

# Nylon Cast 6 Natural *DirectPlastics*

...not just a quicker delivery!

PA6C (Cast Polyamide)

Colour: Natural

Density: 1.15g/cm<sup>3</sup>

## Material Data Sheet

| Mechanical Properties                 | Parameter            | Value | Unit              | DIN/EN/ISO |
|---------------------------------------|----------------------|-------|-------------------|------------|
| Modulus of elasticity (tensile test)  | 1mm/min              | 3500  | MPa               | 527-2      |
| Tensile strength                      | 50mm/min             | 83    | MPa               | 527-2      |
| Tensile strength at yield             | 50mm/min             | 80    | MPa               | 527-2      |
| Elongation at Yield                   | 50mm/min             | 4     | %                 | 527-2      |
| Elongation at break                   | 50mm/min             | 55    | %                 | 527-2      |
| Flexural strength                     | 2mm/min 10N          | 109   | MPa               | 178        |
| Modulus of elasticity (flexural test) | 2mm/min 10N          | 3200  | MPa               | 178        |
| Compression Strength                  | 1%/2%<br>5mm/min 10N | 19/39 | MPa               | 604        |
| Compression modulus                   | 5mm/min 10N          | 2900  | MPa               | 604        |
| Impact strength (Charpy)              | Max. 7,5J            | N.B.  | kJ/m <sup>2</sup> | 179-1eU    |
| Notched impact strength (Charpy)      | Max. 7,5J            | 4     | kJ/m <sup>2</sup> | 179-1eA    |
| Ball indentation hardness             | -                    | 170   | MPa               | 2039-1     |

| Thermal Properties           | Parameter      | Value | Unit                             | DIN/EN/ISO   |
|------------------------------|----------------|-------|----------------------------------|--------------|
| Glass transition temperature | -              | 40    | °C                               | 53765        |
| Melting temperature          | -              | 215   | °C                               | 53765        |
| Service temperature          | Short term     | 170   | °C                               | -            |
| Service temperature          | Long term      | 100   | °C                               | -            |
| Thermal expansion (CLTE)     | 23-60°C, Long  | 12    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Thermal expansion (CLTE)     | 23-100°C, Long | 12    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Specific heat                | -              | 1.7   | J/(g*K)                          | 22007-4:2008 |
| Thermal conductivity         | -              | 0.38  | W/(K*m)                          | 22007-4:2008 |

| Electrical properties | Parameter | Value            | Unit | DIN/IEC |
|-----------------------|-----------|------------------|------|---------|
| Surface resistance    | -         | 10 <sup>14</sup> | Ω    | 60093   |

| Other properties              | Parameter        | Value   | Unit | DIN/EN/ISO/IEC |
|-------------------------------|------------------|---------|------|----------------|
| Water absorption              | 24h/96h (23°C)   | 0.2/0.4 | %    | 62             |
| Resistance to hot water/bases | -                | (+)     | -    | -              |
| Resistance to weathering      | -                | -       | -    | -              |
| Flammability (UL94)           | Corresponding to | HB      | -    | 60695-11-10    |



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# Nylon Cast 6 Black

**DirectPlastics**

...not just a quicker delivery!

PA6C (Cast Polyamide 6)

Colour: Black

Fillers: Molybdenum Disulfide

Density: 1.15g/cm<sup>3</sup>

## Material Data Sheet

| Mechanical Properties                 | Parameter            | Value | Unit              | DIN/EN/ISO |
|---------------------------------------|----------------------|-------|-------------------|------------|
| Modulus of elasticity (tensile test)  | 1mm/min              | 3200  | MPa               | 527-2      |
| Tensile strength                      | 50mm/min             | 82    | MPa               | 527-2      |
| Tensile strength at yield             | 50mm/min             | 80    | MPa               | 527-2      |
| Elongation at Yield                   | 50mm/min             | 4     | %                 | 527-2      |
| Elongation at break                   | 50mm/min             | 55    | %                 | 527-2      |
| Flexural strength                     | 2mm/min 10N          | 102   | MPa               | 178        |
| Modulus of elasticity (flexural test) | 2mm/min 10N          | 3000  | MPa               | 178        |
| Compression Strength                  | 1%/2%<br>5mm/min 10N | 22/38 | MPa               | 604        |
| Compression modulus                   | 5mm/min 10N          | 2800  | MPa               | 604        |
| Impact strength (Charpy)              | Max. 7,5J            | N.B.  | kJ/m <sup>2</sup> | 179-1eU    |
| Notched impact strength (Charpy)      | Max. 7,5J            | 4     | kJ/m <sup>2</sup> | 179-1eA    |
| Ball indentation hardness             | -                    | 170   | MPa               | 2039-1     |

