

SECTION 10405

THERMOPLASTIC SHEET MATERIALS FOR SIGNAGE

PART GENERAL

SECTION INCLUDES

Thermoplastic Sheet Materials for Signage.

RELATED SECTIONS

Section 10441 - Plastic Signs.

REFERENCES

ANSI Z26.1 - Safety Code for Glazing Motor Vehicles Operating on Land Highways.

ANSI Z97.1 - American National Standard for Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

ASHRAE - Cooling and Heating Load Calculation Manual, Second Edition.

ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.

ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

ASTM D 570 - Standard Test Method for Water Absorption of Plastics.

ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.

ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load.

ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.

ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C.

ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.

ASTM D 2843 - Standard Test Method for the Density of Smoke from the Burning or Decomposition of Plastics.

ASTM D 3029 - Standard Test Method for the Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight).

CPSC 16CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Products Safety Commission.

UL 48 - Electric Signs.

UL 972 - Standard for Burglary Resisting Glazing Material.

SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's descriptive literature for specified thermoplastic sheet materials; include documentation of conformance to specified requirements.

Closeout Submittals: Warranty documents specified in WARRANTY Article of PART 1 of this section.

QUALITY ASSURANCE

Regulatory Requirements: Thermoplastic sheet materials to meet requirements for CC-1 rating under the following building codes:

BOCA.
ICBO.
SBCCI.

SCHEDULING

Ensure that fabricators of affected sections have products of this section available in time for fabrication of products in accordance with construction progress schedule.

WARRANTY

Manufacturer's Warranty: Manufacturer's 5-year warranty against breakage.

PART PRODUCTS

MANUFACTURERS

Acceptable Manufacturer: DSM Engineering Plastic Products, Inc., Sheffield Plastics, 119 Salisbury Road, Sheffield MA 01257; ASD. Tel. (800) 628-5084.

Requests for substitution will be considered in accordance with provisions of Section 01600.

Substitutions: Not permitted.

MATERIALS

Thermoplastic Sheet Materials:

Acceptable product: HYZOD(R) SN5190 polycarbonate sheet, meeting requirements of ANSI Z97.1, CPSC 16CFR 1201 - Categories I and II, UL 972, and UL 48, and having the following characteristics:

Acceptable product: HYZOD(R) SN polycarbonate sheet, meeting requirements of ANSI Z97.1, CPSC 16CFR 1201 - Categories I and II, UL 972, and UL 48, and having the following characteristics:

Specific gravity, when tested in accordance with ASTM D 792: 1.2.

Chemical resistance, when tested in accordance with ANSI Z26.1: Pass.

Water absorption after 24 hours, when tested in accordance with ASTM D 570: 0.15 percent.

Tensile strength, yield, 1/8 inch (3 mm) thick material, when tested in accordance with ASTM D 638: 9,000 pounds per square inch (62.04 Mpa).

Tensile strength, ultimate, when tested in accordance with ASTM D 638: 9,500 pounds per square inch (65.49 Mpa).

Tensile modulus, when tested in accordance with ASTM D 638: 340,000 pounds per square inch (2343.96 Mpa).

Compressive strength, when tested in accordance with ASTM D 695: 10,400 pounds per square inch (71.69 Mpa).

Flexural strength at 5% strain, when tested in accordance with ASTM D 790: 13,500 pounds per square inch (93.06 Mpa).

Flexural modulus, 1/8 inch (3 mm) thick material, when tested in accordance with ASTM D 790: 345,000 pounds per square inch (2378.43 Mpa).

Izod impact, notched, 1/8 inch (3 mm) thick material, when tested in accordance with ASTM D 256: 12-16 foot-pounds per inch of notch (0.64-0.85 N m per mm of notch).

Rockwell hardness, when tested in accordance with ASTM D 785: 118R Scale.

Drop ball impact, 1/8 inch (3 mm) thick material, when tested in accordance with S.P. Test: Minimum 200 foot-pounds (271.16 N m).

Gardner impact, 1/2 inch (13 mm) diameter dart, 1/8 inch (3 mm) thick material, when tested in accordance with ASTM D 3029: Minimum 320 inch-pounds (36.15 N m).

Heat deflection temperature, 264 pounds per square inch (1.82 Mpa), when tested in accordance with ASTM D 648: 270 degrees F (132.2 degrees C).

Heat deflection temperature, 66 pounds per square inch (0.45 Mpa), when tested in accordance with ASTM D 648: 280 degrees F (137.7 degrees C).

Coefficient of thermal expansion, when tested in accordance with ASTM D 696: 0.0000375 inch per inch per degree F (0.0000675 ratio/degree C).

Coefficient of thermal conductivity, when tested in accordance with ASTM C 177: 1.35 BTU's per hour per square foot per degree F. (7.66 W/sq m/degree K).

Smoke developed, 1/8 inch (3 mm) thick material, when tested in accordance with ASTM D 2843: 68.

Shading coefficient, clear color, when tested in accordance with ASHRAE: 1.02.

Shading coefficient, gray/bronze colors, when tested in accordance with ASHRAE: 0.79.

Horizontal burn, AEB, when tested in accordance with

ASTM D 635: Maximum 1 inch (25.4 mm)
Horizontal burn, ATB, when tested in accordance with
ASTM D 635: Maximum 1 minute.
Self-ignition temperature , when tested in accordance
with ASTM D 1929: 1077 degrees F (580.5 degrees C).
Flash-ignition temperature , when tested in accordance
with ASTM D 1929: 872 degrees F (466.6 degrees C).
Thickness: 1/8 inch (3 mm) nominal.
Color: White.
Color: Clear.
Color: Bronze.
Color: Gray.
Finish: Matte one side, polished one side.

FABRICATION

Fabrication of signage items is specified in Section 10441.

PART EXECUTION

INSTALLATION

Installation of signage items is specified in Section 10441.

END OF SECTION