

## 中红外抛光 CaF<sub>2</sub> 氟化钙圆柱 (Rod 分光镜 直径 10mm dia x 80mm)



### 产品描述

氟化钙 (CaF<sub>2</sub>) 是近红外分束器的优选材料选择。我们的 CaF<sub>2</sub> 具有高的纯度，质量和稠度，并且在所有 SiO<sub>2</sub> 材料中发现零 O-H 吸收。羟基带分束器衬底吸收常常限制在近红外测量中的测量精度。我们用于 CaF<sub>2</sub> 分束器的 Photon Pro 涂层的带宽被优化以覆盖所有近红外和大多数拉曼区域，包括斯托克斯和反斯托克斯。

### 产品特点

高数值孔径，极佳收集效率、紧凑的单透镜设计、衍射限制设计、RoHS 认证

### 产品型号

MP-CAF2-D10-L80

## 应用领域

深红外光谱分析

紫外激光传输

X射线检测

红外光学

外延基片

## 核心参数

### 规格尺寸

10mm dia x 80mm

## 详细参数

| 材料                 | CaF <sub>2</sub>                                                                            | MgF <sub>2</sub>                                         | ZnSe                                                                |
|--------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------|
| 透射波长范围:            | 0.13 to 10 $\mu\text{m}$ (Note: IR grade will have restricted performance outside IR range) | 0.12 to 7 $\mu\text{m}$                                  | 0.6 to 21.0 $\mu\text{m}$                                           |
| 折射率:               | 1.39908 at 5 $\mu\text{m}$                                                                  | No 1.413 at 0.22 $\mu\text{m}$                           | 2.4028 at 10.6 $\mu\text{m}$                                        |
| 反射损耗:              | 5.4% at 5 $\mu\text{m}$                                                                     | 5.7% at 0.22 $\mu\text{m}$ (2 surfaces)                  | 29.1% at 10.6 $\mu\text{m}$ (2 surfaces)                            |
| 吸收系数:              | $7.8 \times 10^{-4} \text{ cm}^{-1}$ @ 2.7 $\mu\text{m}$                                    | $40 \times 10^{-3} \text{ cm}^{-1}$ at 2.7 $\mu\text{m}$ | $0.0005 \text{ cm}^{-1}$ at 10.6 $\mu\text{m}$                      |
| Reststrahlen Peak: | 35 $\mu\text{m}$                                                                            | 20 $\mu\text{m}$                                         | 45.7 $\mu\text{m}$                                                  |
| dn/dT:             | $-10.6 \times 10^{-6}/^{\circ}\text{C}$                                                     | 2.3 (para) 1.7 (perp) at 0.4 $\mu\text{m}$               | $+61 \times 10^{-6}/^{\circ}\text{C}$ at 10.6 $\mu\text{m}$ at 298K |
| dn/d $\mu$ = 0:    | 1.7 $\mu\text{m}$                                                                           | 1.4 $\mu\text{m}$                                        | 5.5 $\mu\text{m}$                                                   |
| 密度:                | 3.18 g/cc                                                                                   | 3.18g/cc                                                 | 5.27 g/cc                                                           |
| 熔点:                | 1360 $^{\circ}\text{C}$                                                                     | 1255 $^{\circ}\text{C}$                                  | 1525 $^{\circ}\text{C}$ (see notes below)                           |

|                      |                                                        |                                                                                  |                                                                  |
|----------------------|--------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------|
| 热导率:                 | 9.71 W m <sup>-1</sup> K <sup>-1</sup>                 | 21 (para) 33.6 (perp) W m <sup>-1</sup> K <sup>-1</sup> at 300K                  | 18 W m <sup>-1</sup> K <sup>-1</sup> at 298K                     |
| 热膨胀:                 | 18.85 x 10 <sup>-6</sup> /°C                           | 13.7 (para) 8.9 (perp) x 10 <sup>-6</sup> /K                                     | 7.1 x 10 <sup>-6</sup> /°C at 273K                               |
| 硬度:                  | Knoop 158.3 (100) with 500g indenter                   | Knoop 415                                                                        | Knoop 120 with 50g indenter                                      |
| 比热容:                 | 854 J Kg <sup>-1</sup> K <sup>-1</sup>                 | 1003 J Kg m <sup>-1</sup> K <sup>-1</sup>                                        | 339 J Kg <sup>-1</sup> K <sup>-1</sup>                           |
| 介电常数:                | 6.76 at 1MHz                                           | 4.87 (para) 5.45 (perp) at 1MHz                                                  | n/a                                                              |
| Youngs Modulus (E) : | 75.8 GPa (7)                                           | 138 GPa                                                                          | 67.2 GPa                                                         |
| 剪切模量 (G) :           | 33.77 GPa (7)                                          | 54.66GPa                                                                         | n/a                                                              |
| 体积弹性模量 (K) :         | 82.71 GPa (7)                                          | 101.32 GPa                                                                       | 40 GPa                                                           |
| 弹性系数:                | C11 = 164 C12 = 53 C44 = 33.7                          | C11=140 C12=89 C44=57 C13=63 C66=96                                              | Not Available                                                    |
| 表观弹性极限:              | 36.54 MPa                                              | 49.6 MPa (7200 psi)                                                              | 55.1 MPa (8000 psi)                                              |
| 泊松比:                 | 0.26                                                   | 0.276 (2)                                                                        | 0.28                                                             |
| 溶解度:                 | 0.0017g/100g water at 20°C                             | 0.0002g/100g water                                                               | 0.001g/100g water                                                |
| 分子量:                 | 78.08                                                  | 62.32                                                                            | 144.33                                                           |
| 类别/结构:               | Cubic Fm3m (#225) Fluorite Structure. Cleaves on (111) | Tetragonal P42/mnm (#136) Rutile Structure. Can cleave on c-axis but not easily. | FCC Cubic, F43m (#216), Zinc Blende structure. (Polycrystalline) |

**警告：镉盐是应该考虑毒性的，所以操作时候务必小心。**

## No = Ordinary Ray

| $\mu\text{m}$ | No     | $\mu\text{m}$ | No     | $\mu\text{m}$ | No     |
|---------------|--------|---------------|--------|---------------|--------|
| 0.149         | 1.5800 | 0.161         | 1.5490 | 0.195         | 1.5000 |
| 0.200         | 1.4950 | 0.222         | 1.4800 | 0.248         | 1.4680 |
| 0.266         | 1.4621 | 0.280         | 1.4584 | 0.300         | 1.454  |
| 0.337         | 1.4481 | 0.400         | 1.4419 | 0.486         | 1.4370 |
| 0.588         | 1.4339 | 0.656         | 1.4325 | 0.687         | 1.4320 |
| 0.728         | 1.4314 | 0.884         | 1.4298 | 1.014         | 1.4288 |
| 1.100         | 1.4283 | 1.250         | 1.4275 | 1.650         | 1.4256 |
| 1.900         | 1.4244 | 2.058         | 1.4236 | 2.450         | 1.4214 |
| 2.700         | 1.4199 | 2.800         | 1.4192 | 3.050         | 1.4175 |
| 3.400         | 1.4149 | 4.000         | 1.4096 | 4.400         | 1.4057 |
| 4.800         | 1.4014 | 5.000         | 1.3991 | 5.304         | 1.3952 |
| 5.893         | 1.3871 | 6.483         | 1.3782 | 7.072         | 1.3681 |
| 7.661         | 1.357  | 8.251         | 1.3444 | 8.840         | 1.3308 |
| 9.429         | 1.3161 |               |        |               |        |

## 特性曲线

### 透射曲线图

