

# LEXAN<sup>TM</sup> COPOLYMER 943X

REGION ASIA

## DESCRIPTION

LEXAN 943X is a UV stabilized medium flow impact modified injection molding (IM) grade. This resin offers UL94 V0 @ 1.5mm flame retardancy based on non-bromine, non-chlorine FR systems, low temperature ductility characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. LEXAN 943X resin is a product available in a wide range of opaque colors and may be an excellent candidate for a wide range of applications.

## TYPICAL PROPERTY VALUES

Revision 20190618

| PROPERTIES                                   | TYPICAL VALUES | UNITS             | TEST METHODS |
|--|----------------|-------------------|--------------|
| <b>MECHANICAL</b>                            |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min       | 58             | MPa               | ASTM D 638   |
| Tensile Stress, brk, Type I, 50 mm/min       | 60             | MPa               | ASTM D 638   |
| Tensile Strain, yld, Type I, 50 mm/min       | 6              | %                 | ASTM D 638   |
| Tensile Strain, brk, Type I, 50 mm/min       | 130            | %                 | ASTM D 638   |
| Tensile Modulus, 50 mm/min                   | 2100           | MPa               | ASTM D 638   |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 89             | MPa               | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2060           | MPa               | ASTM D 790   |
| Tensile Stress, yield, 50 mm/min             | 55             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 60             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 6              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 125            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 2100           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 85             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 2200           | MPa               | ISO 178      |
| <b>IMPACT</b>                                |                |                   |              |
| Izod Impact, notched, 23°C                   | 800            | J/m               | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 650            | J/m               | ASTM D 256   |
| Instrumented Impact Total Energy, 23°C       | 50             | J                 | ASTM D 3763  |
| Izod Impact, unnotched 80*10*3 +23°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, unnotched 80*10*3 -30°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, notched 80*10*3 +23°C           | 70             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*3 -30°C           | 50             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm   | 75             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm  | 60             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm   | NB             | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm  | NB             | kJ/m <sup>2</sup> | ISO 179/1eU  |
| <b>THERMAL</b>                               |                |                   |              |
| Vicat Softening Temp, Rate B/50              | 140            | °C                | ASTM D 1525  |
| HDT, 0.45 MPa, 3.2 mm, unannealed            | 135            | °C                | ASTM D 648   |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 120            | °C                | ASTM D 648   |
| CTE, -40°C to 40°C, flow                     | 6.5E-05        | 1/°C              | ASTM E 831   |
| CTE, -40°C to 40°C, xflow                    | 6.5E-05        | 1/°C              | ASTM E 831   |

| PROPERTIES  | TYPICAL VALUES                    | UNITS                   | TEST METHODS   |
|---|-----------------------------------|-------------------------|----------------|
| CTE, 23°C to 80°C, flow                             | 7.2E-05                           | 1/°C                    | ISO 11359-2    |
| CTE, 23°C to 80°C, xflow                            | 7.7E-05                           | 1/°C                    | ISO 11359-2    |
| Ball Pressure Test, 125°C +/- 2°C                   | PASSES                            | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/120                    | 140                               | °C                      | ISO 306        |
| Relative Temp Index, Elec <sup>(1)</sup>            | 125                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact <sup>(1)</sup>   | 115                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact <sup>(1)</sup> | 125                               | °C                      | UL 746B        |
| <b>PHYSICAL</b>                                     |                                   |                         |                |
| Specific Gravity                                    | 1.18                              | -                       | ASTM D 792     |
| Mold Shrinkage, flow, 3.2 mm                        | 0.4 – 0.8                         | %                       | SABIC method   |
| Mold Shrinkage, xflow, 3.2 mm                       | 0.4 – 0.8                         | %                       | SABIC method   |
| Melt Flow Rate, 300°C/1.2 kgf                       | 10                                | g/10 min                | ASTM D 1238    |
| Density   | 1.19                              | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/sat)                        | 0.35                              | %                       | ISO 62         |
| Moisture Absorption (23°C / 50% RH)                 | 0.15                              | %                       | ISO 62         |
| Melt Volume Rate, MVR at 300°C/1.2 kg               | 9                                 | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>ELECTRICAL</b>                                   |                                   |                         |                |
| Dielectric Strength, in oil, 3.2 mm                 | 17                                | kV/mm                   | ASTM D 149     |
| Relative Permittivity, 50/60 Hz                     | 2.95                              | -                       | ASTM D 150     |
| Relative Permittivity, 1 MHz                        | 2.9                               | -                       | ASTM D 150     |
| Dissipation Factor, 50/60 Hz                        | 0.0024                            | -                       | ASTM D 150     |
| Dissipation Factor, 1 MHz                           | 0.0085                            | -                       | ASTM D 150     |
| Comparative Tracking Index (UL) {PLC}               | 3                                 | PLC Code                | UL 746A        |
| Dielectric Strength, in oil, 3.2 mm                 | 16                                | kV/mm                   | IEC 60243-1    |
| Comparative Tracking Index                          | 225                               | V                       | IEC 60112      |
| Hot-Wire Ignition (HWI), PLC 1                      | ≥3                                | mm                      | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 2                      | ≥1.5                              | mm                      | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 3                      | ≥0.8                              | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 0                  | ≥2.3                              | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 1                  | ≥0.8                              | mm                      | UL 746A        |
| <b>FLAME CHARACTERISTICS <sup>(1)</sup></b>         |                                   |                         |                |
| UL Yellow Card Link                                 | <a href="#">E207780-101230614</a> | -                       | -              |
| UL Recognized, 94-5VA Flame Class Rating            | ≥3                                | mm                      | UL 94          |
| UL Recognized, 94V-0 Flame Class Rating             | ≥1.5                              | mm                      | UL 94          |
| UL Recognized, 94HB Flame Class Rating              | ≥0.8                              | mm                      | UL 94          |
| Glow Wire Ignitability Temperature, 3.0 mm          | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 2.3 mm          | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 2.0 mm          | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.5 mm          | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Flammability Index, 3.0 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 2.3 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 2.0 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.5 mm                | 960                               | °C                      | IEC 60695-2-12 |
| <b>INJECTION MOLDING</b>                            |                                   |                         |                |
| Drying Temperature                                  | 120                               | °C                      |                |

| PROPERTIES                  | TYPICAL VALUES | UNITS | TEST METHODS |
|-----------------------------|----------------|-------|--------------|
| Drying Time                 | 3 – 4          | hrs   |              |
| Drying Time (Cumulative)    | 48             | hrs   |              |
| Maximum Moisture Content    | 0.02           | %     |              |
| Melt Temperature            | 295 – 315      | °C    |              |
| Nozzle Temperature          | 290 – 310      | °C    |              |
| Front - Zone 3 Temperature  | 295 – 315      | °C    |              |
| Middle - Zone 2 Temperature | 280 – 305      | °C    |              |
| Rear - Zone 1 Temperature   | 270 – 295      | °C    |              |
| Mold Temperature            | 70 – 95        | °C    |              |
| Back Pressure               | 0.3 – 0.7      | MPa   |              |
| Screw Speed                 | 40 – 70        | rpm   |              |
| Shot to Cylinder Size       | 40 – 60        | %     |              |
| Vent Depth                  | 0.025 – 0.076  | mm    |              |

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

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