



MATERION

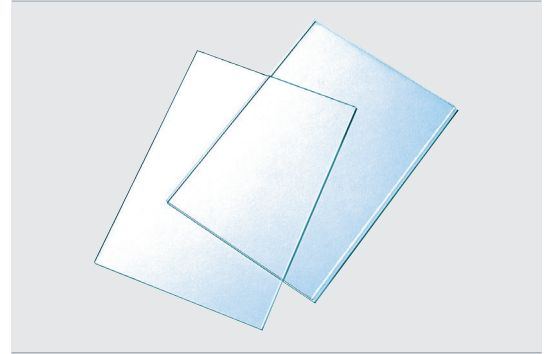
// BALZERS OPTICS

Calflex™

Heat Protection Filters

Materion Balzers Optics family of Calflex™ heat protection filters effectively remove damaging radiation from optical systems using broadband light sources. These filters combine extremely high transmission in the visible and a sharp transition to reflection in the IR. Several types of Calflex™ are available to balance cost versus performance. The products differ primarily in their IR-blocking range.

- Calflex™ 3000 SP and B1/K1: blocking range NIR + IR
- Calflex™ C and X SP: blocking range NIR



Benefits

- Heat rejection independent of glass thickness
- High visible transmission
- No color degradation
- Hard, chemically and mechanically stable dielectric oxide coating

Applications

- Projection systems
- Automotive headlights
- Copiers and film readers
- Medical lighting
- Product showcase lighting
- Fiber optics
- Museum lighting
- Imaging detectors
- Photodiode receivers

Technical Data Overview

Product	Visible transmission	IR transmission	Thermal load*	Standard sheet size**
Calflex™ C	T _{avg.} > 90% 425–680 nm	T _{avg.} < 3% 800–1150 nm	400 °C	160 · 110 · 1.1 mm
Calflex™ X SP	T _{abs.} > 80% 425–680 nm	T _{abs.} < 1% 780–1100 nm	250 °C	160 · 110 · 1.1 mm
Calflex™ 3000 SP	T _{avg.} > 80% 425–680 nm	T _{avg.} < 3% 800–1150 nm T _{avg.} < 8% 1150–2500 nm	400 °C	160 · 110 · 1.1 mm
Calflex™ B1/K1	T _{avg.} > 75% 400–660 nm	T _{abs.} < 10% 760–2600 nm	350 °C	160 · 110 · 1.8 mm

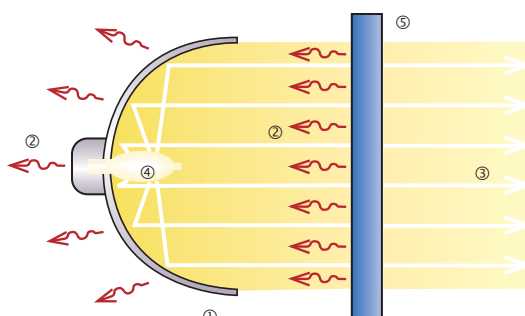
* For slow and even heating

All data measured at AOI = 0°

** Heat resistant glass (BOROFLOAT®, Corning Eagle XG or equivalent, IR absorption-glass)

Calflex™:

Heat/light separation by reflection of IR-radiation



- ① Cold Light Reflector
- ② IR-radiation
- ③ Visible light
- ④ Lamp (e.g. halogen lamp)
- ⑤ Calflex™ heat protection filter

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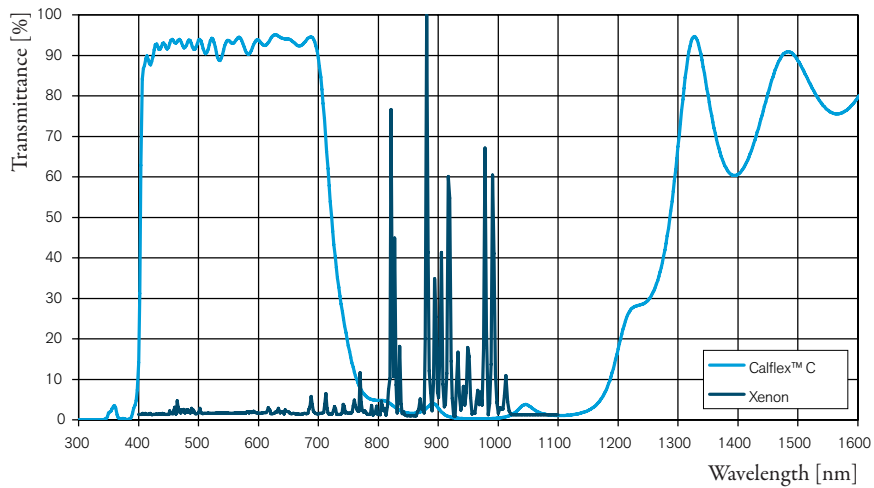
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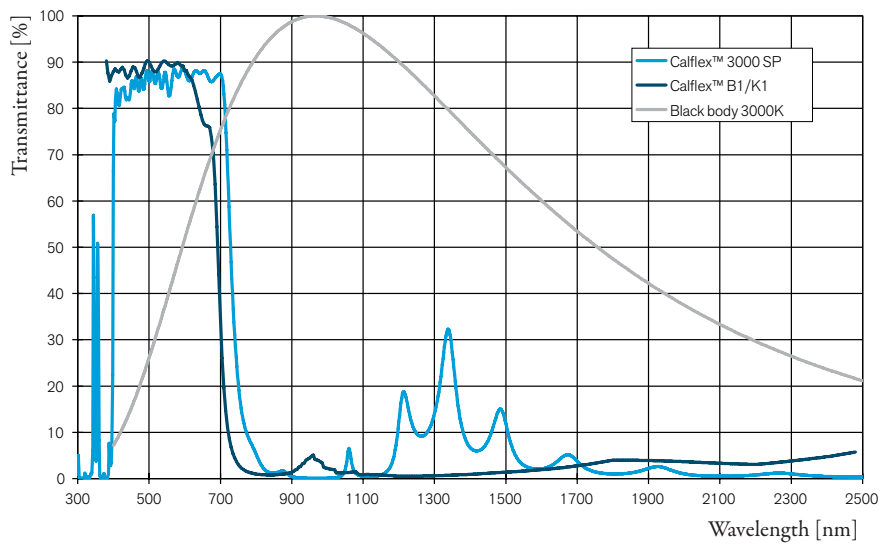
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Spectral curve of Calflex™ C and radiation of XENON lamp



Spectral curve of Calflex™ 3000 SP, Calflex™ B1/K1 and radiation of black body 3000K



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