# Sumitomo Phenolic FM 4005X4648

Glass Fiber

#### Phenolic

Sumitomo Bakelite North America, Inc.

### Message:

General Information
Filler / Reinforcement

FM 4005X4648 a fiberglass reinforced phenolic novolac molding compound formulated to increase thermal conductivity and electrical conductance. This material also exhibits low post mold shrinkage.

Features         Electrically Conductive           Low Shrinkage         Low Shrinkage           Thermally Conductive         Compression Molding           Forms         Granules           Processing Method         Compression Molding           Physical         Nominal Value         Unit         Test Method           Specific Gravity         1,78         g/cm²         ASTM D792           Apparent Density         0,75         g/cm²         ASTM D895           Water Absorption (24 hr)         0,070         %         ASTM D570           Water Absorption 48 hr         0,20         %           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D583           Flexural Modulus         13800         MPa         ASTM D693           Flexural Modulus         13800         MPa         ASTM D693           Flexural Strength         75.0         MPa         ASTM D693           Impact         Nominal Value         Unit         Test Method           Notiched Izod Impact         26         J/m         ASTM D693           Impact         Nominal Value         Unit         Test Method           <	. ,			
Appearance	Features	Electrically Conductive		
Appearance         Black           Forms         Granules           Processing Method         Compression Molding Injection Molding Injection Molding Resin Transfer Molding           Physical         Nominal Value         Unit         Test Method           ASTM D792         ASTM D792         ASTM D792           Apparent Density         0.75         g/cm³         ASTM D995           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D995           Water Absorption (24 hr)         0.070         %         ASTM D970           Water Absorption + 48 hr         0.20         %         ASTM D970           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D93           Flexural Strength         13800         MPa         ASTM D90           Flexural Strength         75.0         MPa         ASTM D90           Compressive Strength         137         MPa         ASTM D90           Democratic Strength         137         MPa         ASTM D90           Notiched Izod Impact         Nominal Value         Unit         Test Method           Not Lend Izod Impact         Nominal Value         Unit         Test Metho		Low Shrinkage		
Forms         Granules           Processing Method         Compression Molding Injection Inje		Thermally Conductive		
Forms         Granules           Processing Method         Compression Molding Injection Inje				
Processing Method         Compression Molding Injection Molding Injection Molding Injection Molding Resin Transfer Molding           Physical         Nominal Value         Unit         Test Method           Specific Gravity         1.78         g/cm³         ASTM D792           Apparent Density         0.75         g/cm³         ASTM D895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %         ASTM D638           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D638           Flexural Strength         75.0         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D656           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         282         "C           1.8 MPa, Annealed         282         "C           T	Appearance	Black		
Physical   Nominal Value   Unit   Test Method     Specific Gravity   1.78   9/cm³   ASTM D792     Apparent Density   0.75   9/cm³   ASTM D895     Molding Shrinkage - Flow   0.15 to 0.30   %   ASTM D955     Water Absorption (24 hr)   0.070   %   ASTM D570     Water Absorption + 48 hr   0.20   %     Mechanical   Nominal Value   Unit   Test Method     Tensile Strength   34.0   MPa   ASTM D968     Flexural Modulus   13800   MPa   ASTM D790     Flexural Strength   37   MPa   ASTM D790     Flexural Strength   137   MPa   ASTM D790     Flexural Strength   137   MPa   ASTM D695     Impact   Nominal Value   Unit   Test Method     Nominal Value   Unit   Test Method     Tensile Strength   137   MPa   ASTM D695     Impact   Nominal Value   Unit   Test Method     Nothod Izod Impact   26   J/m   ASTM D266A     Thermal   Nominal Value   Unit   Test Method     Deflection Temperature Under Load   191   C	Forms	Granules		
Physical         Nominal Value         Unit         Test Method           Specific Gravity         1.78         g/cm³         ASTM D792           Apparent Density         0.75         g/cm³         ASTM D895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption + 48 hr         0.20         %         ASTM D638           Hecknarical         Nominal Value         Unit         Test Method           1 sexural Modulus         1 3800         MPa         ASTM D638           Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notchel Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         2         V         ASTM D56A           1.8 MPa, Unannealed         191         "C         Test Method           1.8 MPa, Annealed         > 282         "C         U.746 <tr< td=""><td rowspan="2">Processing Method</td><td>Compression Molding</td><td></td><td></td></tr<>	Processing Method	Compression Molding		
Physical         Nominal Value         Unit         Test Method           Specific Gravity         1.78         g/cm²         ASTM D792           Apparent Density         0.75         g/cm²         ASTM D1895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption + 48 hr         0.20         %         Test Method           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D688           Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Ized Impact         26         J/m         ASTM D56A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         2         X         ASTM D648           1.8 MPa, Unannealed         191         *C         **           1.8 MPa, Annealed         282         **         C           Ther		Injection Molding		
Specific Gravity         1.78         g/cm³         ASTM D792           Apparent Density         0.75         g/cm³         ASTM D1895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %		Resin Transfer Molding		
Specific Gravity         1.78         g/cm³         ASTM D792           Apparent Density         0.75         g/cm³         ASTM D1895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %				
