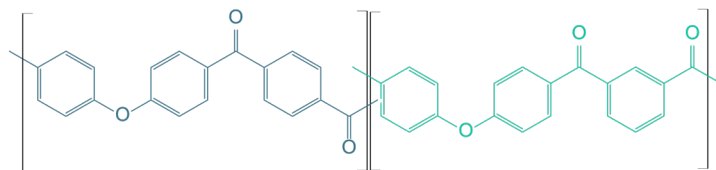


## IMPEKK<sup>®</sup> 3D-F by Seqens



## Technical Data – IMPEKK<sup>®</sup> 3D-F

### Product description

IMPEKK<sup>®</sup> is a high-performance thermoplastic polymer.

Its chemical structure of 2 ketone groups gives IMPEKK<sup>®</sup> polymer an excellent polarity and allows for a great acceptance of functional fillers, providing a wide range of formulation choices for development of implantable medical devices.

IMPEKK<sup>®</sup> 3D-F is available in filament form. Standard packaging is 500g spools.

### Material properties

|                       | Condition                    | Test method | Unit                   | Typical Value |
|-----------------------|------------------------------|-------------|------------------------|---------------|
| <b>General</b>        |                              |             |                        |               |
| Filament diameter     | -                            | -           | mm                     | 1.75          |
| Density               | 23°C                         | ISO 1183    | g/cm <sup>3</sup>      | 1.27          |
| Color                 | -                            | -           | -                      | Amber         |
| Water absorption      | 23°C, RH50% equilibrium      | ISO 62      | %                      | 0.16          |
|                       | 23°C, RH50%, 24 h, 2 mm      |             | %                      | 0.03          |
|                       | 23°C, immersion, equilibrium |             | %                      | 0.6           |
|                       | 23°C, immersion, 24 h, 2 mm  |             | %                      | 0.2           |
| Melt volume flow rate | 380°C / 1.2 kg               | ISO 1133    | cm <sup>3</sup> /10min | 9             |
|                       | 380°C / 1 kg                 |             | cm <sup>3</sup> /10min | 6.1           |

### Thermal

|                  |                                   |     |    |     |
|------------------|-----------------------------------|-----|----|-----|
| Melting point    | 20°C/min, 2 <sup>nd</sup> heating | DSC | °C | 305 |
| Glass transition | 20°C/min                          |     | °C | 160 |

### Mechanical

|                                    |                 |             |                   |     |
|------------------------------------|-----------------|-------------|-------------------|-----|
| Tensile modulus                    | 23°C, 1 mm/min  | ISO 527-1BA | GPa               | 3.1 |
| Tensile strength (yield point)     |                 |             | MPa               | 90  |
| Elongation at yield                | 23°C, 25 mm/min | ISO 527-1BA | %                 | 5.5 |
| Elongation at break                |                 |             | %                 | >30 |
| Compression modulus                | 23°C, 1 mm/min  | ISO 604     | GPa               | Tbd |
| Compression strength               | 23°C, 5 mm/min  | ISO 604     | MPa               | Tbd |
| Charpy impact strength – Unnotched | 23°C            | ISO 179/1eU | kJ/m <sup>2</sup> | NB  |
| Charpy impact strength – Notched   | 23°C            | ISO 179/1eA | kJ/m <sup>2</sup> | 5.5 |

All data values are related to the IMPEKK 3D-G resin used for the manufacture of IMPEKK 3D-F, and measured on injection molded specimens, with polymer in glassy state. NB = no break



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## Recommended processing conditions

|                                  |                                                             |
|----------------------------------|-------------------------------------------------------------|
| Drying temperature and time      | 120°C during 8 to 10 hours                                  |
| Processing temperature           | 320 – 360°C                                                 |
| Temperature settings – Injection | Rear 300°C / Centre 315°C / Nozzle 330°C                    |
| Mold temperature                 | 80 to 120°C, below Tg in any case                           |
| Temperature settings – Extrusion | Zones 1/2/3/4 : 290°C / 320°C / 330°C / 320°C / Die : 320°C |

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