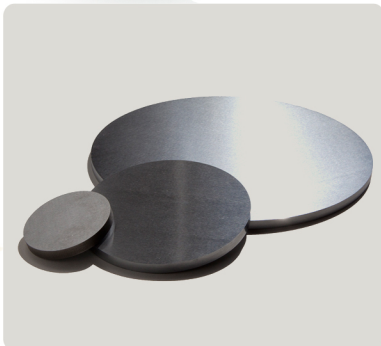


Hf Insert & Crucible



Hf Metal Targets



HfO2 Starter Source



SiO2/HfO2 Assembly



Based in New York, LTS is a leader in the manufacture of high-purity optical coating materials. We supply high quality products to the optics, fiber-optics, electronics, automotive, aerospace, crystal growth, and fuel cell industries, among others.

LTS is recognized worldwide for its new class of fluoride materials produced via DFM®: a novel production method that allows us to completely surpass material quality achieved by conventional means.

Over the years, LTS has collaborated with several companies to research and develop new products that have since proven to directly compete with existing materials, or have entirely replaced them as industry standards.

LTS also collaborates with clients to:

- Synthesize materials in non-traditional sizes, formulations, and purity profiles to your exact specifications.
- Develop products and solutions where established ones are not capable of fulfilling your needs.

Whether you need minor variations from a standard formulation, or a completely custom chemical system: LTS is your source.

[WWW.LTSCHEM.COM](http://WWW.LTSCHEM.COM)



*Optical Coatings from  
Concept to Commercialization (OC<sub>3</sub>)*

## HAFNIUM & HAFNIA PRODUCTS



37 Ramland Road, Orangeburg, NY 10962  
Tel. 800 709-2808, Fax. 845 589-5975  
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## Hafnium Metal

LTS offers high purity hafnium metal in a wide variety of sputtering target geometries and evaporation forms including powder, pellets, and pieces. These materials are fabricated with electron beam melting—the hafnium metal is melted layer by layer with an electron beam under a high vacuum. The employment of this technique allows for the manufacture of hafnium products with exceptionally low quantities of intrinsic gases, a property highly sought after in the industry.



### Material Availability:

Targets, Pieces, Turnings, Granules, Starter Sources, Crucibles, Powders, Rods, and Rings.



## Hafnium Oxide

Ultra high purity  $\text{HfO}_2$ , introduced by LTS, possesses unique characteristics:  $\text{HfO}_2$  (produced via LPF) shows absorption below 224 nm and has a high packing density. Compared to other commercially available hafnium oxide products, our hafnium oxide also exhibited the highest Laser Damage Threshold (LDT), therefore making it more useful for excimer laser applications. Our  $\text{HfO}_2$  is also completely outgassed and requires  $\frac{1}{3}$  less time in preconditioning for deposition. LTS also manufactures chemically reduced versions of hafnium oxide conical inserts in various sizes for Telemark and Temescal liners; we also produce these materials in evaporant forms such as pellets, pieces, and discs.



### Material Availability:

Targets, Pieces, Starter Sources, Pressure Sintered Pellets, Black or White Granules, and 100-200 Mesh Powder.

