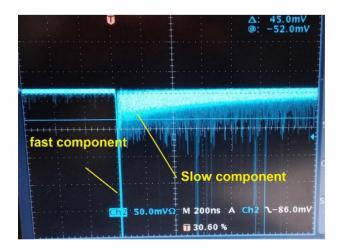


## **Barium Fluoride Scintillators**

**Description:** Barium Fluoride (BaF<sub>2</sub>) scintillation crystals are characterised by a very fast scintillation emission, with a decay time of 800 ps at 220 nm. BaF<sub>2</sub> detectors are used for fast timing measurements (e.g. positron life time studies) where sub nanosecond time resolution is mandatory. Typical time resolutions are 150 ps at 1 MeV per detector. For readout of the fast component, quartz window PMTs are required.

| Scintillation crystal                                   | : | BaF <sub>2</sub>                                   |
|---|---|--|
| Density   | : | 4.88 g/cm <sup>3</sup>                             |
| Emission maximum  |   | 220 nm (fast component)<br>310 nm (slow component) |
| Refractive index  | • | 1.54 (220 nm)<br>1.50 (310 nm)                     |
| <b>Conversation efficiency</b><br>(relative to NaI(TI)) | : | 5% (fast)<br>16% (slow)                            |
| Diameter  | : | Up to 150 mm                                       |
| Pulse shape discrimination                              | : | Well possible to discriminate neutrons from        |



gammas