

## PK5000 Powder

### KEY HIGHLIGHTS

- Improved impact strength over PA 12 SLS and similar nylon materials
- POM like coefficient of friction and feel
- Very low moisture absorption
- Dimensionally stable
- Excellent chemical resistance
- Very good elongation properties
- Low carbon footprint

### A perfect balance of key mechanical properties resulting in a polymer that's strong, tough and ductile

This material features a unique combination of chemical and mechanical properties, such as high-impact strength, high-abrasion resistance and improved elongation to withstand functional testing and use. Equally important, PK 5000 has high-barrier properties and low-moisture absorption, which are critical for ensuring the quality and resilience of parts and products exposed to fuel and water.

Our engineered powder, which is based on PolyKetone, is an eco-friendly and non-toxic polymer made from carbon monoxide and olefins. The ability to leverage carbon monoxide, which is a leading cause of atmospheric pollution, reduces its overall carbon footprint.

### Formulated for highly demanding and sensitive applications

PK 5000 has been formulated to support highly demanding automotive, consumer electronics, defense and industrial manufacturing applications. It is a resilient polymer that performs well in applications where low friction and wear resistance are paramount. And being non-toxic with zero VOCs (Volatile Organic Compounds) it can be used in food contact and medical manufacturing applications.

### Delivering Material Innovations from Beaker to Box

PK 5000 was created, tested and validated at Jabil's Materials Innovation Center in Chaska, Minn., where polymer formulations, compound developments and material system integration are completed from start-to-finish under one roof. Highly experienced additive manufacturing engineers, chemists, materials scientists and production experts leverage Jabil's innovations in materials science to oversee each step of the beaker-to-box process of developing customized powders and filaments.



## Jabil PK 5000 Powder Benefit Comparison to Similar Materials

Jabil's eco-friendly polymer-based additive material is engineered to deliver improved strength, chemical resistance and resilience in comparison to general-purpose nylon materials, such as PA 11 SLS or PA 12 SLS.

- Impact strength twice that of PA 12 SLS
- 60% of the carbon footprint of standard PA 12 SLS
- POM like coefficient of friction and feel
- Similar processing parameters to PA 11 SLS
- Improved chemical resistance compared to PA 11 SLS and PA 12 SLS
- Greater than 50% refresh/recycle rates

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of Design World's  
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for Advanced Materials



|          | UTS (MPa)   | MODULUS (MPa) | EaB (%)     | UNNOTCHED IMPACT STRENGTH (J/m) | NOTCHED IMPACT STRENGTH (J/m) |                         |
|----------|-------------|---------------|-------------|---------------------------------|-------------------------------|-------------------------|
|          | Orientation | Orientation   | Orientation | Orientation                     | Orientation                   |                         |
|          | XY          | XY            | Z           | XY                              | XY                            | Sintered Density (g/cc) |
| Material | Mean        | Mean          | Mean        | Mean                            | Mean                          | Mean                    |
| PA 11    | 48          | 1517          | 47          | 1486                            | 74                            | 1                       |
| PA 12    | 43          | 1568          | 14          | 336                             | 32                            | 1                       |
| PK5000   | 53          | 1305          | 41          | 1241                            | 83                            | 1.23                    |

For additional information visit

[jabil.com/services/additive-manufacturing/engineered-materials](http://jabil.com/services/additive-manufacturing/engineered-materials)

### About Jabil

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