Apparent Density         0.75         g/cm³         ASTM D1895           Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Nothed Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         "C         ASTM D648           1.8 MPa, Unannealed         191         "C         Test Method           1.8 MPa, Annealed         > 282         "C         Thermal Conductivity         ASTM C518           RTI Elec         150         "C         UL746           RTI Imp         150         "C         UL746	Physical	Nominal Value	Unit	Test Method
Molding Shrinkage - Flow         0.15 to 0.30         %         ASTM D955           Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         Vin         ASTM D648           1.8 MPa, Unannealed         191         °C           1.8 MPa, Annealed         > 282         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL746           RTI Imp         150         °C         UL746	Specific Gravity	1.78	g/cm³	ASTM D792
Water Absorption (24 hr)         0.070         %         ASTM D570           Water Absorption - 48 hr         0.20         %           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         Vinit         Test Method           1.8 MPa, Unannealed         191         *C           1.8 MPa, Annealed         > 282         *C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         *C         UL 746           RTI Imp         150         *C         UL 746	Apparent Density	0.75	g/cm³	ASTM D1895
Water Absorption - 48 hr         0.20         %           Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         "C         ASTM D648           1.8 MPa, Unannealed         191         "C           1.8 MPa, Annealed         > 282         "C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         "C         UL 746           RTI Imp         150         "C         UL 746	Molding Shrinkage - Flow	0.15 to 0.30	%	ASTM D955
Mechanical         Nominal Value         Unit         Test Method           Tensile Strength         34.0         MPa         ASTM D638           Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         "C         ASTM D648           1.8 MPa, Unannealed         191         "C           1.8 MPa, Annealed         > 282         "C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         "C         UL 746           RTI Imp         150         "C         UL 746	Water Absorption (24 hr)	0.070	%	ASTM D570
Tensile Strength       34.0       MPa       ASTM D638         Flexural Modulus       13800       MPa       ASTM D790         Flexural Strength       75.0       MPa       ASTM D790         Compressive Strength       137       MPa       ASTM D695         Impact       Nominal Value       Unit       Test Method         Notched Izod Impact       26       J/m       ASTM D256A         Thermal       Nominal Value       Unit       Test Method         Deflection Temperature Under Load       Vnit       Test Method         1.8 MPa, Unannealed       191       °C         1.8 MPa, Annealed       > 282       °C         Thermal Conductivity       1.2       W/m/K       ASTM C518         RTI Elec       150       °C       UL 746         RTI Imp       150       °C       UL 746	Water Absorption - 48 hr	0.20	%	
Flexural Modulus         13800         MPa         ASTM D790           Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           1.8 MPa, Unannealed         191         °C           1.8 MPa, Unannealed         191         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	Mechanical	Nominal Value	Unit	Test Method
Flexural Strength         75.0         MPa         ASTM D790           Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         **C         ASTM D648           1.8 MPa, Unannealed         191         **C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         **C         UL 746           RTI Imp         150         **C         UL 746	Tensile Strength	34.0	МРа	ASTM D638
Compressive Strength         137         MPa         ASTM D695           Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         ASTM D648           1.8 MPa, Unannealed         191         °C           1.8 MPa, Annealed         > 282         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	Flexural Modulus	13800	MPa	ASTM D790
Impact         Nominal Value         Unit         Test Method           Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         191         °C           1.8 MPa, Unannealed         191         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	Flexural Strength	75.0	MPa	ASTM D790
Notched Izod Impact         26         J/m         ASTM D256A           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         4STM D648           1.8 MPa, Unannealed         191         °C           1.8 MPa, Annealed         > 282         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	Compressive Strength	137	MPa	ASTM D695
Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load         4STM D648           1.8 MPa, Unannealed         191         °C           1.8 MPa, Annealed         > 282         °C           Thermal Conductivity         1.2         W/m/K         ASTM C518           RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	Impact	Nominal Value	Unit	Test Method
Deflection Temperature Under Load       ASTM D648         1.8 MPa, Unannealed       191       °C         1.8 MPa, Annealed       > 282       °C         Thermal Conductivity       1.2       W/m/K       ASTM C518         RTI Elec       150       °C       UL 746         RTI Imp       150       °C       UL 746	Notched Izod Impact	26	J/m	ASTM D256A
1.8 MPa, Unannealed       191       °C         1.8 MPa, Annealed       > 282       °C         Thermal Conductivity       1.2       W/m/K       ASTM C518         RTI Elec       150       °C       UL 746         RTI Imp       150       °C       UL 746	Thermal	Nominal Value	Unit	Test Method
1.8 MPa, Annealed       > 282       °C         Thermal Conductivity       1.2       W/m/K       ASTM C518         RTI Elec       150       °C       UL 746         RTI Imp       150       °C       UL 746	Deflection Temperature Under Load			ASTM D648
Thermal Conductivity 1.2 W/m/K ASTM C518 RTI Elec 150 °C UL 746 RTI Imp 150 °C UL 746	1.8 MPa, Unannealed	191	°C	
RTI Elec         150         °C         UL 746           RTI Imp         150         °C         UL 746	1.8 MPa, Annealed	> 282	°C	
RTI Imp 150 °C UL 746	Thermal Conductivity	1.2	W/m/K	ASTM C518
<u> </u>	RTI Elec	150	°C	UL 746
RTI Str 150 °C UL 746	RTI Imp	150	°C	UL 746
	RTI Str	150	°C	UL 746

Flammability	Nominal Value	Test Method
Flame Rating (3.20 mm)	V-0	UL 94

The information and data on this page are provided by manufacturers and document providers. SHANGHAI SUSHENG assumes no legal liability. It is strongly recommended to verify all technical data with material suppliers before final material selection. All rights belong to the original authors. If any infringement occurs, please contact us immediately.

### Recommended distributors for this material

## Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533 Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

