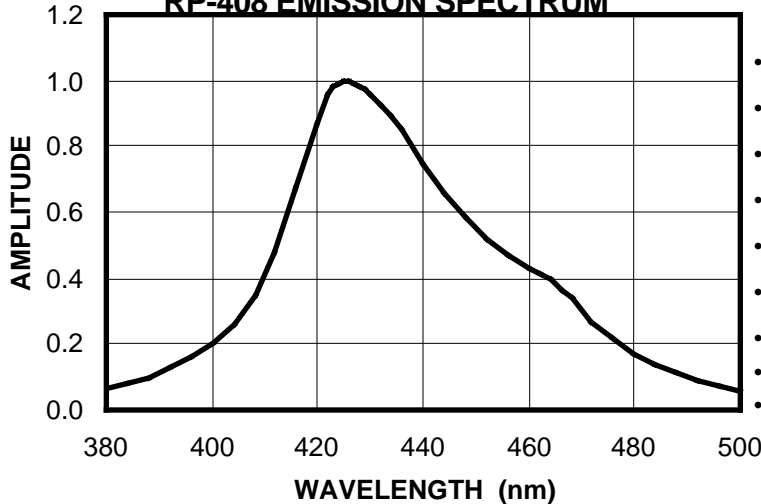


GENERAL PROPERTIES

- **Polymer Base:** Polvinyltoluene
- **Density, g/cc:** 1.032
- **Refractive Index: (ND):** 1.58
- **Softening Point:** 70 °C.
- **Coeff. of Linear Expansion:(<67°C):** $7.8 \times 10^{-5} / ^\circ\text{C}$
- **Vapor Pressure:** Negligible. May be used in high vacuum.
- **Light Output vs. Temperature:** Independent of temperature from -60°C to +20 °C. At 60°C is 95% that at 20 °C.
- **Radiation Length:** 43cm

RP-408 EMISSION SPECTRUM



SCINTILLATION PROPERTIES

- **Light Output, % Anthracene:** 64
- **Scintillation Efficiency, Photons/ MeV:** 10,000
- **Wavelength of Max. Emission, nm:** 425
- **Rise Time, ns:** 0.9
- **Decay Time, ns** 2.1
- **Pulse Width, FWHM, ns:** 2.5
- **Atomic Ratio, H/C: 1.10**
- **No. of H Atoms per cm³, x 10²² :** 5.23
- **No. of C Atoms per cm³, x 10²² :** 4.74

Plastic Scintillators offer high performance, ease of handling, mechanical stability at a relatively low cost. The versatility of plastic scintillators makes them the ideal choice for large area and specially shaped detectors.

RP-408 combines two important properties:

Relatively **Fast Decay** (2.1 ns) -Useful for time-of-flight systems where timing is critical, and

Long Optical Attenuation Length -Typical measurements of 4 meter optical attenuation length are achieved in strips of cast sheet in which a representative size is 2 cm x 20 cm x 300 cm.

The emission spectrum (425 nm) is well matched to common photomultipliers. RP-408 is the detector of choice for many industrial applications such as in gauging and environmental protection where high sensitivity of signal uniformity are critical operating requirements. Commercially, it is the most preferred Plastic Scintillator in use. Refer to other Data Sheets for the complete line of Rexon Plastic Scintillators.

