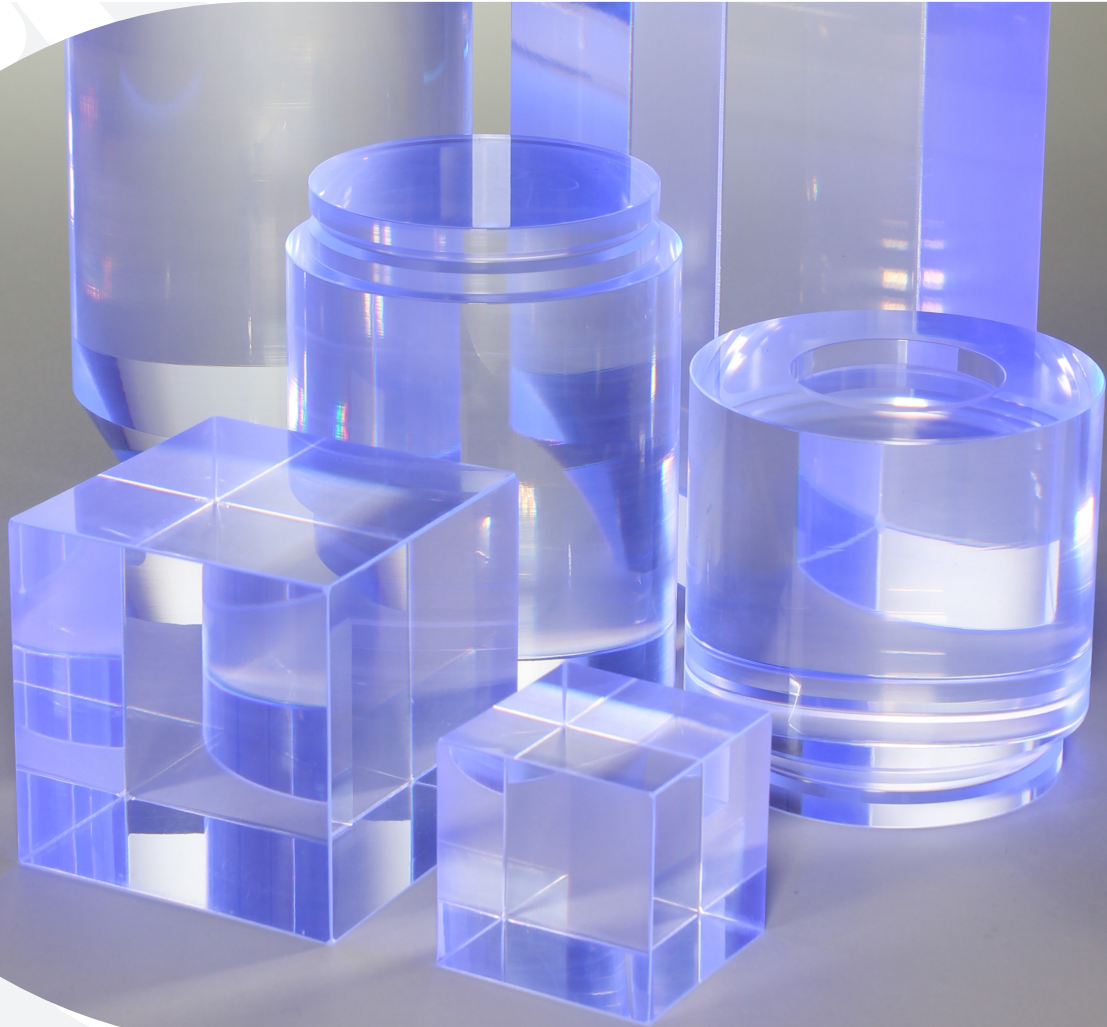


# NuDET PLASTIC

Plastic Scintillation Detectors



PLASTIC is a range of plastic scintillation detectors. Plastic scintillators are solid solutions of luminophores in polymer characterised by a short decay time and a resistance against high dose rates. They are widely used in detection systems for their efficiency, high reliability and variety of shapes and sizes.

