

Material Data Sheet

Item: Acrylic

Description: Commonly called Plexiglas or Lucite. Acrylics have substantially more impact resistance than glass (17 times) in the same thickness at half the weight. Acrylics are virtually unaffected by sunlight, humidity, and temperature extremes. However, it is a flammable plastic when exposed to open flames.

It can easily be sawed, drilled, cemented, polished, and heat formed at approximately 150 - 160 F° (300 - 320 C°). It is used for general maintenance for glazing and machine guards. Acrylics are non-spalling when broken; its pieces are not as sharp as glass either.

Availability: Many thermoplastics are available in a multitude of forms such as sheets, rods, and tubes.

Fabrication: The Gund Company can fabricate a wide range of thermoplastic components per the specifications of our customers. Please do not hesitate to call or fax us your requirements.

Typical Properties:

Acrylic: (Average Value)

Physical Properties

Specific Gravity	1.17 - 1.20
Specific Volume (cu. in. per lb.)	23.1 - 23.7
Refractive Index	1.48 - 1.50
Tensile Strength (PSI)	8,000 - 11,000
Elongation (%)	2 - 7
Modulus of Elasticity in Tension (10 ³ , PSI)	3.5 - 5.0
Compressive Strength (PSI)	11,000 - 19,000
Flexural Strength (PSI)	12,000 - 17,000
Impact Strength (ft.-lb. per in. of notch)	0.4 - 0.5
Rockwell Hardness	M80 - M100
Thermal Conductivity	4 - 6
Specific Heat (cal per C° per gm)	0.35
Thermal Expansion (.001 per C°)	5 - 9
Resistance to Heat (F°, continuous)	140 - 200
Heat Distortion Temperature (F°)	150 - 210
Volume Resistivity	>10 ¹⁵

All of the information, suggestions, and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the use contemplated, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty, expressed or implied, including, without limitation warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.

Material Data Sheet

Item: Acrylic

Typical Properties:

Acrylic:
(Average Value)

Electrical Properties

Dielectric Strength (short time 1/8 thick)	450 - 550
Dielectric Strength (step-by-step 1/8 thick)	350 - 400
Dielectric Constant (60 cycles)	3.5 - 4.5
Dielectric Constant (10^3 cycles)	3.0 - 3.5
Dielectric Constant (10^6 cycles)	2.2 - 3.2
Dissipation (Power) Factor (60 cycles)	0.05 - 0.06
Dissipation (Power) Factor (10^3 cycles)	0.04 - 0.06
Dissipation (Power) Factor (10^6 cycles)	0.02 - 0.03
Arc Resistance (Seconds)	No Track

Chemical Properties

Water Absorption (24 hr., 1/8 in thick, %)	0.3 - 0.4
Burning Rate	Slow
Effect of Sunlight	Very Slight
Effect of Weak Acids	Practically Nil
Effect of Strong Acids	Attacked on by high concentrates of oxidizing acids.
Effect of Weak Alkalies	Practically Nil
Effect of Organic Solvents	Soluble in key tones, esters, aromatic, chlorinated hydrocarbons.
Clarity	Transparent, Translucent, Opaque