

## PEEK plastic Properties

parameter table

| Test items                                                             | Test criteria | SJIIWT<br>Test conditions            | Units             | NJSSPEEK-1000    | NJSSPEEK-FC1030            | NJSSPEEK-G1030   | NJSSPEEK-C1030   |
|------------------------------------------------------------------------|---------------|--------------------------------------|-------------------|------------------|----------------------------|------------------|------------------|
|                                                                        |               |                                      |                   | Pure resin       | Graphite-PTFE<br>(10%each) | 30% glass fiber  | 30% carbon fiber |
| Density                                                                | ios1183       | crystal                              | g/cm <sup>3</sup> | 1.3              | 1.44                       | 1.51             | 1.4              |
| Water absorption<br>rate(3.2mm thick<br>tensile bar ,<br>soaking test) | IOS62-1       | 24h,23°C                             | %                 | 0.07             | 0.06                       | 0.04             | 0.04             |
|                                                                        |               | Balance,23°C                         | %                 | 0.4              | 0.3                        | 0.4              | 0.3              |
| Tensile strength                                                       | IOS527        | Yield,23°C                           | MPa               | 100              | 140                        | 175              | 260              |
| Elongation at break                                                    | IOS527        | Fracture,23°C                        | %                 | 20               | 2.2                        | 2.7              | 1.7              |
| Bending Strength                                                       | IOS178        | Yield,23°C                           | MPa               | 165              | 190                        | 265              | 380              |
| Bending modulus                                                        | IOS178        | 23°C                                 | GPa               | 4.1              | 7.8                        | 11.3             | 23               |
| Compressive<br>strength                                                | IOS604        | 23°C                                 | MPa               | 125              | 155                        | 250              | 300              |
| Impact strength of<br>simply supported<br>beam                         | IOS179/1eA    | There is a gap                       | KJ/m <sup>2</sup> | 7                | 5                          | 8                | 7                |
|                                                                        | IOS179/1U     | No gap                               | KJ/m <sup>2</sup> |                  |                            | 55               | 45               |
| Impact strength of<br>cantilever beam                                  | IOS180/A      | There is a gap                       | KJ/m <sup>2</sup> | 7.5              | 5                          | 10               | 9                |
|                                                                        | IOS180/U      | No gap                               | KJ/m <sup>2</sup> | -                |                            | 60               | 45               |
| Shore D hardness                                                       | IOS868        | 23°C                                 |                   | 85               | 80                         | 88               | 88               |
| Nelting point                                                          | IOS11357      | -                                    | °C                | 343              | 343                        | 343              | 343              |
| Glass transition<br>temperature                                        | IOS11357      | Start                                | °C                | 143              | 143                        | 143              | 143              |
| Specific heat<br>capacity                                              | DSC           | 23°C                                 | KJ/kg°C           | 2.2              | 1.7                        | 1.7              | 1.8              |
| Coefficient of<br>thermal expansion                                    | IOS11359      | Below Tg along the<br>flow direction | Ppm/K             | 45               |                            | 18               | 6                |
|                                                                        |               | Below Tg along the<br>flow direction | Ppm/K             | 120              |                            | 18               | 6                |
| Heat distortion<br>temperature                                         | IOS75-f       | 1.8Mpa                               | °C                | 152              | 300                        | 315              | 315              |
| Thermal<br>conductivity                                                | IOS2207-4     | 23°C                                 | W/mK              | 0.29             | 0.3                        | 0.3              | 0.95             |
| Dielectric strength                                                    | IEC60243-1    | 2mm                                  | kV/mm             | 23               |                            | 25               | -                |
| Dielectric resistivity                                                 | IEC60093      | 23°C, 1V                             | Ω-cm              | 10 <sup>16</sup> |                            | 10 <sup>16</sup> | 10 <sup>5</sup>  |
|                                                                        |               | 275°C                                | Ω-cm              | 10 <sup>9</sup>  |                            | -                | -                |

Note : This date is not a guaranteed value, but a typical value.

## PEEK Plastic

PEEK is a special engineering plastic with excellent performance, which has more obvious advantages compared with other special engineering plastics, such as high temperature resistance of 260°C, excellent mechanical properties, good self-lubricating, chemical corrosion resistance, flame retardancy, Stripping resistance, wear resistance, strong nitric acid and concentrated sulfuric acid resistance, radiation resistance, super mechanical properties, etc., can be used in high-end machinery, nuclear engineering, petroleum and aviation and other high-tech fields.

### Key features

#### ◆ High temperature resistance

PEEK resin has high melting point(343°C) and glass transition temperature (143°C). Its continuous service temperature is 260°C, and the load heat distortion temperature of 30% glass fiber/carbon fiber reinforced grades is as high as 315°C.

#### ◆ Mechanical properties

PEEK resin provides good toughness and rigidity, with excellent fatigue resistance to alternating stress, comparable to alloy materials.

#### ◆ Self-lubricity (corrosion resistance)

PEEK resin offers excellent sliding characteristics, ideal for applications with requirements on low friction coefficient and high wear resistance.

#### ◆ Chemical resistance

Its corrosion resistance is similar to nickel steel. PEEK is only dissolved by concentrated sulfuric acid and has excellent chemical resistance, being more acid and alkali resistant than polyimide, especially at high temperature.

#### ◆ Flame retardancy

PEEK is a very stable polymer. A 1.45 mm thick sample reaches the high est flame retardant standard without any flame retardant additives.

#### ◆ Radiation and peeling resistance

PEEK has good radiation and peeling resistance, and can be used to produce electromagnetic wires for special purposes.

#### ◆ Fatigue resistance

PEEK resin shows excellent fatigue resistance among all resins.

#### ◆ Hydrolysis resistance

Products made of PEEK resin and its composites maintain good performance during continuous use in high-temperature, high-pressure water.

#### ◆ Workability

PEEK has good flowability and a high thermal decomposition temperature. It can be processed by injection molding, compression molding, extrusion molding, blow molding and melt spinning.

#### ◆ Insulation stability

PEEK has good electrical insulation performance maintained over a very wide temperature range, and its dielectric loss is very small even at high frequency.

#### ◆ Wear resistance

The good wear resistance of PEEK is equivalent to that of polyimide.