| Thermal Properties           | Parameter      | Value | Unit                             | DIN/EN/ISO   |
|------------------------------|----------------|-------|----------------------------------|--------------|
| Glass transition temperature | -              | 43    | °C                               | 53765        |
| Melting temperature          | -              | 217   | °C                               | 53765        |
| Service temperature          | Short term     | 170   | °C                               | -            |
| Service temperature          | Long term      | 100   | °C                               | -            |
| Thermal expansion (CLTE)     | 23-60°C, Long  | 11    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Thermal expansion (CLTE)     | 23-100°C, Long | 11    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Specific heat                | -              | 1.6   | J/(g*K)                          | 22007-4:2008 |
| Thermal conductivity         | -              | 0.33  | W/(K*m)                          | 22007-4:2008 |

| Electrical properties | Parameter | Value             | Unit | DIN/IEC |
|-----------------------|-----------|-------------------|------|---------|
| Surface resistance    | -         | >10 <sup>12</sup> | Ω    | 60093   |

| Other properties              | Parameter        | Value   | Unit | DIN/EN/ISO/IEC |
|-------------------------------|------------------|---------|------|----------------|
| Water absorption              | 24h/96h (23°C)   | 0.2/0.5 | %    | 62             |
| Resistance to hot water/bases | -                | (+)     | -    | -              |
| Resistance to weathering      | -                | (+)     | -    | -              |
| Flammability (UL94)           | Corresponding to | HB      | -    | 60695-11-10    |



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# Nylon Cast 6 HS

## Blue

PA6C (Cast Polyamide 6 + UV & Heat Stabilisers)

Colour: Blue

Density: 1.14g/cm<sup>3</sup>

## Material Data Sheet

| Mechanical Properties                 | Parameter     | Value | Unit              | DIN/EN/ISO |
|---------------------------------------|---------------|-------|-------------------|------------|
| Modulus of elasticity                 | 50mm/min      | 4000  | MPa               | 527-1/2    |
| Tensile strength                      | 50mm/min      | 80    | MPa               | 527-1/2    |
| Elongation at break                   | 50mm/min      | >20   | %                 | 527-1/2    |
| Flexural strength                     | 1.5mm/min 10N | 105   | MPa               | 178        |
| Modulus of elasticity (flexural test) | 1.5mm/min 10N | 3300  | MPa               | 178        |
| Compression Strength                  | 5mm/min 10N   | 95    | MPa               | 604        |
| Compression modulus                   | 1mm/min 10N   | 2700  | MPa               | 604        |
| Impact strength (Izod)                | Notched       | 5.40  | kJ/m <sup>2</sup> | 180        |
| Hardness (shore D)                    | -             | 84    | -                 | -          |

| Thermal Properties       | Parameter     | Value                | Unit             | DIN/EN/ISO |
|--------------------------|---------------|----------------------|------------------|------------|
| Melting temperature      | -             | 220                  | °C               | -          |
| Service temperature      | Short term    | 180                  | °C               | -          |
| Service temperature      | Long term     | 115                  | °C               | -          |
| Thermal expansion (CLTE) | 23-55°C, Long | 8 x 10 <sup>-5</sup> | °C <sup>-1</sup> | 11359-2    |
| Thermal conductivity     | -             | -                    | W/m.°C           | 8301       |

| Electrical Properties      | Parameter | Value                | Unit  | DIN/IEC |
|----------------------------|-----------|----------------------|-------|---------|
| Surface resistance ROA     | -         | 1 x 10 <sup>12</sup> | Ohm   | 60093   |
| Volume resistivity         | -         | 1 x 10 <sup>13</sup> | Ohm.m | 60093   |
| Dielectric constant        | -         | 3.7                  | 1MHz  | 60250   |
| Dissipation strength       | -         | 25                   | kV/mm | 60243-1 |
| Comparative tracking index | -         | 600                  | CTI   | 60112   |

| Other Properties            | Parameter      | Value | Unit | DIN/EN/ISO/IEC |
|-----------------------------|----------------|-------|------|----------------|
| Water absorption saturation | Immersion 23°C | 5.3   | %    | 62             |
| Water absorption 24 hours   | Immersion 23°C | 0.3   | %    | 62 (modified)  |
| Resistance to weathering    | -              | (+)   | -    | -              |
| Flammability (UL94)         | -              | HB    | -    | 60695-11-10    |



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PA6 (Polyamide 6)

Colour: Natural

Density: 1.14g/cm<sup>3</sup>

# Material Data Sheet

| Mechanical Properties                 | Parameter            | Value | Unit              | DIN/EN/ISO |
|---------------------------------------|----------------------|-------|-------------------|------------|
| Modulus of elasticity (tensile test)  | 1mm/min              | 3300  | MPa               | 527-2      |
| Tensile strength                      | 50mm/min             | 79    | MPa               | 527-2      |
| Tensile strength at yield             | 50mm/min             | 78    | MPa               | 527-2      |
| Elongation at Yield                   | 50mm/min             | 4     | %                 | 527-2      |
| Elongation at break                   | 50mm/min             | 130   | %                 | 527-2      |
| Flexural strength                     | 2mm/min 10N          | 100   | MPa               | 178        |
| Modulus of elasticity (flexural test) | 2mm/min 10N          | 2900  | MPa               | 178        |
| Compression Strength                  | 1%/2%<br>5mm/min 10N | 24/41 | MPa               | 604        |
| Compression modulus                   | 5mm/min 10N          | 2700  | MPa               | 604        |
| Impact strength (Charpy)              | Max. 7,5J            | N.B.  | kJ/m <sup>2</sup> | 179-1eU    |
| Notched impact strength (Charpy)      | Max. 7,5J            | 7     | kJ/m <sup>2</sup> | 179-1eA    |
| Ball indentation hardness             | -                    | 155   | MPa               | 2039-1     |

