LUVOCOM® ES
Effective Shielding of Electromagnetic Waves

- **Ready-to-use shielding compounds**
- **Evenly distributed additives ensure an efficient shielding network**
- **Highly electrically conductive**
- **Easy to process**
- **Cost saving**
- **Made-to-measure solutions**

Part made of LUVOCOM 16-9031/ES/V0

As non-conductors (insulators), polymers are permeable to electromagnetic waves of up to approximately 100 GHz. A shielding effect is achieved by using conductive additives or coatings. Shielding is necessary in order to prevent electromagnetic environmental pollution and hence an influence on sensitive electronic devices.

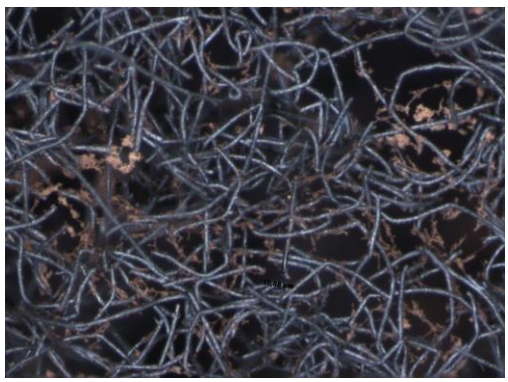
LUVOCOM ES is the latest generation of thermoplastic shielding compounds. The unique combination of state-of-the-art additives results in an outstanding property profile. Conductive coatings or metal inserts can be replaced, thus offering potential for a reduction in system costs. LUVOCOM ES compounds are ready to use and their rheology is optimized for easy processing and thin walls. This results in a much lower risk of defects in moulded parts due to imperfectly distributed fillers in comparison to polymers and masterbatches that have been dry blended at the injection moulding machine. LUVOCOM ES provides improved shielding effectiveness (see table below) and, due to its inherently high electrical conductivity, also permits small contact areas for grounding.

Overall shrinkage, flow and mechanical properties for some LUVOCOM ES compounds are close to standard PC/ABS with 20% glass fibres. The innovative filler system also enables an attractive surface appearance (see picture above) and allows ductile materials. Flame retardant materials are possible as well.

LUVOCOM Screening Attenuation Values*

LUVOCOM	Polymer	S (dB) @ 500 MHz 2 mm wall thickness	S (dB) @ 500 MHz 3 mm wall thickness
1/CF/40	PA 66	31	39
1-8864/ES	PA 66	55	76
3-8960/ES	PA 6	39	51
16-8960/ES	PARA	38	51
65-8961/ES	PP	38	50
90-9011/ES	PE-HD	39	52
94-8839/ES	PE-LD	37	51

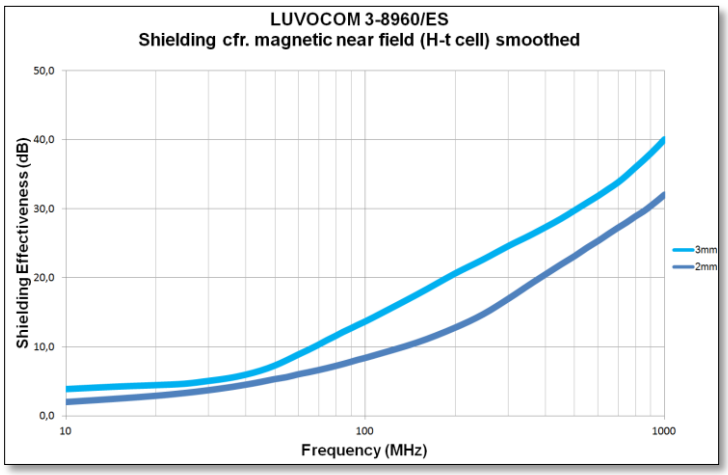
*See overleaf for further details. Additional data on other materials available on request.

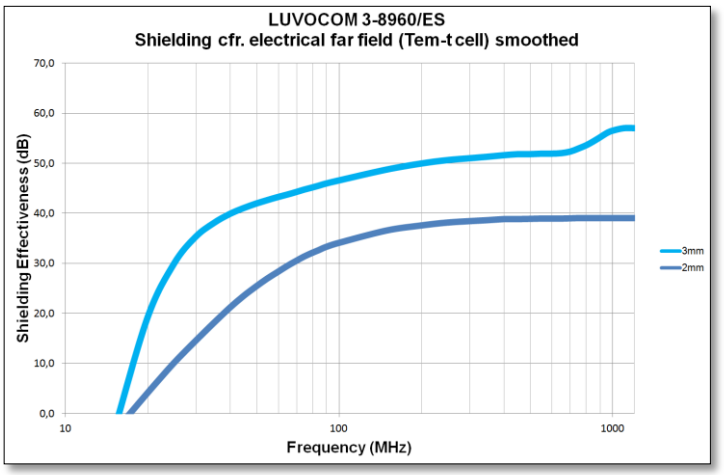


Photomicrograph of LUVOCOM ES

LUVOCOM®
High-performance compounds

Screening Effectiveness over Frequency





Screening attenuation, S: measurement of the difference in noise field strength or radiation intensity before and after application of the shielding. Screening attenuation is required from 10 KHz to 100 GHz (10^4 – 10^{11} Hz). S is given in logarithmic dB units.

S (dB) = 10 log (I_1/I_2)
(I_1= intensity without screen, I_2= intensity with screen)
10 dB = reduction in radiation by a factor of 10
20 dB = reduction in radiation by a factor of 100, etc.

0-10 dB very low shielding effect
10-30 dB low to moderate shielding effect
30-60 dB moderate – good shielding effect
60-90 dB very good shielding effect
>90 dB extremely good shielding effect (special purposes)

Solutions Individually Compounded

LUVOCOM ensures reliable performance under even the most severe conditions. The materials are based on practically every available thermoplastic resin. Over the past 30+ years we have developed most of them tailor-made to customers' specific requirements. The products can be broadly divided into 8 groups as follows:

- High-temperature resistant
- Thermally conductive
- Carbon-fibre reinforced
- Lubricant modified
- Long-fibre reinforced
- Detectable
- Electrically conductive
- Functional powders

www.luvocom.com

Europe & Head Office
Lehmann & Voss & Co. KG
Alsterufer 19
20354 Hamburg
Germany
Tel +49 40 44 197 250
Fax +49 40 44 198 250
Email: luvocom@lehvoss.de

North America
LEHVOSS North America, LLC
185 South Broad Street
Pawcatuck, CT 06379
USA
Tel +1 855 681 3226
Fax +1 860 495 2047
Email info@lehvossllc.com

Asia
LEHVOSS (Shanghai) Chemical Trading Co. Ltd
Unit 1590, 15 f L'Avenue, No 99
Xianxia Road, Changning District,
Shanghai 200051
China
Tel +86 21 6057 7298
Email info@lehvoss.cn

5/2015