

## ELIX ABS M220

General purpose grade for self coloring

### Typical properties

| Property                                       | Test Condition | Standard                | Unit Value             |      | Unit Value            |        |
|--|----------------|-------------------------|------------------------|------|-----------------------|--------|
|  |                |                         | SI Metrics             |      | US Conventional       |        |
| <b>Rheological properties</b>                  |                |                         |                        |      |                       |        |
| Melt volume-flow rate                          | 220°C, 10kg    | ISO 1133                | cm <sup>3</sup> /10min | 32   |                       |        |
| Melt flow rate                                 | 230°C, 3.8kg   | ASTM D1238              |                        |      | g/10min               | 11     |
| Molding shrinkage, parallel                    | 60x60x2 mm     | ISO 294-4               | %                      | 0.6  |                       |        |
| Molding shrinkage, normal                      | 60x60x2 mm     | ISO 294-4               | %                      | 0.6  |                       |        |
| <b>Mechanical properties (23°C /50% H.R.)</b>  |                |                         |                        |      |                       |        |
| Yield stress                                   | 50 mm/min      | ISO 527-1,2             | MPa                    | 41   |                       |        |
|  | 5 mm/min       | ASTM D 638              | MPa                    | 38   | psi                   | 5500   |
| Tensile modulus                                | 1 mm/min       | ISO 527-1,2             | MPa                    | 2300 |                       |        |
|  | 5 mm/min       | ASTM D 638              |                        |      | psi                   | 334000 |
| Flexural modulus                               | 2 mm/min       | ISO 178                 | MPa                    | 2200 |                       |        |
|  | 1.3 mm/min     | ASTM D 790              |                        |      | psi                   | 319000 |
| Flexural strength                              | 2 mm/min       | ISO 178                 | MPa                    | 65   | psi                   | 9500   |
| Izod notched impact strength                   | 23 °C (73°F)   | ISO 180-1A              | kJ/m <sup>2</sup>      | 18   | ft-lb/in <sup>2</sup> | 8.6    |
|  | -30 °C (-22°F) | ISO 180-1A              | kJ/m <sup>2</sup>      | 12   | ft-lb/in <sup>2</sup> | 5.7    |
|  | 73°F (23°C)    | ASTM D 256 (3.2mm) 1/8" | J/m                    | 235  | ft-lb/in              | 4.4    |
|  | 73°F (23°C)    | ASTM D 256 (6.4mm) 1/4" | J/m                    | 175  | ft-lb/in              | 3.3    |
|  | -22°F (-30°C)  | ASTM D 256 (3.2mm) 1/8" | J/m                    | 125  | ft-lb/in              | 2.3    |
| Charpy impact strength                         | 23 °C (73°F)   | ISO 179-1eU             | kJ/m <sup>2</sup>      | 100  | ft-lb/in <sup>2</sup> | 47.8   |
| Charpy impact strength                         | -30 °C (-22°F) | ISO 179-1eU             | kJ/m <sup>2</sup>      | 80   | ft-lb/in <sup>2</sup> | 38.2   |
| Charpy notched impact strength                 | 23 °C (73°F)   | ISO 179-1eA             | kJ/m <sup>2</sup>      | 18   | ft-lb/in <sup>2</sup> | 8.6    |
| Charpy notched impact strength                 | -30 °C (-22°F) | ISO 179-1eA             | kJ/m <sup>2</sup>      | 11   | ft-lb/in <sup>2</sup> | 5.2    |
| Ball indentation hardness                      |                | ISO 2039-1              | N/mm <sup>2</sup>      | 103  |                       |        |
| <b>Thermal properties</b>                      |                |                         |                        |      |                       |        |
| Vicat softening temperature                    | B50; 50°C/h    | ISO 306                 | °C                     | 95   |                       |        |
|  | 50N; 50°C/h    | ASTM D 1525             |                        |      | °F                    | 203    |
|  | B120; 120°C/h  | ISO 306                 | °C                     | 97   | °F                    | 207    |
| Deflection temperature under load*             | 1.80 MPa       | ISO 75-1,2              | °C                     | 92   | °F                    | 198    |
| Deflection temperature under load*             | 0.45 MPa       | ISO 75-1,2              | °C                     | 97   | °F                    | 207    |
| CLTE, parallel                                 | 23 to 55°C     | ISO 11359 -1,2          | 10 <sup>-4</sup> /K    | 1    |                       |        |
| CLTE, transverse                               | 23 to 55°C     | ISO 11359 -1,2          | 10 <sup>-4</sup> /K    | 1    |                       |        |
| <b>Electrical properties (23 °C/50 % r.h.)</b> |                |                         |                        |      |                       |        |
| Relative permittivity                          | 100 Hz         | IEC 60250               |                        | 2.9  |                       |        |
| Relative permittivity                          | 1 MHz          | IEC 60250               |                        | 2.9  |                       |        |
| Dissipation factor                             | 100 Hz         | IEC 60250               | 10 <sup>-4</sup>       | 73   |                       |        |
| Dissipation factor                             | 1 MHz          | IEC 60250               | 10 <sup>-4</sup>       | 90   |                       |        |
| Volume resistivity                             |                | IEC 60093               | Ohm·m                  | 1E16 |                       |        |
| Surface resistivity                            |                | IEC 60093               | Ohm                    | 1E16 |                       |        |
| Electric strength                              | 1 mm           | IEC 60243-1             | kV/mm                  | 35   |                       |        |

| <b>Other properties (23°C)</b>                  |      |            |                   |      |                           |
|---|------|------------|-------------------|------|---------------------------|
| Density   | 25°C | ISO 1183-1 | g/cm <sup>3</sup> | 1.05 | lb/in <sup>3</sup> 0.0379 |
| <b>Processing conditions for test specimens</b> |      |            |                   |      |                           |
| Injection molding-melt temperature              |      | ISO 294    | °C                | 240  | °F 464                    |
| Injection molding-mold temperature              |      | ISO 294    | °C                | 80   | °F 176                    |
| Injection molding-injection velocity            |      | ISO 294    | mm/s              | 240  | in/s 9.5                  |

\*(annealed 4h/80°C; 4h/176°F)

Note: control measurements in other places may issue different results due to influences of machinery, equipment, test method or storage conditions.

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### Test values

Unless specified to the contrary, the values given have been established on standardised test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/die, the processing conditions and the colouring.

### Processing note

Under the recommended processing conditions small quantities of decomposition product may be given off during processing. To preclude any risk to the health and well-being of the machine operatives, tolerance limits for the work environment must be ensured by the provision of efficient exhaust ventilation and fresh air at the workplace in accordance with the Safety Data Sheet. In order to prevent the partial decomposition of the polymer and the generation of volatile decomposition products, the prescribed processing temperatures should not be substantially exceeded. Since excessively high temperatures are generally the result of operator error or defects in the heating system, special care and controls are essential in these areas.

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Edition 31.05.2017

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