### Benefits

- Suitable for fast-timing measurement
- Numerous possibilities of application
- Variety of geometric shapes and sizes, customisation possible
- Processing of raw materials in-house
- Control of the entire production process: styrene polymerisation and material homogeneity, high quality-consistency

### Key figures

56%  $\rightarrow$  Light output (relative to anthracene)

2.5 ns  $\rightarrow$  Decay constant

1.03 g/cm<sup>3</sup>  $\rightarrow$  Density

## Product description

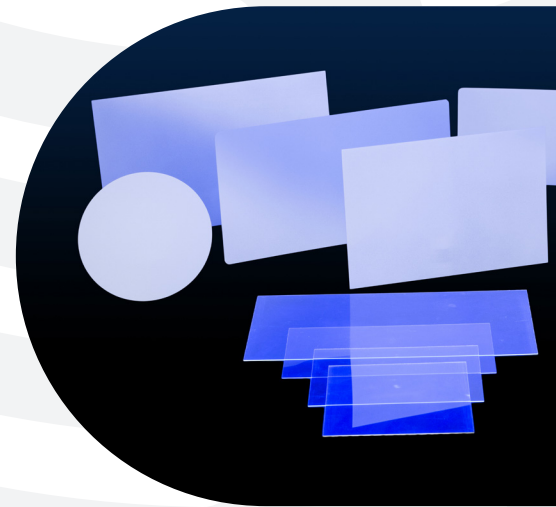
Plastic scintillators have an extremely wide field of application.

Used in thin layers, they detect protons, electrons and beta particles with a low background. Standard thickness of the foil is 0.3 mm and 0.5 mm.

Large volume plastic scintillators are suitable for measuring gamma radiation. They are widely used in the detection systems due to their high efficiency, high reliability and the variety of shapes and sizes that may be produced.

Green-emitting plastic scintillators are plastic scintillators with a longer emission wavelength and similar light output and properties to standard blue-emitting scintillators. They are designed to be used with photosensors such as photodiodes, the sensitivity of which is higher at longer wavelengths.

Block, cylinder and foil scintillators of various sizes may be produced on request without housing, with or without a polished surface, fixed to the light-guide or as plastic detection assemblies coupled with a photomultiplier.



## Product applications

- Detection of beta, gamma radiation, and neutrons
- Detection of ionising radiation in high energy physics
- Homeland security (gate monitoring systems for airports, NPPs, scrapyards, etc.)

## Product specifications

	Standard blue-emitting scintillators (SP32)	Green-emitting scintillators (SP33)
Polymer base	polystyrene	polystyrene
Density	1.03 g/cm <sup>3</sup>	1.03 g/cm <sup>3</sup>
Refractive index	1.57	1.57
Softening point	70 - 75°C	70 - 75°C
Light output (relative to anthracene)	56%	55%
Decay time	2.5 ns	4.4 ns
Wavelength of maximum emission	425 nm	503 nm

## Examples of standard products (for both blue and green-emitting scintillators)

Product description	Volume	Dimensions	PMT assembly	Interface/socket
SPD.D90.120	0.75 L cylinder	90 mm (diam.) × 120 mm (height)	2"	PMT pins (14-inch plug)
SPD.800.300.50	12 L panel	800 × 300 × 50 mm	2"	PMT pins (14-inch plug)
SPD.1000.500.50	25 L panel	1000 × 500 × 50 mm	2"	PMT pins (14-inch plug)
SPU.200.200.100MHV	4 L panel	200 × 200 × 100 mm	well type, 1 1/8" integrated	connector interface (BNC, MHV), pre-installed cable, integrated voltage divider
SPU.500.300.100MHV	15 L panel	500 × 300 × 100 mm	well type, 1 1/8" integrated	connector interface (BNC, MHV), pre-installed cable, integrated voltage divider