

# Ultramid® C3U

## Polyamide 6/66

### Product Description

Ultramid C3U is an injection molding, general purpose PA6/66 grade with improved flame retardance. The product is UL recognized as 94V0 at 0.4 mm minimum thickness.

### Applications

It is used for impact resistant electrical insulating parts such as contact bases and plug connector strips.

| PHYSICAL                                             | ISO Test Method | Property Value |             |
|------------------------------------------------------|-----------------|----------------|-------------|
| Density, g/cm                                        | 1183            | 1.16           |             |
| Moisture, %                                          | 62              |                |             |
| (50% RH)                                             |                 | 2.9            |             |
| (Saturation)                                         |                 | 8.5            |             |
| RHEOLOGICAL                                          | ISO Test Method | Dry            | Conditioned |
| Melt Volume Rate (275 C/5 Kg), cc/10min.             | 1133            | 140            | -           |
| MECHANICAL                                           | ISO Test Method | Dry            | Conditioned |
| Tensile Modulus, MPa                                 | 527             |                |             |
| 23C                                                  |                 | 3,500          | 1,500       |
| Tensile stress at yield, MPa                         | 527             |                |             |
| 23C                                                  |                 | 75             | 45          |
| Tensile stress at break, MPa                         | 527             |                |             |
| Tensile strain at yield, %                           | 527             |                |             |
| 23C                                                  |                 | 4              | 18          |
| Nominal strain at break, %                           | 527             |                |             |
| 23C                                                  |                 | 6              | >50         |
| Flexural Modulus, MPa                                | 178             |                |             |
| 23C                                                  |                 | 3,000          | -           |
| Ball Indentation, MPa                                | 2039-1          | 100            | -           |
| IMPACT                                               | ISO Test Method | Dry            | Conditioned |
| Izod Notched Impact, kJ/m <sup>2</sup>               | 180             |                |             |
| 23C                                                  |                 | 4.5            | -           |
| Charpy Notched, kJ/m <sup>2</sup>                    | 179             |                |             |
| 23C                                                  |                 | 9              | 35          |
| -30C                                                 |                 | 4              | -           |
| Charpy Unnotched, kJ/m <sup>2</sup>                  | 179             |                |             |
| 23C                                                  |                 | 80             | N           |
| THERMAL                                              | ISO Test Method | Dry            | Conditioned |
| Melting Point, C                                     | 3146            | 243            | -           |
| HDT A, C                                             | 75              | 70             | -           |
| Coef. of Linear Thermal Expansion, Parallel, mm/mm C |                 | 0.8 X10-4      | -           |
| Coef. of Linear Thermal Expansion, Normal, mm/mm C   |                 | 0.9 X10-4      | -           |



| ELECTRICAL                  | ISO Test Method | Dry  | Conditioned |
|-----------------------------|-----------------|------|-------------|
| Comparative Tracking Index  | IEC 60112       | 600  | 600         |
| Volume Resistivity          | IEC 60093       | 1E13 | 1E9         |
| Dielectric Constant (1 MHz) | IEC 60250       | 3.6  | 6           |
| Dissipation Factor (1 MHz)  | IEC 60250       | 200  | 3,000       |
| Dielectric Strength, KV/mm  | IEC 60243-1     | 32   | 28          |

| UL RATINGS                        | UL Test Method | Property Value |
|-----------------------------------|----------------|----------------|
| Flammability Rating, 1.5mm        | UL94           | V-0            |
| Relative Temperature Index, 1.5mm | UL746B         |                |
| Mechanical w/o Impact, C          |                | 120            |
| Mechanical w/ Impact, C           |                | 105            |
| Electrical, C                     |                | 120            |

## Processing Guidelines

### Material Handling

Max. Water content: 0.15%

Product is supplied in sealed containers and drying prior to molding is not required. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 80 degC (176 degF) is recommended. Drying time is dependent on moisture level, but 2-4 hours is generally sufficient. Further information concerning safe handling procedures can be obtained from the Material Safety Data Sheet. Alternatively, please contact your BASF representative.

### Typical Profile

Melt Temperature 240-285 degC (464-545 degF)

Mold Temperature 65-80 degC (149-176 degF)

Injection and Packing Pressure 35-125 bar (500-1500 psi)

### Mold Temperatures

A mold temperature of 65-80 degC (149-176 degF) is recommended, but temperatures of as low as 10 degC (50 degF) can be used where applicable.

### Pressures

Injection pressure controls the filling of the part and should be applied for 90% of ram travel.

Packing pressure affects the final part and can be used effectively in controlling sink marks and shrinkage. It should be applied and maintained until the gate area is completely frozen off.

### Fill Rate

Fast fill rates are recommended to ensure uniform melt delivery to the cavity and prevent premature freezing.

## Note

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