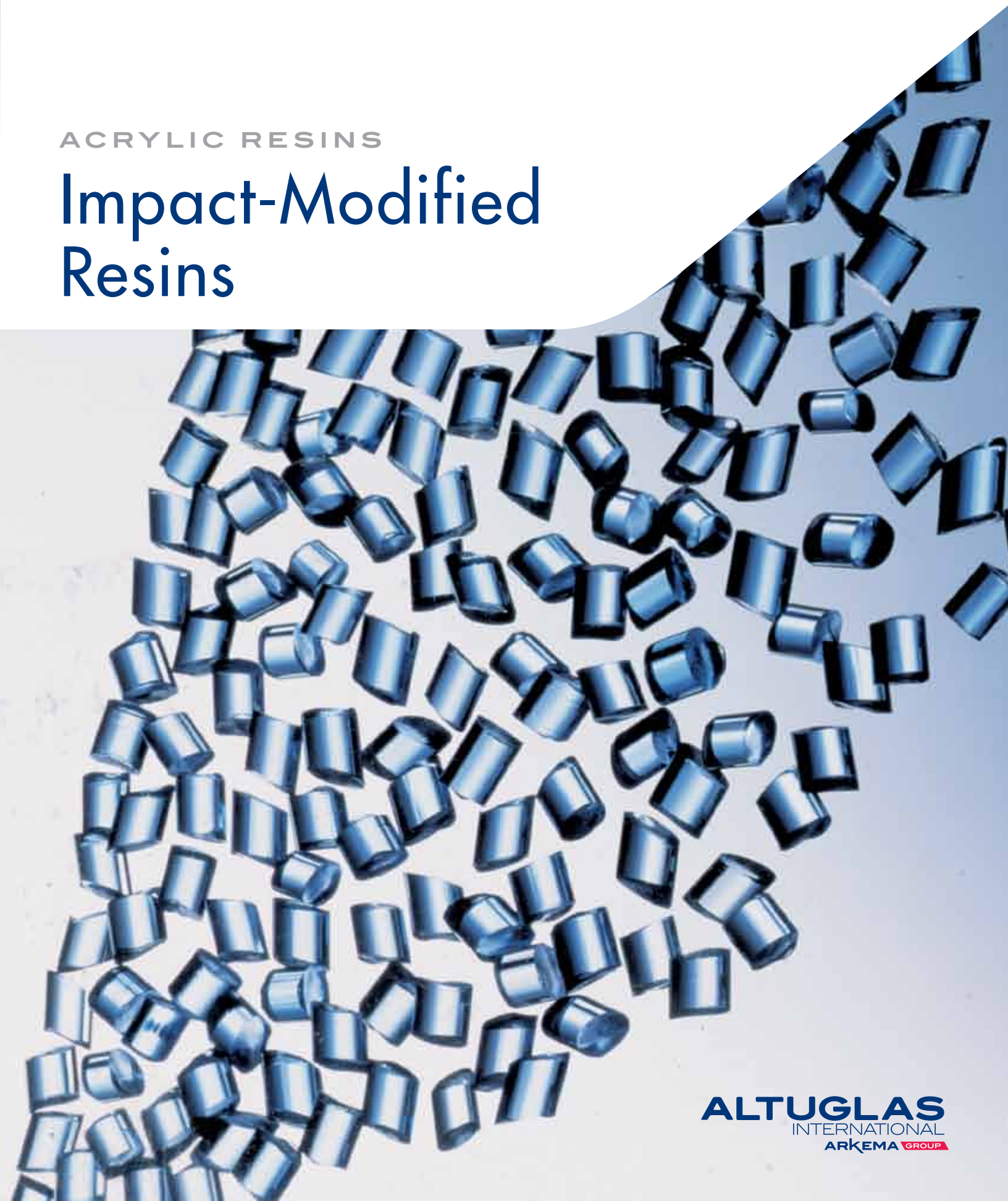
PLEXIGLAS® BY ARKEMA

ACRYLIC RESINS

Impact-Modified Resins



ALTUGLAS INTERNATIONAL ARKEMA GROUP

THE RIGHT RESIN FOR EVERY JOB

Wherever there's a need for good-looking, precise, tough, molded parts, you'll find an outstanding combination of performance properties and value in the Altuglas International family of acrylic thermoplastic resins: excellent optical clarity, exceptional weatherability, and design flexibility. These resins are available in many grades and colors to meet your specific applications. Assemblies can be drilled, machined, engraved or embossed. Decorative coatings can be sprayed, silk-screened, hot-stamped, vacuum-metallized or chrome-plated. No matter what the job, Altuglas International has an acrylic resin that's exactly right.

