

# Vyncolit® X680

Phenolic

Vyncolit N.V.

## Message:

Vyncolit® X680 is a glass bead and glass fiber reinforced phenolic molding compound with excellent mechanical and thermal properties, higher isotropic properties and good dimensional stability.

| General Information                               |                                                     |       |             |
|---------------------------------------------------|-----------------------------------------------------|-------|-------------|
| UL YellowCard                                     | E167521-100440806                                   |       |             |
| Filler / Reinforcement                            | Micro glass bead \glass fiber, 55% filler by weight |       |             |
| Features                                          | Good dimensional stability                          |       |             |
| Agency Ratings                                    | EU 2002/96/EC (WEEE) 3                              |       |             |
|                                                   | EU 2006/122/EC                                      |       |             |
| RoHS Compliance                                   | RoHS compliance                                     |       |             |
| Appearance                                        | Black                                               |       |             |
|                                                   | Green                                               |       |             |
| Processing Method                                 | Resin transfer molding                              |       |             |
|                                                   | Compression molding                                 |       |             |
|                                                   | Injection molding                                   |       |             |
| Part Marking Code (ISO 11469)                     | >PF-(GB+GF)55                                       |       |             |
| Physical                                          | Nominal Value                                       | Unit  | Test Method |
| Density                                           | 1.68                                                | g/cm³ | ISO 1183    |
| Apparent Density                                  | 0.67                                                | g/cm³ | ISO 60      |
| Molding Shrinkage                                 | 0.36                                                | %     | ISO 2577    |
| Water Absorption (23°C, 24 hr)                    | 0.050                                               | %     | ISO 62      |
| Post Shrinkage                                    | 0.050                                               | %     | ISO 2577    |
| Flexural Strain at Break                          | 1.5                                                 | %     | ISO 178     |
| Mechanical                                        | Nominal Value                                       | Unit  | Test Method |
| Tensile Modulus (Injection Molded)                | 14000                                               | MPa   | ISO 527-2   |
| Tensile Stress (Break, Injection Molded)          | 90.0                                                | MPa   | ISO 527-2   |
| Tensile Strain (Break, Injection Molded)          | 0.85                                                | %     | ISO 527-2   |
| Flexural Modulus (Injection Molded)               | 13000                                               | MPa   | ISO 178     |
| Flexural Stress (Injection Molded)                | 185                                                 | MPa   | ISO 178     |
| Compressive Stress                                | 270                                                 | MPa   | ISO 604     |
| Impact                                            | Nominal Value                                       | Unit  | Test Method |
| Charpy Notched Impact Strength (Injection Molded) | 3.5                                                 | kJ/m² | ISO 179     |

| Charpy Unnotched Impact Strength<br>(Injection Molded) | 11            | kJ/m <sup>2</sup> | ISO 179     |
|--------------------------------------------------------|---------------|-------------------|-------------|
| Thermal                                                | Nominal Value | Unit              | Test Method |
| Heat Deflection Temperature (1.8 MPa,<br>Unannealed)   | 188           | °C                | ISO 75-2/A  |
| Linear thermal expansion coefficient                   |               |                   | ASTM E831   |
| Flow                                                   | 2.2E-5        | cm/cm/°C          | ASTM E831   |
| Lateral                                                | 4.4E-5        | cm/cm/°C          | ASTM E831   |
| Electrical                                             | Nominal Value | Unit              | Test Method |
| Surface Resistivity                                    | 2.4E+13       | ohms              | IEC 60093   |
| Volume Resistivity                                     | 3.2E+13       | ohms·cm           | IEC 60093   |
| Dielectric Strength                                    | 36            | kV/mm             | IEC 60243-1 |
| Comparative Tracking Index                             | 175           | V                 | IEC 60112   |
| Flammability                                           | Nominal Value | Unit              | Test Method |
| Flame Rating                                           |               |                   | UL 94       |
| 1.50 mm                                                | V-1           |                   | UL 94       |
| 3.00 mm                                                | V-0           |                   | UL 94       |
| Injection                                              | Nominal Value | Unit              |             |
| Rear Temperature                                       | 60.0          | °C                |             |
| Middle Temperature                                     | 73.9          | °C                |             |
| Nozzle Temperature                                     | 87.8          | °C                |             |
| Processing (Melt) Temp                                 | 98.9 - 116    | °C                |             |
| Mold Temperature                                       | 166 - 188     | °C                |             |
| Injection Pressure                                     | 100 - 248     | MPa               |             |
| Holding Pressure                                       | 30.0 - 89.6   | MPa               |             |
| Back Pressure                                          | 4.83 - 15.2   | MPa               |             |
| Screw Speed                                            | 50            | rpm               |             |
| Injection instructions                                 |               |                   |             |

Injection Time: 2 to 8 secHold Time: 1 to 5 sec/mmCure Time: 5 to 12 sec/mm

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