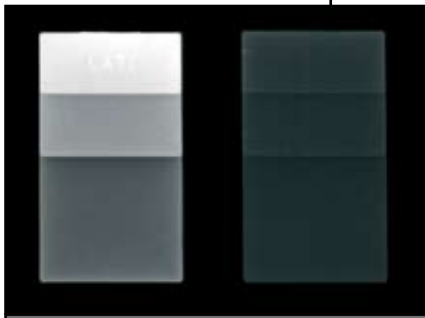


LATIGRAY

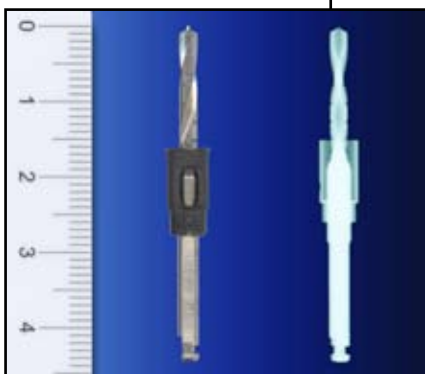
Radiopaque Thermoplastic Compounds



X-Ray shielding effect close to lead

Key Benefits:

- X ray shielding properties;
- 100% toxic substances free (RoHS compliant);
- easy to mould and process on ordinary equipment;
- free of hazardous particles and dust release;
- good surface finish and - in some cases - colorable too;
- fitting mechanical and thermal project requirements.



Implantology sector:
security drilling system DSS

The use of lead has always been considered a necessary issue in any X-ray device used in medical and industrial equipment.

Intrinsic physical properties, as malleability and density, allow this metal to fit perfectly into a wealth of X-ray shielding application as covers, supports and lining of housings and enclosures.

Current reliable solutions consider an overwhelming usage of metallic lead sheets and its oxides, e.g. litargirium.

Sheets are modeled and shaped by the mean of human labor as well as thermoset resins filled with lead composites used to mould semi finished parts: all these parts have to be often re-processed and finished creating lead exposure hazard.

Difficulties related to handling, production and disposal of lead and derivatives can generate extra costs and are going to represent a severe issue, becoming more and more dramatic as health and environment care laws and norms will narrow the application possibilities.

Restrictions are already applied in many industrial fields and may soon be extended to today untouched sectors.

Trying to be always a step forward in the search of lead-free and non toxic solutions, LATI has created LATIGRAY, a full range of radiopaque thermoplastic compounds dedicated to lead and heavy metal substitution in X-ray shielding application.

Injection moldable LATIGRAY compounds are obtained by filling with radiopaque additives a thermoplastic matrix, chosen among the many ones on the basis of project requirements.

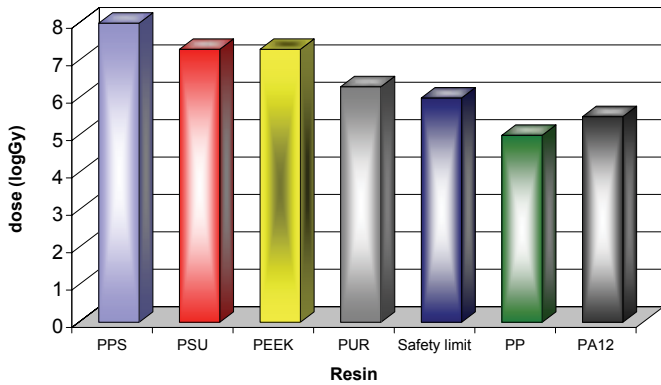
It is possible to fine tune shielding efficiency and contrast by modifying filler type and amount, from just opaque to completely shielding.

Best LATIGRAY can deal with lead frames, showing the same shielding power at very similar thickness.

Those compounds are produced on PP, PA, PPS, PBT etc. with ceramics and/or metal powders to achieve the best shielding performance.

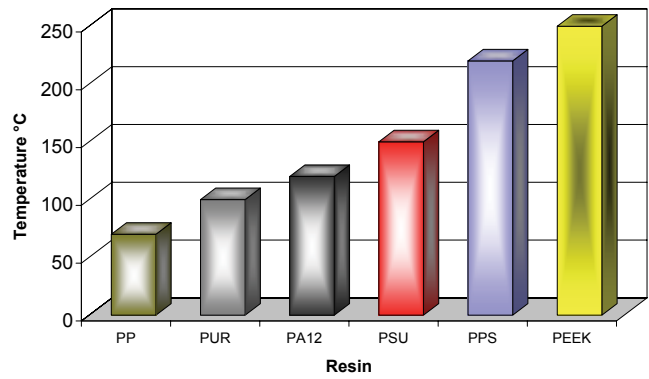
Giving a closer look at technical properties of LATIGRAY, astonishing features can be found.