Plexiglas® Impact-Modified Acrylic Resins

Plexiglas® Impact-Modified acrylic resins offer seven to 10 times the impact resistance of standard acrylics while maintaining excellent optical properties. When toughness is critical, Plexiglas® Impact-Modified acrylic resins offer a good balance between flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics.

Plexiglas® DR®

Plexiglas® DR® is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. It is a heat resistant resin with minimal edge color and provides 10 times the impact resistance of standard acrylics. It is an all-acrylic resin that combines the toughness associated with other impact plastics and the outstanding transparency and UV resistance of conventional acrylic materials. Moldflow simulation data is available.

Plexiglas® HFI-7

Plexiglas® HFI-7 is an impact modified thermoplastic acrylic resin formulated for injection molding. It has very high melt flow, enhanced mold release properties and provides 7 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Supplemental moldflow simulation data is available.

Plexiglas® HFI-10

Plexiglas® HFI-10 is an impact modified thermoplastic acrylic resin formulated for injection molding. It has high melt flow, enhanced mold release properties and provides 10 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Supplemental moldflow simulation data is available.

Plexiglas® MI-7

Plexiglas® MI-7 is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. It is heat resistant, has high melt flow and provides 7 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Supplemental moldflow simulation data is available.

Plexiglas® MI-7C 56503 RB

Plexiglas® MI-7C 56503 RB is an impact modified thermoplastic acrylic resin formulated for injection molding. It is a jet black, high gloss, opaque resin that has high heat resistance, high melt flow and provides 7 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Moldflow simulation data is available.

Plexiglas® MI-7T

Plexiglas® MI-7T is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. It has high heat resistance and provides 7 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Supplemental moldflow simulation data is available.

Plexiglas® SG-7

Plexiglas® SG-7 is an impact modified acrylic resin suitable for injection molding and extrusion. It is a high flow resin designed to provide outstanding light transmission and water white clarity for disposable medical applications. Some of the features and benefits of Plexiglas® SG-7 are, exceptional Gamma Resistance, Chemical Resistance, Sterilization, Durability and Processability.

Plexiglas® SG-10

Plexiglas® SG-10 is an impact modified acrylic resin suitable for injection molding and extrusion. It is a high flow resin designed to provide outstanding light transmission and water white clarity for disposable medical applications. Some of the features and benefits of Plexiglas® SG-7 are, exceptional Gamma Resistance, Mid Range Chemical Resistance, Sterilization, Durability and Processability.

Typical Physical Properties of Plexiglas® Acrylic Resins

Properties	Test Method	Units	DR	HFI-7
Physical				
Melt Flow Rate (230°C/3.8 kg)	ASTM D1238	g/10 min	1.0	10
Specific Gravity	ASTM D792	-	1.15	1.17
Mold Shrinkage	ASTM D955	%	0.3 - 0.8	0.3 - 0.6
Water Absorption (24 hrs. immersion)	ASTM D570	% weight gain	0.4	0.3 - 0.6
Mechanical				
Tensile Strength @ Maximum	ASTM D638	psi	5,500	6,800
Tensile Elongation @ Break	ASTM D638	%	50	35
Tensile Modulus	ASTM D638	psi	270,000	355,000
Flexural Strength @ Maximum	ASTM D790	psi	10,300	12,400
Flexural Modulus	ASTM D790	psi	270,000	355,000
Notched Izod Impact (73°F)	ASTM D256	ft-lb/in notch	1.1	0.6
Rockwell Hardness	ASTM D785	M	45	65
Thermal				
HDT (66 psi; annealed)[1]	ASTM D648	°F	192	191
HDT (264 psi; annealed)[1]	ASTM D648	°F	175	179
Vicat Softening Point (122°F/hr; 2.2 lbs)	ASTM D1525	°F	208	203
Vicat Softening Point (122°F/hr; 11.2 lbs)	ASTM D1525	°F	187	184
Thermal Conductivity	ASTM C177	BTU/hr*ft²*F/in	1.5	1.4
Optical				
Refractive Index (N_d @ 73°F)	ASTM D542		1.49	1.49
Luminous Transmittance (0.125")	ASTM D1003	%	90	91
Haze (0.125 in/3.2 mm)	ASTM D1003	%	<2	<2
Classification				
ASTM Classification	ASTM D788		PMMA 0231V1	PMMA 0241V4
Note 1:			Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F

