

# AEROSPACE PRODUCTS



**Spartech Polycast**

*Cell Cast Acrylic*

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ISO 9001:2000  
FM 76298

# OUR COMPANY



Cast acrylic sheet is the ideal material for aircraft transparencies. Spartech Polycast is known, the world over, as a leading producer of cast acrylic sheet for cabin windows, fighter canopies, windscreens, wing-tip lenses, outer laminates and instrument panels for general aviation and military aircraft. Polycast is also recognized as the manufacturer most responsive to the specific needs of its customer. Our range of sizes, thicknesses, colors and research facilities are dedicated to meeting the present and future needs of the demanding aerospace industry.

Spartech Polycast has been manufacturing cast acrylic sheet for over 30 years and is presently the principal supplier of acrylic sheet meeting U.S. Military Material Specifications MIL-P-5425, MIL-P-8184 and MIL-P-25690 to the United States aerospace industry. Spartech Polycast has developed an enhanced crazed-resistant material and MIL-P-8184 has been revised to recognize the improved performance of this material.

**POLY 76 (MIL-P-8184)** is a crosslinked, preshrunk acrylic with excellent resistance to crazing, solvent attacks and thermal dimensional change. As one of few U.S. Military approved materials for stretched panels (MIL-P-25690), sophisticated applications for both military and commercial aircraft are numerous. Availability in transparent colors enhances the versatility of this product. It meets or exceeds all requirements of MIL-P-8184. Type I and II, Class 1 and 2.

**POLY 84 (MIL-P-8184)** is a uniquely formulated, crosslinked preshrunk acrylic specifically designed to provide superior craze and solvent resistance for today's changing environment. Improvements such as lower water absorption and increased resistance to acids expands the number of "as cast" applications. Poly 84 also meets or exceeds MIL-P-8184, Type I and II, Class 1 and 2. Its superior craze resistance makes it ideal for monolithic windscreens, outer laminates and canopies. It is also available in transparent colors. It meets or exceeds all requirements of MIL-P-8184. Type I and II, Class 1 and 2.

**POLY 2000 (MIL-P-25690)** military specification covering stretched acrylic sheet specially designed from Mil-P-8184 base material. It offers enhanced craze properties and increased crack resistance. Material supplied for conformance to this specification is identified as Poly 2000™.

# OUR SERVICES



- Here are some of the ways in which Spartech Polycast has made creative, effective and prompt response to the needs of our customers and the aerospace industry in general.
- The development of improved acrylic to meet the fast-changing demands of commercial and military aircraft manufacturers for superior material.
- The production of a horizontally shrunk sheet with residual shrinkage of less than .25% (Mil Spec allows up to 1%). This characteristic allows for forming before fabrication. It is ideal for edgelit panel and radar screen applications.
- Polycast standards consistently surpass the quality levels required by the Mil Spec. Polycasts sheet cleanliness and optical clarity are superior in the industry.
- The development of a sheet with different thicknesses in the center as compared to the edges. This enabled an aircraft manufacturer to design a canopy with strong, frontal impact capabilities yet which is thin enough on top so that a pilot can eject through it.
- The formulation of colors which meet specific percentages of light transmission at final, stretched thickness.
- The development of a strong technical support which is widely known in the aerospace industry for its commitment to technical customer service, whether rendered by mail, phone or in person.

# OUR PRODUCTS



**POLY A (ASTM D-4802)** is our standard unshrunk acrylic manufactured to a visual and optical aircraft specification. It is available in clear as well as transparent colors. Common applications are non-critical glazing for commercial helicopters and sport planes.

**POLY FR9** is an interior acrylic material ideal for aircraft applications where low flame spread and low smoke generation are desirable.

**POLY 900** is a semi-cross-linked material formulated to meet British specifications DTD-5592.

**POLY II (MIL-P-5425)** military specification covering heat-resistant, preshrunk, clear, and colored acrylic sheet. Material supplied for conformance for this specification is identified by the name POLY II®. Polycast is qualified to furnish sheets in thickness 0.060-1.000 to meet this specification.

