# RESOLE FM 4008

#### Phenolic

Vyncolit N.V.

#### Message:

FM 4008 is a fiberglass and mineral reinforced phenolic resole compound, with excellent dimensional stability and good strength at elevated temperatures.

| General Information                   |                                    |         |             |  |  |
|---------------------------------------|------------------------------------|---------|-------------|--|--|
| Filler / Reinforcement                | Glass \Mineral                     |         |             |  |  |
| Features                              | Ultra high toughness               |         |             |  |  |
| reatures                              | Good dimensional stability         |         |             |  |  |
|                                       | Low smoke                          |         |             |  |  |
|                                       | High strength                      |         |             |  |  |
|                                       | Antibacterial property             |         |             |  |  |
|                                       | Solvent resistance                 |         |             |  |  |
|                                       |                                    |         |             |  |  |
|                                       | Good creep resistance              |         |             |  |  |
|                                       | alkali resistance                  |         |             |  |  |
|                                       | acid resistance                    |         |             |  |  |
| Uses                                  | Membrane key switch                |         |             |  |  |
| Uses                                  | Pump parts                         |         |             |  |  |
|                                       | Gear                               |         |             |  |  |
|                                       | Electrical/Electronic Applications |         |             |  |  |
|                                       | Electrical appliances              |         |             |  |  |
|                                       | Power/other tools                  |         |             |  |  |
|                                       | Connector                          |         |             |  |  |
|                                       | Application in Automobile Field    |         |             |  |  |
|                                       | Shell                              |         |             |  |  |
|                                       |                                    |         |             |  |  |
| Appearance                            | Black                              |         |             |  |  |
| Forms                                 | Particles                          |         |             |  |  |
| Processing Method                     | Resin transfer molding             |         |             |  |  |
|                                       | Compression molding                |         |             |  |  |
|                                       | Injection molding                  |         |             |  |  |
|                                       |                                    |         |             |  |  |
| Physical                              | Nominal Value                      | Unit    | Test Method |  |  |
| Specific Gravity                      | 1.80                               | g/cm³   | ASTM D792   |  |  |
| Molding Shrinkage - Flow (Compression |                                    | <i></i> |             |  |  |
| Molded)                               | 0.20                               | %       | ASTM D955   |  |  |

%

Unit

ASTM D570

Test Method

0.20

Nominal Value

Water Absorption (23°C, 24 hr)

Hardness

| Rockwell Hardness (E-Scale)            | 80            |          | ASTM D785   |
|--|---------------|----------|-------------|
| Mechanical                             | Nominal Value | Unit     | Test Method |
| Tensile Strength (Break, Compression   |               |          |             |
| Molded)                                | 50.0          | MPa      | ASTM D638   |
| Flexural Modulus (Compression Molded)  | 14000         | MPa      | ASTM D790   |
| Flexural Strength (Break)              | 140           | MPa      | ASTM D790   |
| Compressive Strength                   | 240           | MPa      | ASTM D695   |
| Impact                                 | Nominal Value | Unit     | Test Method |
| Notched Izod Impact (Compression       |               |          |             |
| Molded)                                | 27            | J/m      | ASTM D256   |
| Thermal                                | Nominal Value | Unit     | Test Method |
| Deflection Temperature Under Load (1.8 |               |          |             |
| MPa, Unannealed, Compression Molded)   | 265           | °C       | ASTM D648   |
| CLTE - Flow                            | 1.9E-5        | cm/cm/°C | ASTM E831   |
| Electrical                             | Nominal Value | Unit     | Test Method |
| Arc Resistance                         | 180           | sec      | ASTM D495   |
| 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      |             |
| Injection instructions                 |               |          |             |

Plastication: 50rpmInjection Time: 2 to 8 secHold Time: 1 to 5 sec/mmCure Time, 0.125 in: 5 to 12 sec/mmAll ASTM properties listed were tested in accordance with ASTM D5948.Powder Density, ASTM D1895: 0.8 g/cm<sup>3</sup>Water Absorption, ASTM D570, 48 hrs, 50°C: 0.35%DTUL @264psi - Unannealed, ASTM D648, Post Baked, Compression Molded: >282°C

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