

## TUFFAK PV polycarbonate sheet

### VENDING SHEET

TUFFAK PV sheet is a polished surface, transparent, UV stabilized, polycarbonate product. It features outstanding impact strength and superior dimensional stability. TUFFAK PV sheet has a five (5) year warranty against breakage. The terms of the warranty are available upon request.

### APPLICATIONS

Vending machine fronts

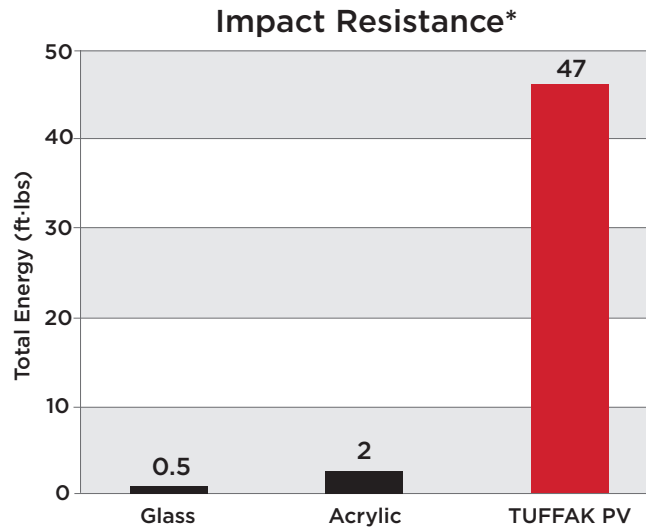
### Regulatory code compliance and certifications

UL 94: Flammability File #E87887

### Typical Properties\*

| Property                                   | Test Method   | Units                         | Values                  |
|--------------------------------------------|---------------|-------------------------------|-------------------------|
| <b>PHYSICAL</b>                            |               |                               |                         |
| Specific Gravity                           | ASTM D 792    | -                             | 1.2                     |
| Refractive Index                           | ASTM D 542    | -                             | 1.586                   |
| Light Transmission, Clear @ 0.125"         | ASTM D 1003   | %                             | 86                      |
| Water Absorption, 24 hours @ 73°F          | ASTM D 570    | %                             | 0.15                    |
| Poisson's Ratio                            | ASTM E 132    | -                             | 0.38                    |
| <b>MECHANICAL</b>                          |               |                               |                         |
| Tensile Strength, Break                    | ASTM D 638    | psi                           | 9,500                   |
| Tensile Strength, Yield                    | ASTM D 638    | psi                           | 9,000                   |
| Tensile Modulus                            | ASTM D 638    | psi                           | 340,000                 |
| Elongation                                 | ASTM D 638    | %                             | 110                     |
| Flexural Strength                          | ASTM D 790    | psi                           | 13,500                  |
| Flexural Modulus                           | ASTM D 790    | psi                           | 345,000                 |
| Compressive Strength                       | ASTM D 695    | psi                           | 12,500                  |
| Compressive Modulus                        | ASTM D 695    | psi                           | 345,000                 |
| Izod Impact Strength, Notched @ 0.125"     | ASTM D 256    | ft-lbs/in                     | 18                      |
| Izod Impact Strength, Unnotched @ 0.125"   | ASTM D 256    | ft-lbs/in                     | 60 (no break)           |
| Instrumented Impact @ 0.125"               | ASTM D 3763   | ft-lbs                        | 47                      |
| Shear Strength, Break                      | ASTM D 732    | psi                           | 10,000                  |
| Shear Strength, Yield                      | ASTM D 732    | psi                           | 6,000                   |
| Shear Modulus                              | ASTM D 732    | psi                           | 114,000                 |
| Rockwell Hardness                          | ASTM D 785    | -                             | M70 / R118              |
| <b>THERMAL</b>                             |               |                               |                         |
| Coefficient of Thermal Expansion           | ASTM D 696    | in/in/°F                      | 3.75 x 10 <sup>-5</sup> |
| Coefficient of Thermal Conductivity        | ASTM C 177    | BTU-in/hr-ft <sup>2</sup> ·°F | 1.35                    |
| Heat Deflection Temperature @ 264 psi      | ASTM D 648    | °F                            | 270                     |
| Heat Deflection Temperature @ 66 psi       | ASTM D 648    | °F                            | 280                     |
| Brittleness Temperature                    | ASTM D 746    | °F                            | -200                    |
| Shading Coefficient, Clear 0.125"          | ASHRAE        | -                             | 1.02                    |
| Shading Coefficient, Gray, Bronze 0.125"   | ASHRAE        | -                             | 0.7                     |
| U factor 0.236" (summer gain, winter loss) | NFRC 100-2010 | BTU/hr-ft <sup>2</sup> ·°F    | 0.90, 0.96              |
| <b>ELECTRICAL</b>                          |               |                               |                         |
| Dielectric Constant @ 10 Hz                | ASTM D 150    | -                             | 2.96                    |
| Dielectric Constant @ 60 Hz                | ASTM D 150    | -                             | 3.17                    |
| Volume Resistivity                         | ASTM D 257    | Ohm-cm                        | 8.2 x 10 <sup>16</sup>  |
| Dissipation Factor @ 60 Hz                 | ASTM D 150    | -                             | 0.0009                  |
| Arc Resistance                             | -             | -                             | -                       |
| Stainless Steel Strip electrode            | ASTM D 495    | Seconds                       | 10                      |
| Tungsten Electrodes                        | ASTM D 495    | Seconds                       | 120                     |
| Dielectric Strength, in air @ 0.125"       | ASTM D 149    | V/mil                         | 380                     |
| <b>FLAMMABILITY</b>                        |               |                               |                         |
| Flame Class @ 0.060"                       | UL 94         | -                             | V-2                     |
| Flame Class @ 0.212"                       | UL 94         | -                             | V-0                     |
| Horizontal Burn, AEB                       | ASTM D 635    | in                            | <1                      |
| Ignition Temperature, Self                 | ASTM D 1929   | °F                            | 1070                    |
| Ignition Temperature, Flash                | ASTM D 1929   | °F                            | 870                     |

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\*Instrumented Impact per ASTM D 3763, sample thickness 0.125" nominal

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