High-tech plastics for mechanical engineering

The material revolution!

Lauramid Hybrid®

The patented material compound with a metal foam core encapsulated by the engineering plastic Lauramid®

- 1/3 less weight
- Extremely high rigidity & dimensional stability
- Resistant to wear and corrosion

Der innovative **lightweight material!**

handtmann

Ideas for the future.

Lauramid Hybrid®:

Components with even less weight and even more dimensional stability

The material innovation Lauramid Hybrid® comprises a metal foam that is encapsulated either fully or partially by the engineering plastic Lauramid® in a pressureless process. On casting, Lauramid® penetrates into the pores of the metal foam component, thus creating a mechanically inseparable compound. No other joining components are required.

Benefits of Lauramid Hybrid®:

- Extremely high rigidity & dimensional stability
- Approx. 1/3 less weight compared to components made of solid plastics
- Resistant to wear and corrosion
- Resonance-reducing & shock-absorbing
- EMC-shielding
- Excellent dry running properties
- Chemical resistance, also to salt water

Variants:

- Closed-pore Lauramid Hybrid® for applications where weight savings and rigidity are important
- Open-pore Lauramid Hybrid® for applications where the components need to be extremely rigid

Lauramid Hybrid® is also available in special shapes

Significantly higher rigidity than solid plastics: boards made of Lauramid Hybrid®

Lauramid Hybrid®:

Material properties

Material specifications: Lauramid Hybrid® (bei 23°C/50% r.F.)	Test standard*		Lauramid® A with 8 mm aluminium foam
Density (kg/dm³)			0.7
Yield stress (Mpa)	ISO 527	(50 mm/min)	28
Elongation at yield (%)	ISO 527	(50 mm/min)	5
Rupture strength (Mpa)	ISO 527	(50 mm/min)	12 - 14
Elongation at rupture (%)	ISO 527	(50 mm/min)	14 - 16
Tensile modulus of elasticity (Mpa)	ISO 527	(Secant 1mm/min)	1400
Izod impact value (kJ/m²)	ISO 179 1eA	+23°C	18 - 25
Izod impact value (kJ/m²)	ISO 179 1eA	-30°C	9 - 13
Vicat B/50 (°C)	ISO 306	50 N	177 +/- 3
Dielectric constant	IEC 250	50 MHz	3.5
Dielectric loss factor (E-4)	IEC 250	50 Hz	380
Specific surface resistance (Ω cm)	IEC 93		1E14
Water absorption with standard climate (%)	ISO 62		0.9
Water absorption with water storage (%)	ISO 62	23°C/gesättigt	1.4

* Since an encapsulation of 4 mm of Lauramid® around the metal foam is recommended, all test standards were determined using test sticks with a thickness of 16 mm and a width of 10 mm.

Applications & available variants:

- Rollers
- Toothed wheels
- Boards and pre-cut parts
- Castings

Closed-pore Lauramid Hybrid®: Lauramid® penetrates into the outer pores of the aluminium foam

Open-pore Lauramid Hybrid®: Lauramid® penetrates completely into the aluminium foam

Albert Handtmann Elteka GmbH & Co. KG

Hubertus-Liebrechts-Str. 21 · 88400 Biberach/Riss · Germany

Tel. +49 7351 342-720 · Fax +49 7351 342-7230

info.elteka@handtmann.de

www.handtmann.de/plastics

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Ideas for the future.

LH 003 GB