# TOLERANCES



## POLY II®

## POLY 76®

## POLY 84®

| Standard Thickness <sup>1</sup> |        | Class A |        | Class B |        | Class C |        |
|---------------------------------|--------|---------|--------|---------|--------|---------|--------|
| Inches                          | Metric | Inches  | Metric | Inches  | Metric | Inches  | Metric |
| 0.030                           | 0.762  | ±0.012  | ±0.305 |         |        |         |        |
| 0.060                           | 1.524  | ±0.012  | ±0.305 | ±0.020  | ±0.508 |         |        |
| 0.080                           | 2.032  | ±0.012  | ±0.305 | ±0.020  | ±0.508 |         |        |
| 0.100                           | 2.540  | ±0.012  | ±0.305 | ±0.020  | ±0.508 |         |        |
| 0.125                           | 3.175  | ±0.015  | ±0.381 | ±0.020  | ±0.508 | ±0.030  | ±0.762 |
| 0.150                           | 3.810  | ±0.017  | ±0.432 | ±0.020  | ±0.508 | ±0.030  | ±0.762 |
| 0.187                           | 4.750  | ±0.020  | ±0.508 | ±0.023  | ±0.584 | ±0.030  | ±0.762 |
| 0.220                           | 5.588  | ±0.023  | ±0.584 | ±0.025  | ±0.635 | ±0.030  | ±0.762 |
| 0.250                           | 6.350  | ±0.025  | ±0.635 | ±0.030  | ±0.762 | ±0.035  | ±0.889 |
| 0.312                           | 7.925  | ±0.030  | ±0.762 | ±0.035  | ±0.889 | ±0.040  | ±1.016 |
| 0.375                           | 9.525  | ±0.035  | ±0.889 | ±0.040  | ±1.016 | ±0.045  | ±1.143 |
| 0.417                           |        |         |        |         |        |         |        |
| 0.500                           | 12.700 | ±0.040  | ±1.016 | ±0.045  | ±1.143 | ±0.050  | ±1.270 |
| 0.625                           | 15.875 | ±0.050  | ±1.270 | ±0.050  | ±1.270 | ±0.060  | ±1.524 |
| 0.750                           | 19.050 | ±0.050  | ±1.270 | ±0.050  | ±1.270 | ±0.065  | ±1.651 |
| 0.875                           | 22.225 | ±0.050  | ±1.270 | ±0.050  | ±1.270 | ±0.070  | ±1.778 |
| 1.000                           | 25.400 | ±0.050  | ±1.270 | ±0.050  | ±1.270 | ±0.075  | ±1.905 |
| 1.250                           | 31.750 | ±0.063  | ±1.600 | ±0.063  | ±1.600 | ±0.094  | ±2.388 |
| 1.500                           | 38.100 | ±0.075  | ±1.905 | ±0.075  | ±1.905 | ±0.112  | ±2.845 |
| 1.750                           |        |         |        |         |        |         |        |
| 2.000                           | 50.800 | ±0.100  | ±2.540 | ±0.100  | ±2.540 | ±0.131  | ±3.327 |
| 2.250                           | 57.150 | ±0.113  | ±2.870 | ±0.113  | ±2.870 | ±0.168  | ±4.267 |
| 2.500                           | 63.500 | ±0.126  | ±3.200 | ±0.126  | ±3.200 | ±0.180  | ±4.572 |
| 3.000                           | 76.200 | ±0.146  | ±3.708 | ±0.146  | ±3.708 | ±0.204  | ±5.182 |
| 3.500                           | 88.900 | ±0.159  | ±4.039 | ±0.159  | ±4.039 | ±0.219  | ±5.563 |
| 4.000                           |        |         |        |         |        |         |        |

### Overages

All sheet supplied net trim (with no overages).

### Untrimmed Sheet

Untrimmed sheets are available. No guarantee is given as to the additional area obtained by ordering untrimmed sheet.

<sup>1</sup>Intermediate thickness are available.

