

RADIOPAQUE COMPOUNDS

Radiation Absorbing Thermoplastics from RTP Company

Quick Information

- ▶ Visible under x-ray imaging
- ▶ Shield people from x-ray generating sources
- ▶ Processable through conventional injection molding and extrusion
- ▶ Customizable for density, color, and other physical properties
- ▶ Retain desirable attributes of lead while avoiding toxicity issues

Imagine a specialty thermoplastic compound capable of absorbing radiation. One that is visible under x-ray imaging or shields people from radiation. At RTP Company, we'll put our imagination to work to create an ideal Radiopaque Compound for your application.

Used to produce medical devices that are inserted into the body for diagnostic or surgical procedures, Radiopaque Compounds contain additives, which render the devices visible under fluoroscopy (continuously updates a moving image on a display) or x-ray imaging. These additives, or radiopacifiers, attenuate energy differently providing the contrast in a x-ray image.

Because Radiopaque Compounds are denser than soft tissue or bone, they appear lighter on a x-ray image. This visibility provides the contrast needed to accurately locate or position the device inside the body during critical procedures. The type and amounts of radiopaque additives used will affect the image contrast and sharpness.

As radiation exposure can harm people,

it is often necessary to shield or enclose x-ray generating devices with a material that resists radiation penetration. Lead has historically been used as a commercial shielding material, but not without environmental and health concerns.

Radiopaque Compounds preserve the desirable attributes of lead (radiation absorption, ease of forming, and density) while avoiding its toxicity and disposal concerns. Testing has shown that when compared to lead, Radiopaque Compounds offer similar radiation-shielding properties and may present a "drop-in" replacement opportunity.

Radiopaque Compounds can be formulated using a variety of thermoplastic polymers and additives to customize a product's specific gravity and physical properties for your specific requirements. RTP Company engineers carefully select materials for a precise balance of properties.

Radiopaque Compounds from RTP Company...another innovation from the leader in specialty compounding.

RADIOPAQUE

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The Leader in Specialty Compounding

Manufacturing Facilities:

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Common Radiopacifiers

In order for a thermoplastic compound to absorb radiation, it should contain a radiopaque additive. The type and amount depends on the base resin and on the wall-thickness, surface smoothness, color, and other desired properties of the device. The most widely used radiopacifiers are barium sulfate, bismuth, and tungsten.

Barium Sulfate - It is the most widely used radiopaque additive for thermoplastic compounds. It is a very stable and inexpensive additive. Compounds containing barium sulfate can be successfully colored, including dark colors and black.

Bismuth Compounds - While bismuth is more expensive than barium sulfate, it has a higher density. Bismuth may produce a brighter, higher-contrast, and sharper x-ray image than does barium sulfate.

Tungsten - Compatible with most polymers, tungsten is more than twice as dense as bismuth and provides a high level of radiopacity. Loading levels up to 95% by weight are possible. Most compounds containing tungsten are dark gray in color, which limits coloring options.

Application Ideas

Radiopaque Compounds are suited for applications, such as:

- Catheters
- Surgical tools
- Radiation shielding
- Radioisotope (needed for radiation therapy) containers and housings
- Dental products, which may be accidentally ingested
- High gravity food delivery tubes (for more information on the related topic of High Gravity Compounds, refer to www.rtpcompany.com/info/flyers)

Surgical Tool Utilizes a Radiopaque RTP Compound

Baxter Healthcare developed an Annuloplasty System for heart valve repair procedures. The reusable handles and the disposable, snap-on ring templates are made of polycarbonate specialty compounds. The radiopaque plugs, which allow for X-ray visibility, are insert molded into the template. The autoclavable plugs are made from a polyethersulfone specialty compound supplied by RTP Company.



Radiopaque Plugs



Full Story: www.rtpcompany.com/info/apps

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04/04

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