RESISTANCE TO X-RAY EXPOSURE



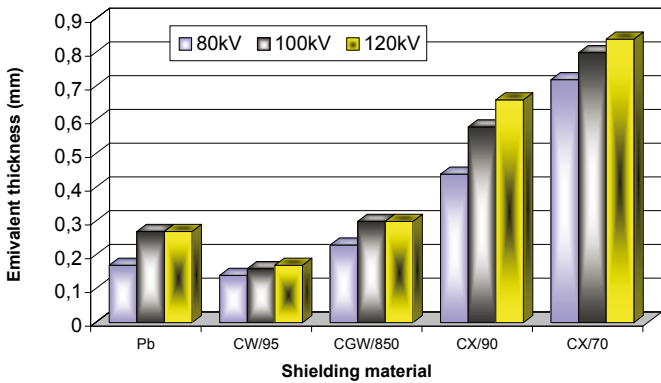
Long time X-ray exposure data show that PPS, PEEK and PSU are the best polymer bases in case a prolonged effect of rays has to be taken into account because molecular degradation is here strongly reduced. LATI produces its very best grades on PPS matrix and PA12 is an excellent suitable matrix in case of discontinuous application..

CONTINUOUS USE TEMPERATURE (CUT)



Applications where high temperatures can be reached, as in X-ray generator supports, can be faced by choosing the right matrix: LATI supplies LATIGRAY based on PPS and PEEK which can withstand up to 200°C of continuous temperature exposure without reducing performance.

SHIELDING EFFECTIVENESS: LATIGRAY vs. Pb



HVT provides an indication of real X-ray opacity of materials, meaning the thickness required to reduce by 50% the energy of the incoming beam. Taking lead as reference, it is evident of tungsten filled grades (CW and CWG) can deal with Pb at the same wall thickness while ceramic filled compounds (CX) need three times higher thicknesses to achieve a comparable effect.

Industrial Sectors:

- Medical devices;
- Industrial X-ray;
- Protection from Gamma and X-ray;
- Dental products;
- X-ray shielding;
- Catheters;
- Surgical tools.

LATIGRAY compounds have been formulated in order to offer an adequate solution to structural issues as required in support, housing and frame engineering. Thanks to good mechanical performance, LATIGRAY can be applied where other products fail because of brittleness or lack of stiffness. E.g., the CWG/850 grade can be formulated by using different polymers and its mechanical features allow the production of structural and temperature resistant parts. LATIGRAY Products offered by LATI today are:

LATIGRAY GRADE	Formulation	E (MPa)	Load @ break (MPa)	Elongation @ break (%)	Notched IZOD	Density (g/cc)
LATIGRAY 80-03 CWG/850	PPS, Tungsten (W), glass fibre	14000	85	1,1	50	5,38
LATIGRAY 82 CX/90	PA12, ceramics	9500	35	0,7	55	4,26
LATIGRAY 82 CW/95	PA12, Tungsten (W)	6700	40	1,5	85	8,58
LATIGRAY 88/10-01 CX/30	PEEK, ceramics	4850	70	11	50	1,63
LATIGRAY 75-01 CX/45	PBT, ceramics	3200	45	2,4	37	1,92

Note: The information contained in this document represent average values obtained as the result of laboratory tests and experiences carried out on our injection moulded materials characterized and conditioned in conformity with Standard ASTM D 618, procedure A (40 h -23°C -50% U.R.). Said values refer to our current best scientific and technological know how and are not used as a basis to develop applications.

As a reciprocal guaranty we suggest to contact our technical and sales department with the purpose to asses the right characteristics according to the various applications. LATI Industria Termoplastici S.p.A. declines all responsibilities for the misuse of products described in this document, in conformity with Presidential Decree n. 224 of May 24, 1988, issued in implementation of CEE 85/374 Standard. Copyright © LATI S.p.A. - All rights reserved - Printed in Italy 21/11/2007/MKTT003