

# TECACOMP PPA LDS black 1014979 - Compounds

## Chemical Designation

PPA (Polyphthalamide)

## Colour

black

## Density

1.96 g/cm<sup>3</sup>

former material REZ-RS-4108

## Main features

- developed for the LPKF-LDS® process
- high adhesive strength
- good heat deflection temperature

## Target Industries

- automotive industry
- electrical engineering
- LED lighting technology
- mechanical engineering

| Mechanical properties                | parameter | value | unit              | norm               | comment |
|--------------------------------------|-----------|-------|-------------------|--------------------|---------|
| Tensile strength                     |           | 76    | MPa               | DIN EN ISO 527-1   |         |
| Modulus of elasticity (tensile test) |           | 9200  | MPa               | DIN EN ISO 527-1   |         |
| Elongation at break (tensile test)   |           | 1,2   | %                 | DIN EN ISO 527-1   |         |
| Impact strength (Charpy)             |           | 25    | kJ/m <sup>2</sup> | DIN EN ISO 179-1eU |         |

| Thermal properties           | parameter                      | value | unit                             | norm                 | comment                 |
|------------------------------|--------------------------------|-------|----------------------------------|----------------------|-------------------------|
| Glass transition temperature |                                | 120   | °C                               | -                    | 1) (1) literature value |
| Melting temperature          |                                | 315   | °C                               | -                    | 2) (2) literature value |
| Heat distortion temperature  |                                | 237   | °C                               | ISO-R 75 Method A    | 3) (3) literature value |
| Service temperature          | short term                     | 250   | °C                               | -                    | 4) (4) literature value |
| Service temperature          | long term                      | 150   | °C                               | -                    |                         |
| Thermal expansion (CLTE)     | longitudinal (at 50 - 100 °C)  | 43    | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal expansion (CLTE)     | transverse (at 50 - 100 °C)    | 47    | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal expansion (CLTE)     | longitudinal (at 100 - 150 °C) | 62    | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal expansion (CLTE)     | transverse (at 100 - 150 °C)   | 71    | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal expansion (CLTE)     | longitudinal (at 150 - 200 °C) | 97    | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal expansion (CLTE)     | transverse (at 150 - 200 °C)   | 112   | 10 <sup>-6</sup> K <sup>-1</sup> | DIN EN ISO 11359-1;2 |                         |
| Thermal conductivity         | through-plane                  | 0,9   | W/(K*m)                          | ISO 22007-4:2008     |                         |
| Thermal conductivity         | in-plane                       | 1,2   | W/(K*m)                          | ISO 22007-4:2008     |                         |

| Electrical properties        | parameter               | value            | unit | norm             | comment |
|------------------------------|-------------------------|------------------|------|------------------|---------|
| surface resistivity          |                         | 10 <sup>15</sup> | Ω    | DIN EN 61340-2-3 |         |
| volume resistivity           |                         | 10 <sup>15</sup> | Ω*m  | DIN EN 61340-2-3 |         |
| Dielectric loss factor       | test frequency of 1 GHz | 0,013            | -    | -                |         |
| Dielectric constant          | test frequency of 1 GHz | 4,1              | -    | -                |         |
| Resistance to tracking (CTI) |                         | 550              | V    | DIN EN 60112     |         |

| Other properties    | parameter    | value | unit | norm             | comment |
|---------------------|--------------|-------|------|------------------|---------|
| Molding shrinkage   | longitudinal | 1,67  | %    | DIN EN ISO 294-4 |         |
| Molding shrinkage   | transverse   | 1,45  | %    | DIN EN ISO 294-4 |         |
| Water absorption    |              | 0,35  | %    | DIN EN ISO 1110  |         |
| Flammability (UL94) | 3,2 mm       | HB    | -    | -                |         |

| Processing parameter    | parameter | value     | unit | norm | comment |
|-------------------------|-----------|-----------|------|------|---------|
| processing temperatures |           | 300 - 340 | °C   | -    |         |
| Mould temperature       |           | 90 - 160  | °C   | -    |         |

→ This material can be processed as a thermoplastic taking the normal technical provisions into account. The above mentioned information refers exclusively to the injection moulding process.

→ Back pressure and injection rate should be adjusted to the component geometry accordingly. The optimum processing temperature depends upon the respective geometry of the moulded part and can be different from machine to machine.

| Pre-drying                            | parameter | value | unit | norm | comment |
|---------------------------------------|-----------|-------|------|------|---------|
| Permissible residual moisture content |           | 0,05  | %    | -    |         |
| Drying temperature                    |           | 120   | °C   | -    |         |
| Drying time                           |           | 4 - 8 | h    | -    |         |

→ To achieve optimum mechanical properties, it is recommended to pre-dry the material with the above mentioned parameters.

→ Information on storage and shelf life: The granules must be stored in dry, normally tempered rooms and in closed containers. For moisture-sensitive materials, the granules must be sealed airtight. Protection against direct sunlight must be guaranteed. The granules are usually subject to the requirements of no shelf life limitation. Shelf Life may be limited by some additives.

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