

ALPHA SCINTILLATORS

○ DETECTION OF ALPHA PARTICULES

□ APPLICATIONS

- Alpha particles count on sampling filters
- Alpha particles count in deposits after filtration of liquid suspensions



- High detection efficiency,
- Low background noise allowing low level count,
- Dimensions adapted to most counting systems,
- Custom dimensions on request,
- Excellent cost effectiveness,
- Single appliance or batch qualification.

Specifications



Operating principle:

A scintillator is a matter able to convert the energy of ionising radiations into light pulses (photons).

The matter used for the detection of alpha particles is silver-activated zinc sulphide ZnS(Ag).

Implementation:

Zinc sulphide is an inorganic scintillator in the shape of a polycrystalline powder.

It is mixed with a binder and pulverised on a transparent substrate.

Operation:

The scintillating substrate is positioned at the entry of a photomultiplier.

The light pulses generated by the alpha particles are amplified, converted in voltage pulses and counted.

CAPP1 and CAM counting systems manufactured by ALGADE ensure an optimal adaptation to the specifications of the scintillator.

Specifications:

Substrate:

- Rhodoïd (Cellulose acetate)

Standard Dimensions:

Disc diameter: 28, 47, 50 and 140 mm.

Custom dimensions on request.

Metrological specifications:

Emitting wavelength centred on 450 nm (blue),

Deposit nominal mass: 10 mg.cm^{-2} ,

Global efficiency > 95 % for a ^{241}Am alpha monoenergetic thin source.

Background noise:

Standard: < $0.015 \text{ pulses.mn}^{-1}.\text{cm}^{-2}$, equivalent to less than $0.3 \text{ pulses.mn}^{-1}$ for a 50mm disc.

Custom: < $0.005 \text{ pulses.mn}^{-1}.\text{cm}^{-2}$, equivalent to less than $0.3 \text{ pulses.mn}^{-1}$ for a 50mm disc.

Quality control:

As a standard, random check per batch manufactured of the following:

- dimensions,
- deposit thickness,
- background noise,
- efficiency.

On request, characterisation of all or a few of the above parameters is possible on every disc in a batch.

Packaging:

- 100 pces sealed package,
- Single item sealed package on request.

Energy spectrum of a scintillator