Effects of liquids

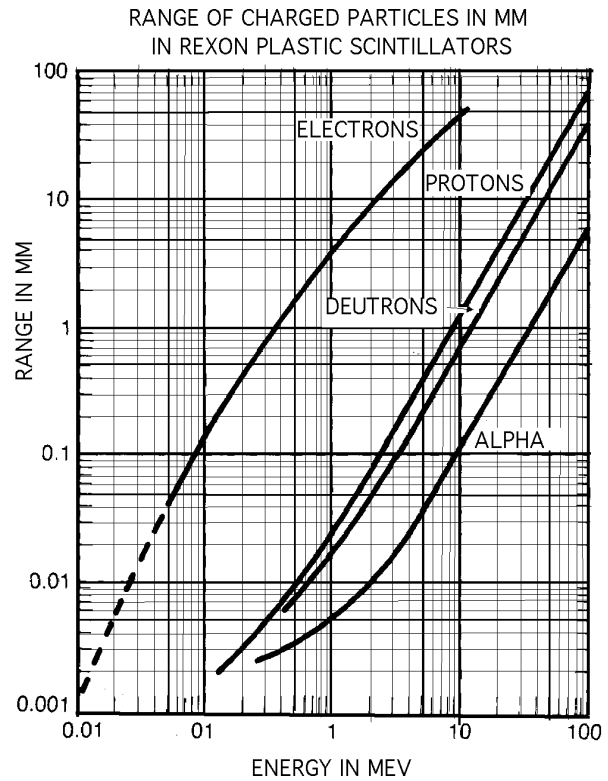
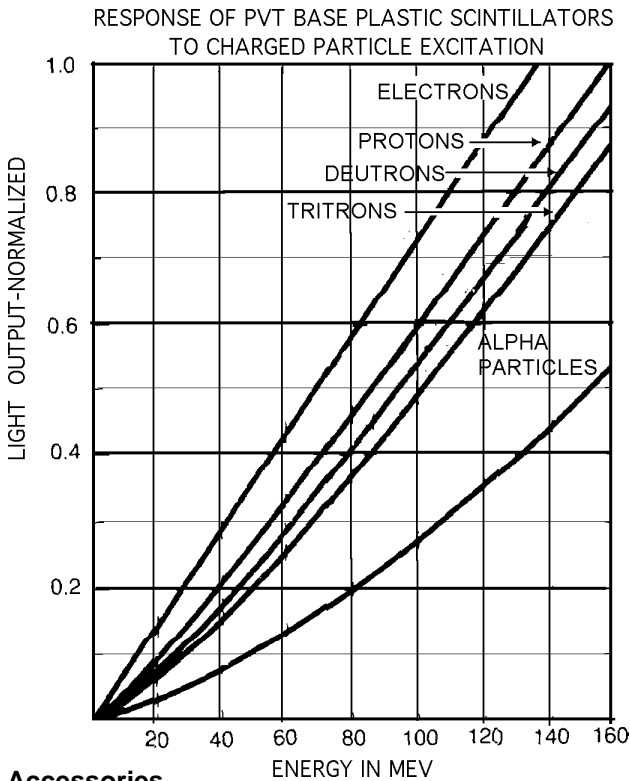
The plastic scintillators are **soluble** in aromatic solvents, acetone chlorinated solvents etc. They are unaffected by water, dilute acids, alkalis, lower alcohols, pure methyl alcohol, silicone grease or fluid.

Standard Sizes and Shapes

Sheet Sizes range up to 200" (5m) long by 36" (914mm) wide. Blocks are available up to 96" (2.5m) long, while Rods up to 48" (1220mm) diameter are manufactured. Call for standard sizes of annuli, well counters, thin films and spheres.

Handling and cleaning

Plastic scintillators sheets are supplied with a protective paper that should not be removed until ready for use. It is advisable to handle all plastic scintillators with cotton or terylene gloves. If the scintillator requires cleaning we recommend a dilute solution of liquid detergent and a Selvyt polishing cloth or BPC grade cotton wool. Alternatively, Rexion can supply an excellent cleaning/polishing cream. Use of this can often increase the measured light attenuation length. Ethanol or methanol may be used. Machining instructions are available upon request.



Accessories

RX-688 Optical Coupling Silicone Grease

XR-560 REFLECTIVE PAINT-Super White for ALL Scintillators and Light pipes—Water Base

PMTS Rexion "P" Line of generic photomultipliers for all applications at LOW COST.

XR-61/10 High Reflectance Special Grade of Teflon

RX-79 Index matching epoxy for Plastic Scintillators. Available in 200 cc and 400 cc kits.