| Thermal Properties           | Parameter      | Value | Unit                             | DIN/EN/ISO   |
|------------------------------|----------------|-------|----------------------------------|--------------|
| Glass transition temperature | -              | 45    | °C                               | 53765        |
| Melting temperature          | -              | 221   | °C                               | 53765        |
| Service temperature          | Short term     | 160   | °C                               | -            |
| Service temperature          | Long term      | 100   | °C                               | -            |
| Thermal expansion (CLTE)     | 23-60°C, Long  | 12    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Thermal expansion (CLTE)     | 23-100°C, Long | 13    | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Specific heat                | -              | 1.6   | J/(g*K)                          | 22007-4:2008 |
| Thermal conductivity         | -              | 0.37  | W/(K*m)                          | 22007-4:2008 |

| Electrical properties | Parameter | Value            | Unit | DIN/IEC |
|-----------------------|-----------|------------------|------|---------|
| Surface resistance    | -         | 10 <sup>14</sup> | Ω    | 60093   |

| Other properties              | Parameter        | Value   | Unit | DIN/EN/ISO/IEC |
|-------------------------------|------------------|---------|------|----------------|
| Water absorption              | 24h/96h (23°C)   | 0.3/0.6 | %    | 62             |
| Resistance to hot water/bases | -                | (+)     | -    | -              |
| Resistance to weathering      | -                | -       | -    | -              |
| Flammability (UL94)           | Corresponding to | HB      | -    | 60695-11-10    |



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# Nylon Extruded 6 Black

# DirectPlastics

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PA6 (Polyamide 6)

Colour: Natural

Fillers: Molybdenum Disulfide

Density: 1.14g/cm<sup>3</sup>

## Material Data Sheet

| Mechanical Properties                 | Parameter            | Value | Unit              | DIN/EN/ISO |
|---------------------------------------|----------------------|-------|-------------------|------------|
| Modulus of elasticity (tensile test)  | 1mm/min              | 3300  | MPa               | 527-2      |
| Tensile strength                      | 50mm/min             | 84    | MPa               | 527-2      |
| Tensile strength at yield             | 50mm/min             | 82    | MPa               | 527-2      |
| Elongation at Yield                   | 50mm/min             | 5     | %                 | 527-2      |
| Elongation at break                   | 50mm/min             | 37    | %                 | 527-2      |
| Flexural strength                     | 2mm/min 10N          | 110   | MPa               | 178        |
| Modulus of elasticity (flexural test) | 2mm/min 10N          | 3100  | MPa               | 178        |
| Compression Strength                  | 1%/2%<br>5mm/min 10N | 17/32 | MPa               | 604        |
| Compression modulus                   | 5mm/min 10N          | 2900  | MPa               | 604        |
| Impact strength (Charpy)              | Max. 7,5J            | N.B.  | kJ/m <sup>2</sup> | 179-1eU    |
| Notched impact strength (Charpy)      | Max. 7,5J            | 5     | kJ/m <sup>2</sup> | 179-1eA    |
| Ball indentation hardness             | -                    | 160   | MPa               | 2039-1     |

| Thermal Properties           | Parameter      | Value | Unit                             | DIN/EN/ISO   |
|------------------------------|----------------|-------|----------------------------------|--------------|
| Glass transition temperature | -              | 51    | °C                               | 53765        |
| Melting temperature          | -              | 220   | °C                               | 53765        |
| Service temperature          | Short term     | 160   | °C                               | -            |
| Service temperature          | Long term      | 100   | °C                               | -            |
| Thermal expansion (CLTE)     | 23-60°C, Long  | 8     | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Thermal expansion (CLTE)     | 23-100°C, Long | 138   | 10 <sup>-5</sup> K <sup>-1</sup> | 11359-1;2    |
| Specific heat                | -              | 1.6   | J/(g*K)                          | 22007-4:2008 |
| Thermal conductivity         | -              | 0.37  | W/(K*m)                          | 22007-4:2008 |

| Electrical properties | Parameter | Value             | Unit | DIN/IEC |
|-----------------------|-----------|-------------------|------|---------|
| Surface resistance    | -         | >10 <sup>12</sup> | Ω    | 60093   |

| Other properties              | Parameter        | Value   | Unit | DIN/EN/ISO/IEC |
|-------------------------------|------------------|---------|------|----------------|
| Water absorption              | 24h/96h (23°C)   | 0.3/0.6 | %    | 62             |
| Resistance to hot water/bases | -                | (+)     | -    | -              |
| Resistance to weathering      | -                | (+)     | -    | -              |
| Flammability (UL94)           | Corresponding to | HB      | -    | 60695-11-10    |



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