



**Product information**

# Business Case – TECACOMP PEEK MED LDS grey

**LDS (laser direct structuring) is a technology that enables electronic circuits to be placed directly on three-dimensional components. Although LDS is not yet as well known in medical technology as it is in other industries, there are already initial approaches for applications in which this technology is used.**

Especially where miniaturization is required, such as in microsurgery, personalized medicine, optical sensors or biosensors for diagnostics, drug delivery with micro-pumps or point of care devices that measure various body parameters.

### IoT in medical devices

LDS circuit carriers can also be used in areas close to the body, they enable functional integration, support data collection and transmission.

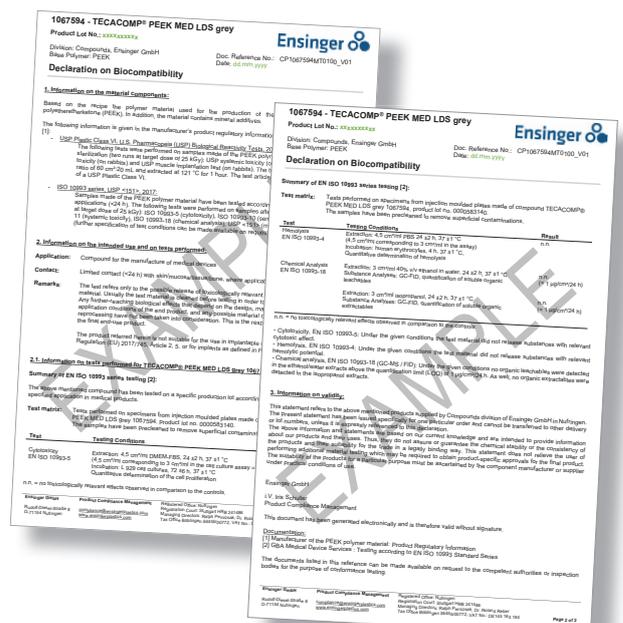
LDS circuitry can also be used in diagnostics to integrate sensors and measurement devices. Overall, LDS offers many possibilities in medicine.

### Optimized space utilization

A key advantage of LDS is also its malleability and design for a 3-dimensional component. This allows for very compact design solutions. This supports the medical sector's efforts to develop ever smaller, integrated solutions.

### Biocompatibility

A key requirement for integrated solutions in medical technology is biocompatibility. Ensinger has developed TECACOMP PEEK MED LDS grey, a substrate material that is LDS capable and biocompatible. TECACOMP PEEK MED LDS grey is suitable for all medical applications requiring biocompatibility with limited contact of up to 24 hours with skin and tissue and, if necessary, indirect contact with blood. In addition, the material is solderable.



Certificate issued by Ensinger Compliance Department

The light gray inherent color of TECACOMP PEEK MED LDS grey also meets the requirements of the medical industry for a clear light color of the products  
TECACOMP PEEK MED LDS grey is available as granules or can also be supplied as film down to a minimum thickness of 100µm via our partner LITE GmbH.



Granules TECACOMP PEEK MED LDS grey

### Advantages

TECACOMP PEEK MED LDS grey also offers the outstanding advantages for medical technology associated with the polymer PEEK, such as:

- very good chemical resistance
- very good sterilization resistance
- good radiation resistance
- high resistance to stress cracking
- high dimensional stability
- high temperature resistance

### Requirements for LDS

- fine pitch performance
- reflow solderable
- very good weld line strength and adhesive strength
- thermal conductive
- low dielectric loss

### Material characteristics

#### Thermal properties

Thermal conductivity	in-plane	1.2	W/(K*m)	DIN EN 821
Thermal conductivity	through-plane	0.5	W/(K*m)	DIN EN 821
Thermal diffusivity	in-plane	0.67	mm <sup>2</sup> /s	DIN EN 821
Thermal diffusivity	through-plane	0.28	mm <sup>2</sup> /s	DIN EN 821

#### Electrical properties

Surface resistivity	-	10 <sup>14</sup>	Ω	DIN EN 61340-2-3
Volume resistivity	-	10 <sup>14</sup>	Ω*m	DIN EN 61340-2-3
Dielectric loss factor	test frequency of 1 GHz	0.0006	-	-
Dielectric constant	test frequency of 1 GHz	3.6	-	-

**Ensinger Compounds**

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