

Gadolinium Fluoride



Magnesium Fluoride



Ytterbium Fluoride



Dysprosium Fluoride



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>)*

## DFM FLUORIDES



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# FLUORIDES

Since 1992, LTS has been producing mil-spec compliant fluoride materials using the Direct Fluorination Method (DFM®). LTS produces the highest quality fluorides available in the industry: our novel DFM® process allows for the production of extremely pure compounds with superior deposition qualities.

The DFM® is a 2-step process where an oxide compound first reacts with fluorine in the vapor phase, and then undergoes a secondary fluorination during melting. The process effectively removes contaminants as well as trapped gases; the result is a significantly purer material that undergoes cleaner and quicker deposition and ultimately provides a better optical coating.

**DFM® grade fluoride materials for high quality and fast deposition in UV, mid-range, and IR thin film coatings.**

## UV/DUV Fluorides:

Lanthanum Fluoride	$\text{LaF}_3$
Neodymium Fluoride	$\text{NdF}_3$
Gadolinium Fluoride	$\text{GdF}_3$
Aluminum Fluoride	$\text{AlF}_3$
Erbium Fluoride	$\text{ErF}_3$
Cryolite	$\text{Na}_3\text{AlF}_6$



Neodymium Fluoride

## Mid-index Fluoride solutions:

Scandium Fluoride Lithium Fluoride	$\text{ScF}_3\text{LiF}$
Lithium Fluoride	$\text{LiF}$



Erbium Fluoride

## NIR/IR Fluorides:

Yttrium Fluoride	$\text{YF}_3$
Ytterbium Fluoride	$\text{YbF}_3$
Dysprosium Fluoride	$\text{DyF}_3$
Cerium Fluoride	$\text{CeF}_3$
Solid Solutions of YBC's	



Lithium Fluoride

## YBC DFM® - A Non radioactive substitute for $\text{ThF}_4$

YBC DFM® is a highly preferred category of low-index materials transparent from the NIR to IR region of the spectrum. YBC DFM® materials are recommended for multilayer coatings in AR applications in the 2,000-14,000nm region, including AR, bandpass, and dichroic filters. They are also highly suitable for CO2 laser coating applications.

YBC 375 -  
Performs well for the majority of all IR and CO2 laser applications.



YBC 905 -  
Performs well for the majority of all IR and CO2 laser applications. Forms highly durable coatings but cannot be used in moist environments.



YBC 907 -  
Exceptionally low absorption for IR and CO2 laser applications. Outperforms radioactive Thorium Fluoride, but is mildly toxic.

