

## Material data sheet

### PA 2210 FR for EOSINT P

#### General

Typical application of PA 2210 FR is the manufacture of flame resistant parts with high mechanical properties.

PA 2210 FR contains a chemical flame retardant. In case of fire a carbonating coating arises at the surface of the part, isolating the plastic below. PA 2210 FR is free of halogens.

PA 2210 FR is tested successfully on the following EOSINT systems:

- P 385, P 380i, P 380, P 360 with upgrade S&P, P 350/2 + upgrade 99 + upgrade S&P, without powder conveying system, & PSW 3.0 or higher
- P 700 status *Upgrade 04* or higher

The recommended layer thickness is 0.15 mm. To assure a consistent quality of parts, it is recommended to use only new powder.

#### Technical data

##### General material properties

|                                |            |             |                   |
|--------------------------------|------------|-------------|-------------------|
| Bulk density                   | DIN 53466  | 0.52        | g/cm <sup>3</sup> |
| Density of laser-sintered part | EOS-method | 1.05 ± 0.05 | g/cm <sup>3</sup> |

##### Mechanical properties

|                     |                |            |     |
|---------------------|----------------|------------|-----|
| Tensile modulus     | DIN EN ISO 527 | 2250 ± 150 | MPa |
| Tensile strength    | DIN EN ISO 527 | 45 ± 3     | MPa |
| Elongation at break | DIN EN ISO 527 | 5.0 ± 1    | %   |
| Flexural modulus    | DIN EN ISO 178 | 1750 ± 100 | MPa |
| Flexural strength   | DIN EN ISO 178 | 45 ± 2     | MPa |

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### Thermal properties

|               |           |           |    |
|---------------|-----------|-----------|----|
| Melting point | DIN 53736 | 172 – 180 | °C |
|---------------|-----------|-----------|----|

### Burning behaviour

|   |                                     |             |        |
|---|-------------------------------------|-------------|--------|
| Flammability for parts<br>in devices and appliances | UL 94 / HB                          | 1.1         | mm     |
|   | UL 94 / V-0                         | 2.0         | mm     |
| Flammability properties<br>(Aircraft)               | FAR 25.853 b(4)                     | 1.5 / 2.0   | mm     |
|   | ABD 0031 / AITM 2.0002              | 1.5 / 2.0   | mm     |
|   | BSS 7230 F2                         | 0.06 / 0.08 | inches |
| Smoke generation<br>(Aircraft)                      | FAR 25.853 (d), Appendix F – Part V | 1.5 / 2.0   | mm     |
|   | ABD 0031 / AITM 2.0007              | 1.5 / 2.0   | mm     |
|   | BSS 7238                            | 0.06 / 0.08 | inches |
| Toxic gas generation<br>(Aircraft)                  | ABD 0031 / AITM 3.0005              | 1.5 / 2.0   | mm     |
|   | BSS 7239                            | 0.06 / 0.08 | inches |

Conversion of units: 1.0 mm is equivalent to 0.03937 inches

Tests of burning behaviours have been conducted by certified and accredited test laboratories. Ask for the test reports at EOS GmbH, feel free to contact us for further information. The burning behaviours have been tested with specimens manufactured in accordance with the instruction of PA 2210 FR (exposure parameters, use of new powder). Parts made of re-used powder do not have the identical burning behaviours than parts made of new powder! You can further improve the fire resistancy by using a fire retardant coating.

The mechanical properties depend on the x-, y-, z-position of the test parts and on the exposure parameters used.

The data is based on our latest knowledge and is subject to changes without notice. They do not guarantee properties for a particular part and in a particular application.

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