
Description

The detector window has to fulfill two functions:

- Define the spectral sensitiveness of the pyroelectric chip according to the purpose of the application (between UV and far IR)
- Reliable hermetic seal of the optical interface between detector and environment (leakage rate < $5 \cdot 10^{-9}$ Pa·l/s Helium)

InfraTec detectors are available with the following window versions:

- Standard single crystal windows
- Windows on silicon
- Standard narrow band pass filters (NBP)
- Custom-designed filters or filters provided by the customer

Not every window/filter can be built in every detector. Environment resistance and dimension play a decisive role. For example potassium bromide is very water-soluble and can only be utilized in an environment with low relative humidity. Please confirm your filter choice with InfraTec before ordering.

The following pages will provide an overview of our standard filters and their typical spectral scans.

1 Standard Crystal Windows

Name	Code	Description	Transmission range	Environment resistance	Plot Page
CaF ₂ 0.4 mm thick	60	Calcium fluoride	(UV ... 9) μm	o	130
CaF ₂ 0.7 mm thick	61	Calcium fluoride	(UV ... 8) μm	o	130
CaF ₂ 1.0 mm thick	62	Calcium fluoride	(UV ... 8) μm	o	130
BaF ₂ 0.4 mm thick	63	Barium fluoride	(UV ... 12) μm	o	130
BaF ₂ 1.0 mm thick	64	Barium fluoride	(UV ... 12) μm	o	130
CsI 0.8 mm thick	65	Cesium iodide, protected	(UV ... 50) μm	-*	131
KBr 0.8 mm thick	66	Potassium bromide, protected	(UV ... 30) μm	-*	131
KBr 1.0 mm thick	67	Potassium bromide, protected	(UV ... 30) μm	-*	131
Sapphire 0.4 mm thick	68	Sapphire uncoated	(UV ... 5) μm	+	131
Sapphire 0.6 mm thick	69	Sapphire uncoated	(UV ... 5) μm	+	131
Si uncoated 0.5 mm thick	70	Silicon uncoated	(1.1 ... 50) μm	+	131

* water-soluble

Description

2 Standard Silicon Windows

Name	Code	Description	Transmission type	Environment resistance	Plot Page
Si ARC 2 – 5 μm	10	Coated silicon	Antireflection	+	132
Si ARC 3 – 6 μm	11	Coated silicon	Antireflection	+	132
Si ARC 3 – 10 μm	12	Coated silicon	Antireflection	+	132
Si WBP (3.0 - 5.0) μm	13	Silicon WBP	Bandpass	+	132
Si WBP (8.0 - 14.0) μm	14	Silicon WBP	Bandpass	+	132
Si LWP 5.3 μm	15	Silicon LWP	Long wave pass	+	133
Si LWP 6.5 μm	16	Silicon LWP	Long wave pass	+	133
Si LWP 7.3 μm	17	Silicon LWP	Long wave pass	+	133

Durability: Adhesion MIL-F-48616/section 4.6.8.1.
Humidity MIL-F-48616/section 4.6.8.2.
Abrasion resistance MIL-F-48616/section 4.6.8.3.

3 Standard Narrow Band Pass Filters (NBP)

NBP Filters are made by default from silicon or germanium substrate. These filters feature an excellent blocking in the short-wave (UV to NIR). Please note that an out-of-band transmission in the range $> 10 \mu\text{m}$ (long wave IR) is an always existing undesirable side effect and not shown in scans of this catalogue.

Name [CWL/FWHM]	Code	Tolerance of CWL [nm]	Tolerance of HPBW [nm]	Plot Page
NBP 4.66 μm / 180 nm CO centered	I	± 40	± 20	134
NBP 4.74 μm / 140 nm CO flank	K	± 20	± 20	134
NBP 4.27 μm / 170 nm CO ₂ high AOI	Z	± 30	± 20	134
NBP 4.45 μm / 60 nm CO ₂ long path	E	± 20	± 20	134
NBP 4.26 μm / 90 nm CO ₂ narrow	T	± 20	± 20	134
NBP 4.26 μm / 180 nm CO ₂ standard	D	± 20	± 20	134
NBP 4.30 μm / 600 nm Flame	F	± 30	± 30	135
NBP 3.40 μm / 120 nm HC	G	± 30	± 20	135
NBP 3.33 μm / 160 nm Methane	C	± 20	± 20	135
NBP 5.30 μm / 180 nm NO _x	L	± 40	± 20	135
NBP 3.95 μm / 90 nm Ref	H	± 30	± 20	135
NBP 7.30 μm / 200 nm SO ₂	U	± 40	± 30	135

Durability: Adhesion MIL-F-48616/section 4.6.8.1.
Humidity MIL-F-48616/section 4.6.8.2.
Abrasion resistance MIL-F-48616/section 4.6.8.3.

Temperature shift of CWL: (0.1 ... 0.9) nm/K
AOI shift of CWL: -30 nm at 15° AOI
(-40 ... -100) nm at 30° AOI
(100 ... -180) nm at 45° AOI
