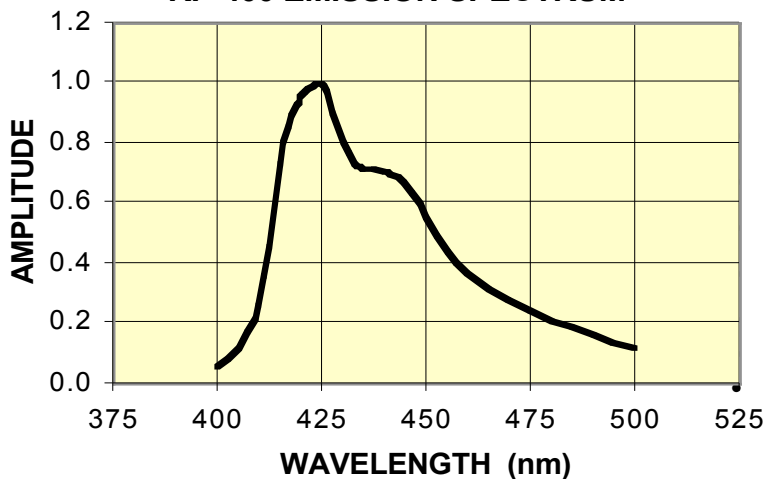


GENERAL PROPERTIES

- **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-400 EMISSION SPECTRUM



SCINTILLATION PROPERTIES

- Light Output, % Anthracene:** 65
- Scintillation Efficiency, Photons/ MeV:** 10,000
- Wavelength of Max. Emission, nm:** 423
- Rise Time, ns:** 0.9
- Decay Time, ns** 2.4
- Pulse Width, FWHM, ns:** 2.7
- Atomic Ratio, H/C: 1.10**
- No. of H Atoms per cm^3 , $\times 10^{22}$: 5.23
- No. of C Atoms per cm^3 , $\times 10^{22}$: 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-400 (having the same formulation as NE 102A) is truly the general purpose scintillator that has been the mainstay over the past fifty years for use in industrial and health physics measurement of alpha, beta, gamma and neutron radiation as well as numerous medical instruments and scientific research ranging from low background shields in nuclear physics to space-borne astrophysics systems. It is available in geometries ranging from very thin films to thick cast sheet, rods and ingots.

For applications that require the scintillation light to traverse over 100 cm, a slight modification of the formulae provides the RP-408. While the light output decreases from 65% to 64% in RP-408, the decay time becomes shorter (from 2.4 ns to 2.1 ns) with a MAJOR IMPROVEMENT ($\approx 50\%$) in the Bulk Light Attenuation Length. Refer to RP-408 Data Sheet for additional details.

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.

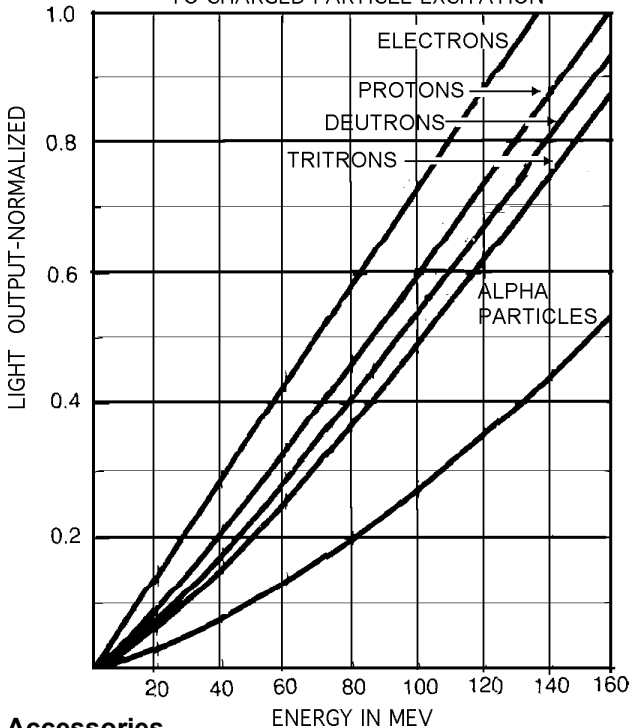
Standard Sizes and Shapes

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.

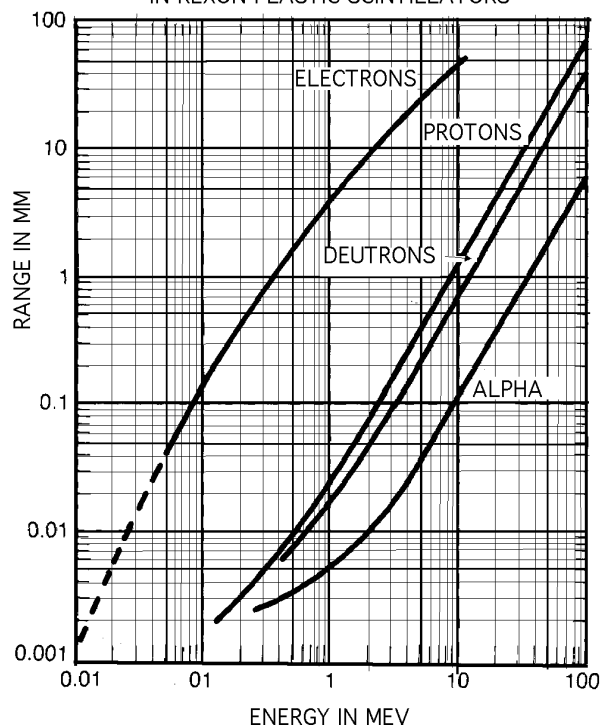
Handling and cleaning

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, Rexon 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.

RESPONSE OF PVT BASE PLASTIC SCINTILLATORS TO CHARGED PARTICLE EXCITATION



RANGE OF CHARGED PARTICLES IN MM IN REXON PLASTIC SCINTILLATORS



Accessories

RX-688 Optical Coupling Silicone Grease

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

PMTS Rexon "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 k