamic Mechanical Thermal Analysis (DMA)		ASTM E 1640 ASTM D 5418 ASTM D 5279 ID 916, ID 923 ID 6007	R&RP, P&P, R	Single Cantilever, Double Cantilever, Torsion
Differential Scanning Calorimetry (DSC)		ASTM E 794 ASTM E 1356 ASTM D 3418 ASTM D 4419 ID 907, ID 917 ASTM E 1952 ASTM E 1269	A&S, C, R&RP, PP&RSC, P&P, R	Conventional, Modulated, Sub-ambient, Thermal Conductivity
Thermogravimetric Analysis (TGA)		ASTM D 6370 ASTM E 1131 ID 920, ID 6369	A&S, C, R&RP, PP&RSC, P&P, R	



<b>Technology</b>	<b>Range, when necessary</b>	<b>Methods Used</b>	<b>Product Types</b>	<b>Remarks</b>
Melt Flow Index (MFI)		ASTM D 1238 ID 906	P&P	
Specific Gravity (Density)		ASTM D792 ASTM D 1505 Method C ID 1005, ID 1009 ID 926	A&S, C, R&RP, PP&RSC, P&P, R	Liquids and Solids at Various Temperatures
Inductively Coupled Plasma Spectroscopy		ASTM E1645, ASTM E1613, ASTM D1976, ID 1032, CPSC-CH-E1001-08, ASTM F963 for Lead	R&RP, PP&RSC, P&P	Lead in Children's Products <sup>2</sup>
Liquid Chromatography (HPLC)		ASTM D6042 ID 1554	P&P, R	Additives Analysis
Gas Chromatography / Mass Spectrometry (GC/MS)		CPSC-CH-C1001-09 ID 1205, ID 1148	P&P	Phthalates Ambient Temperature
GC/MS Screening Aqueous Leachates		ID 3216	P&P, R	



**Testing – Mechanical**


<b>Technology</b>	<b>Range, when necessary</b>	<b>Methods Used</b>	<b>Product Types</b>	<b>Remarks</b>
Durometer	Shore A Shore D Shore M	ASTM D 2240 ID 928, ID 932	R&RP, P&P	
Tensile/Flex		ASTM D 638 ASTM D 790 ASTM D 882 ASTM D 2370 ID 939, ID 940 ID 942, ID 941	P&P, C	Ambient Temperature and Humidity
Coefficient of Friction		ASTM D 1894 ID 6053	P&P, C, PP&RSC, R&RP	Ambient Conditions

**Key to “Product Types”**

- A&S = Adhesives and Sealants
- C = Coatings
- R&RP = Rubber and Rubber Products
- PP&RSC = Paints, Pigments and Related Surface Coatings
- P&P = Plastics and Polymers
- R = Resins

**Notes:**

- 1) This laboratory offers commercial testing service.
- 2) This laboratory offers testing on children’s products (toys) to meet CPSC requirements per 16 CFR 1303.

Approved by:   
R. Douglas Leonard  
Chief Technical Officer

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