PIPE DETECTOR SYSTEM BASED ON PLASTIC SCINTILLATOR

For the measurement and monitoring of contaminations in inner pipes we offer two pipe detectors with different diameters: 32 mm and 43 mm.

The pipe detectors are based on the inventive detector technology of the thin-layer plastic scintillator and are suitable for α- and β-/γ-contamination measurement. A honeycomb-shaped, resistant grid protects the pipe detector against damages of the mylar foil. Guide elements with threads guarantee a definable distance of the detector to the pipe’s surface. The detector can slide through the pipe so that foil damages are minimised.

In the following, the technical data of the pipe detectors are summarised:

Technical Data:

Detector type: Zinc-sulphide-coated plastic scintillator with magnetically shielded photomultiplier, coupled via light conductor

PD 32:
- External diameter of detector: 32 mm Ø
- Total length: 350 mm
- Active detector length: 200 mm
- Detector diameter: 27.5 mm Ø
- Detector surface: approx. 170 cm²
- Weight: approx. 400 g

PD 43:
- External diameter of detector: 43 mm Ø
- Total length: 315 mm
- Active detector length: 150 mm
- Detector diameter: 38.5 mm Ø
- Detector surface: approx. 180 cm²
- Weight: approx. 450 g

Background count rate:
- α-measurement: approx. 0.1 cps
- β-/γ-measurement:
  - PD 32 approx. 25 cps
  - PD 43 approx. 30 cps

Nuclide efficiency:
- Co-60 approx. 28 %
- Cs-137 approx. 25 %
- Sr-90 approx. 40 %
- Am-241 approx. 8 %

Transparency of honeycomb grid: approx. 70 %

Nominal working range of temperature: between -10°C and +50°C, no condensation

Power supply: 5 V, 50 mA (power supplied by the CoMo-system)

Guide elements:
- Type A: up to 120 mm Ø adjustable
- Type B: up to 170 mm Ø adjustable

Advantages:
- no counter gas supply required
- for simultaneous, selective α- and β-/γ-contamination measurement
- measuring value display in cps or nuclide-related in Bq or Bq/cm²
- connectable to mobile contamination monitor CoMo-170/-300
- can be combined with guide elements (mountable on both sides) to guide the detector in the pipe that has to be controlled
- up to -10°C applicable

Pipe detector PD 32

Pipe detector PD 43
As external detectors the pipe detectors can be connected to the contamination monitors CoMo-170 or CoMo-300 by a cable. Basically the measuring value display occurs in cps. For current pipe detectors (with integrated database) and CoMo-systems with at least software-version 3.45, the measurement value can also be displayed nuclide-related in Bq or Bq/cm².

The pipe detector is delivered with a removable aluminum cover for transport or stock protection.