# SIZE AND THICKNESS

## POLY II® UVA (MIL-PRF-5425)

### Clear

- Standard Items:** Standard items may be ordered in standard packages (cases and pallets) in quantities listed on inside back cover.
- Non-standard Items:** Contact Inside Sales for availability. Also contact Inside Sales for items which do not appear on chart.

### Color

POLY II is available in most colors, manufactured in accordance with MIL-P-5425 insofar as the specification Sales for further information.

|              |   | Tolerance Class | Thicknesses | .030 | .060 | .080 | .100 | .125 | .150 | .187 | .220 | .250 | .312 | .375 | .500 | .625 | .750 | .875 | 1.000 |   |
|--------------|---|-----------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|---|
| <b>SIZES</b> |   |                 |             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |   |
| 36 x 48      | A |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 36 x 60      | * |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 36 x 72      | * |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 40 x 50      | A |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 48 x 48      | * |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 48 x 60      | * |                 |             | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □     | □ |
| 48 x 72      | B |                 |             | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □     | □ |
| 48 x 96      | C |                 |             | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □     | □ |
| 60 x 72      | B |                 |             |      |      |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 60 x 96      | C |                 |             |      |      |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 72 x 72      | C |                 |             |      |      |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |
| 72 x 96      | C |                 |             |      |      |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■     | ■ |

\*Available as cutdowns from larger sizes. Tolerance of larger size prevails.

**POLY II® UVT** (MIL-PRF-5425) – Standard in 48 x 96 .125 and .250 only. All other sizes & thicknesses are on a min-max basis.

## POLY 76® (MIL-PRF-8184, Type I and II, Class I)

## POLY 84® (MIL-PRF-8184, Type I and II, Class 2)

### Clear

- Standard Items:** Standard items may be ordered in standard packages (cases and pallets) listed on inside back cover.
- Non-standard Items:** Contact Inside Sales for availability and for items which do not appear on chart.

### Color

Available in most colors, manufactured in accordance with MIL-PRF-8184 insofar as the specification is applicable. Please contact Inside Sales for further information.

|              |   | Tolerance Class | Thicknesses | .060 | .080 | .100 | .125 | .150 | .187 | .220 | .250 | .312 | .375 | .500 | .625 & above |
|--------------|---|-----------------|-------------|------|------|------|------|------|------|------|------|------|------|------|--------------|
| <b>SIZES</b> |   |                 |             |      |      |      |      |      |      |      |      |      |      |      |              |
| 36 x 48      | A |                 | ■           | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | □            |
| 36 x 60      | * |                 | □           | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □            |
| 36 x 72      | * |                 | □           | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □            |
| 40 x 50      | A |                 | □           | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □    | □            |
| 48 x 48      | * |                 | □           | □    | □    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 48 x 60      | * |                 | □           | □    | □    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 48 x 72      | B |                 | □           | □    | □    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 48 x 96      | C |                 |             |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 60 x 72      | B |                 |             |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 60 x 96      | C |                 |             |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 72 x 72      | C |                 |             |      |      | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■    | ■            |
| 72 x 96      | C |                 |             |      |      | □    | □    | □    | □    | □    | □    | □    | □    | □    | □            |

†Intermediate thicknesses are available with special ordering requirements.

\*Available as cutdowns from larger sizes. Tolerance of larger size prevails.

# APPROVALS AND SPECIFICATIONS

|  | U.S                       | GREAT BRITAIN       | GERMANY             |
|--|---------------------------|---------------------|---------------------|
| <b>POLY A</b>                            | AMTM D-4802<br>AMS-L-P391 |                     |                     |
| <b>POLY II®</b>                          | MIL-PRF-5425              |                     | Exceeds<br>WL5.1412 |
| <b>POLY 76®</b><br>Type I or II, Class 1 | MIL-PRF-8184              | Exceeds<br>DTD 5592 | Exceeds<br>W25.1415 |
| <b>POLY 84®</b><br>Type I or II, Class 2 | MIL-PRF-8184              | Exceeds<br>DTD 5592 | Exceeds<br>WL5.1415 |
| <b>POLY 900®</b>                         |                           | Exceeds<br>DTD 5592 |                     |

