

MATERIAL PROPERTIES & SPECIFICATIONS

High Purity Deposition Materials

- **MgF2 (Magnesium Fluoride)**
- **BaF2 (Barium Fluoride)**



Fairfield Crystal Technology's evaporation chemicals for optical coating are produced to consistent high quality and purity. Our deposition materials are 99.999% pure. They evaporate cleanly and completely, without out-gassing or spitting and they leave a hard, uniform coating on a substrate.

Substance	Form	Size Range	Evaporation Temp.	Evaporation Pressure
MgF2	Granules	1-6 mm	Approx..950 deg C	10-5 to 10-6 torr

MgF2 Spectrochemical Analysis (Typ)

Element	Content ppm	Detection Limit (DL) ppm
Aluminum (Al)	<DL	0.27
Boron (B)	<DL	0.36
Calcium (Ca)	<10	0.32
Chromium (Cr)	<DL	0.26
Copper (Cu)	<4	0.03
Iron (Fe)	<4	0.27
Lead (Pb)	<DL	0.37
Manganese (Mn)	<DL	0.09
Nickel (Ni)	<DL	0.17
Silver (Ag)	<DL	0.07
Tin (Sn)	<DL	0.25
Titanium (Ti)	<3	0.09
Vanadium (V)	<DL	0.78
Zinc (Zn)	<DL	0.06

MgF2 Optical Properties

REFRACTIVE INDEX	
	1.390 @300nm
	1.380 @400nm
	1.370 @500nm
	1.360 @700nm
	1.350 @1000nm

Substance	Form	Size Range	Evaporation Temp.	Transparency
BaF2	Granules	1-4 mm	Approx..950 deg C	200 to 15000 nm

BaF2 Spectrochemical Analysis (Typ)

Element	Content ppm	Detection Limit (DL) ppm
Aluminum (Al)	<DL	0.27
Boron (B)	<DL	0.36
Calcium (Ca)	<10	0.32
Chromium (Cr)	<DL	0.26
Copper (Cu)	<4	0.03
Iron (Fe)	<4	0.27
Lead (Pb)	<DL	0.37
Manganese (Mn)	<DL	0.09
Nickel (Ni)	<DL	0.17
Silver (Ag)	<DL	0.07
Tin (Sn)	<DL	0.25
Titanium (Ti)	<3	0.09
Vanadium (V)	<DL	0.78
Zinc (Zn)	<DL	0.06

BaF2 Optical Properties

REFRACTIVE INDEX	1.390 @300nm
	1.380 @400nm
	1.370 @500nm

Physical Properties

Property	MgF2	BaF2
Density	3.18 g/cc	4.89 g/cc
Melting Point	1585 deg C	1368 deg C
Poisson Ratio	0.271	-
Hardness	415 Knoop	82.0 Knoop
Crystal Structure	Tetragonal	Cubic