



LATISHIELD

Thermoplastics for electromagnetic-interference shielding

Key benefits:

- **Weight reduction versus metal;**
- **Good design flexibility;**
- **High shielding effectiveness over a broad frequency range;**
- **Cost-effectiveness versus traditional shielding technologies;**
- **Low electrical resistivity;**
- **Colourability;**
- **Recyclability;**
- **Based on many different resins, they maintain mechanical, thermal, self-extinguishing and other properties.**

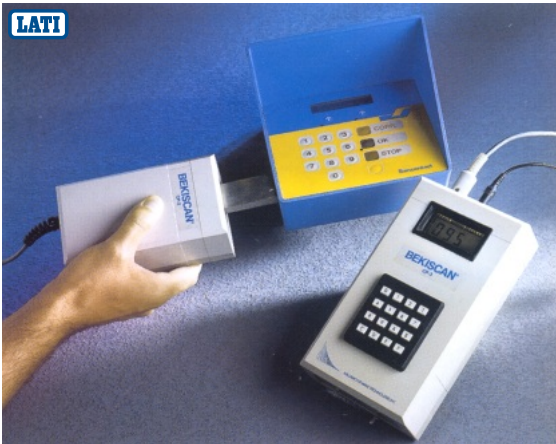
Electro Magnetic Interference (EMI) is a common phenomenon that can affect the functioning of numerous electronic devices, which are becoming increasingly prevalent in our everyday lives.

EMI causes disturbance of a variety of systems including audio / video, telecommunications / telephony, sensitive measuring, monitoring and testing apparatus used in many fields of application, such as public, industrial, medical, aerospace and so on. With the new generation of digital electronic systems, the problem has increased.

In their unmodified state, most thermoplastic polymers are completely transparent to EM radiation. With approaching sixty years of experience in engineering thermoplastics (ETPs), LATI has developed a range of injection-mouldable products in which it is possible to create an effective shielding barrier against EMI. This range is collectively known as LATISHIELD.

The technology depends on the right combination of base polymer, special metallic fibres, and other additives to satisfy the shielding and other requirements for the application in question.

The metallic fibres used, which are characterised by a particular physical form and composition specific for the use, after moulding are dispersed homogeneously into the polymer matrix, forming the shielding structure of the moulded part, otherwise known as a Faraday Cage.



These fibres have proven to be very efficient as a filler material for electrically-conductive plastics and very low amounts are sufficient to fulfil EMI regulations.

With such low filler levels, all the general characteristics of the compound remain more or less unchanged, and the compounds can be transformed into components on standard injection-moulding equipment.

However, moulding parameters need to be fine tuned to optimise residual fibre length and ensure homogeneity of dispersion in the part.

In addition to the effective shielding effect, LATISHIELD compounds offer other important benefits where Electrostatic Discharge (ESD) may disturb or damage critical equipment or devices.

The *Bekiscan®-CP* is a device used by:

- *the moulder in order to optimise his processing parameters for best shielding performance and best dispersion and to assure the Quality Control during the production;*
- *the compound supplier to check the performance of his product;*
- *the end-user to control the specification of his part.*

With LATISHIELD, volume-resistivity values of $10^1 - 10^3$ Ohms can easily be achieved.

The colouring of the LATISHIELD compounds is hardly affected. Most colours can be matched, eliminating the need for a secondary painting operation, as well as metallization, electroplating and so forth.

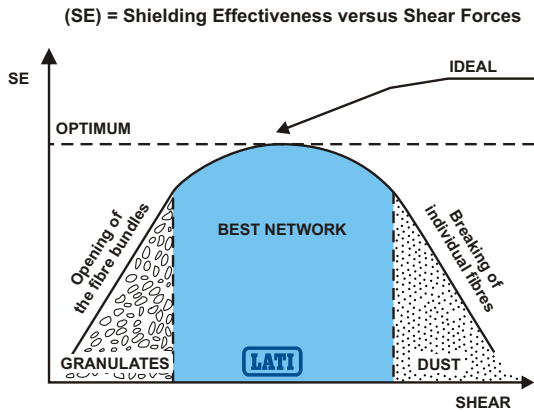
Finally, some LATISHIELD grades are also suitable for contact with food.

LATI is willing to share with you its expertise in this field, and its Technical Service and Research & Development Teams are at your complete disposal to analyse your requirements and collaborate on project developments.

Bekiscan®-CP courtesy of NV Bekaert SA

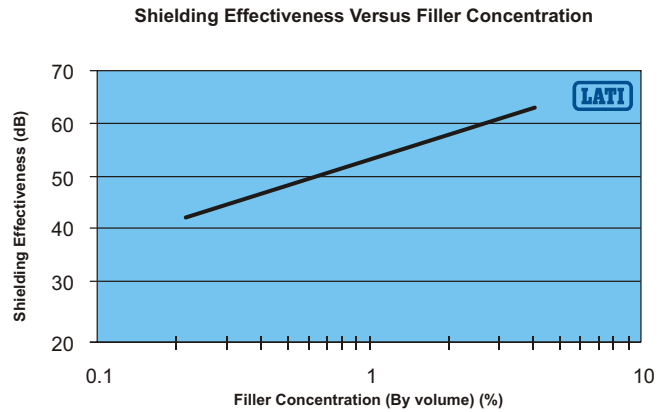
Shielding effectiveness and processing parameters

- Processing temperatures on the upper range of the resin
- Low screw rpm
- Low backpressure
- Low injection speed



Shielding effectiveness vs fibre percentage

- Shielding effectiveness depends on stainless steel fibre percentage
- A good shielding effectiveness can be obtained by using 1% (in volume - 7% in weight) of stainless steel fibre



E.M.I. Shielding Compound in LATI product range

- | | |
|--------------------------------------|---------------|
| ● ABS | LATISHIELD 36 |
| ● ABS/PC | LATISHIELD 38 |
| ● PE-HD | LATISHIELD 45 |
| ● PPh | LATISHIELD 53 |
| ● PA 6 | LATISHIELD 62 |
| ● PA 6 (improved impact resistance) | LATISHIELD 63 |
| ● PA 66 | LATISHIELD 66 |
| ● PA 66 (improved impact resistance) | LATISHIELD 67 |
| ● POM | LATISHIELD 73 |
| ● PBT | LATISHIELD 75 |
| ● PPS | LATISHIELD 80 |
| ● PC | LATISHIELD 87 |
| ● PPOm | LATISHIELD 90 |



LATI Part of an elevator
in LATISHIELD 36/AR-05A-V0



Housing for electronic instrument
(used to measure the thickness of ceramic component)
in LATISHIELD 87/28-07A G/20

Note: should you be interested in receiving a more detailed brochure, just contact our Offices