Note 2: Chemical resistance — Chemical resistance of Plexiglas® acrylic resins varies with stress level, temperature, reagent and resin grade. Altuglas International recommends that selected Plexiglas® acrylic resins be tested with applicable solvents under appropriate conditions for the end-use application.

Note 3: MSDS/SDS — Material safety data sheets available for all products described above.

HFI-10	MI-7	MI-7C 56503 RB	MI-7T	SG-7	SG-10
3.3	3.2	1.8	1.8	10	3.3
1.15	1.17	1.17	1.17	1.17	1.15
0.3 - 0.8	0.3 - 0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.8
0.4	0.3	0.3	0.3	0.3	0.4
5,500	7,000	7,500	8,000	6,800	5,300
50	35	35	35	35	50
270,000	365,000	350,000	350,000	355,000	270,000
10,300	11,200	12,000	12,600	12,400	10,300
270,000	345,000	350,000	350,000	355,000	270,000
0.9	0.6	0.6	0.6	0.6	0.9
38	68	70	68	60	38
192	196	212		190	190
175	185	203	195	179	181
201	210	226	226	201	199
181	194	205	207	182	176
1.5	1.4	1.4	1.4	1.4	1.5
1.49	1.49	N/A	1.49	1.49	1.49
90	91	N/A	91	91	91
<2	<2	N/A	<2	<2	<2
PMMA 0231V3	PMMA 0241V3	PMMA 0241V3	PMMA 0241V1	PMMA 0241V4	PMMA 0231V3
Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F	Annealing Cycle 4hrs at 176 °F

About Altuglas International, a subsidiary of ARKEMA:
Altuglas International, world leader integrated in PMMA, is heavily involved in the field of engineered plastic - from MMA monomer to PMMA Acrylic glass – Altuglas International designs and manufactures highly innovative products tailored to the specific needs of its global customers. Its 1300 committed employees contribute daily to the success of its three areas of business (MMA, acrylic sheets and PMMA resins). Find out more at www.altuglasint.com.

Arkema strictly prohibits the use of any product, including medical grades, in applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days.

Unless Arkema otherwise expressly agrees by written contract, the Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices, and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices. Further, all implantable medical devices, whether permanent or temporary, carry a risk of adverse consequences. With regard to implantable medical devices, you should not rely upon the judgment of Arkema. Any decision regarding the appropriateness of a particular medical device in a particular medical application or for a specific clinical use should be based upon the judgment of your physician, medical device supplier and the United States Food & Drug Administration. Unless otherwise specifically stated by Arkema in writing, Arkema does not perform clinical medical studies on implantable medical devices. Arkema cannot weigh the benefits against the risks of a device and does not offer a medical judgment on the safety or efficacy of use of any Arkema product in a medical device.

Biocompatibility testing of Arkema products related to USP Class VI and certain requirements of ISO Standard 10993-1:2009 cannot assure the biocompatibility of final or intermediate products made from Arkema products or the suitability of such products for their use in medical applications, i.e., the test data cannot be used to conclude that any medical devices manufactured from Arkema products meet the requirements of USP Class VI and ISO Standard 10993-1:2009.

It is the sole responsibility of the manufacturer of final end-use (and finished) products to conduct all necessary tests (including biocompatibility tests) and inspections and to evaluate the final product under actual end-use requirements.

Plexiglas® and Altuglas® Luctor™ are combustible acrylic thermoplastics. Observe fire precautions appropriate for comparable forms of wood and paper. For building uses, check code approvals. Impact resistance is a factor of thickness. Avoid exposure to heat or aromatic solvents. Clean with soap and water. Avoid abrasives.

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See MSDS for Health & Safety Considerations.
We manufacture and market PMMA resin and sheet products under the brand name Plexiglas® in North and Latin America, and under the brand name Altuglas® in Asia Pacific, Europe, Africa and the Middle East.

ARKEMA
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