

Phosphor Screens



Phosphor screens are used as readout devices for Open MCP detectors when imaging of the output signal is required.

They convert the cascade of electrons from the MCP detector into photons.

A phosphor screen is typically a glass window coated with a layer of an inorganic luminescent compound, also called "phosphor". The phosphor can be coated with an aluminum layer to further reflect the photons in the proper direction and thus increase the photon emission of the screen.

The various phosphors are designated by the letter P followed by a number, and they vary in their properties, such as:

- Emission spectrum
- Decay time
- Quantum efficiency

The efficiency of a phosphor depends on

- The type of phosphor
- Phosphor grain size
- Layer thickness
- The presence/absence of an aluminum layer

The phosphor screen can include a Chromium contact ring to allow direct electric contact to the screen.

ITO (Indium Tin Oxide) conductive layer can be deposited on the glass window to reduce electrostatic effects on the screen.

Available Phosphor Types

Phosphor Type	Chemical Composition	Peak Emission Wavelength [nm]	Emission Color	Median Grain Size [μm]	10% Decay Time [s]
P43	Gd ₂ O ₂ S:Tb	545	Green	1.6	≤ 1e-3
P46F	Y ₃ (Al, Ga) ₅ O ₁₂ :Ce	510	Yellow-Green	2.9	≤ 4×e-8
P47	Y ₂ SiO ₅ :Ce	400	Blue-White	3.2	≤ 1e-5

Available Screen Types

Outer Diameter [mm]	Active Diameter [mm]	Screen Thickness [mm]	Edge Thickness [mm]	ITO Layer Option	Al Overlay Option
25	18	2.2	1.05	v	v
33	25	2.2	1.05	v	v
50	45	2.2	1.05	v	v
90	75	2.2	1.05	v	v

For further information and help in designing your unique product, contact us:
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