STORAGE AND HANDLING OF PLASTIC SCINTILLATORS

Storage

ELJEN scintillators are commonly shipped with adhesive paper protecting certain of its surfaces. Keep this paper on as long as possible until the scintillators are actually put into use to minimize abrading and touching of the polished surfaces. Cutting and machining can be done with the paper in place.

Scintillator sheets or plates are best stored standing on their long edge set on a soft material such as foam rubber sheet. When stacked lying flat, place at least ¼" (6mm) of foam rubber between and underneath the pieces. The foam should take up at least 75% of the sheet surface area. Avoid storage conditions which present hard pressure points against the scintillator surfaces.

Temperature

Standard room temperatures in the range 65 – 80^{O}F (18 – 27^{O}C) are best. Long-term storage above 100^{O}F is not recommended as this will accelerate both oxidative yellowing and the setting of the protective adhesive paper permanently to the plastic.

Lighting

Exposure to sources of UV light can hasten the development of a yellow discoloration from oxidation at the surfaces in much the same way as it does this to any organic material. The common UV sources are fluorescent lights and sunlight. The factory supplied protective paper will adequately protect against common fluorescent light emissions. Unprotected scintillator may also be exposed to normal fluorescent lighting for many hours (<24 hrs.) without danger of degradation.

Extended exposure to direct sunlight should definitely be avoided as the solar UV intensity can be several orders of magnitude more intense than that from room lights.

Solvents

Absolutely avoid exposure to most organic solvents and their fumes. Such materials include paint thinners, degreasers, acetone and ketones.

The lower alcohols are generally safe; however, we strongly recommend using only a high grade of isopropyl alcohol (isopropanol) for general cleaning of the plastics unless you have extensive experience with plastic scintillators and know how to minimize the cooling effects of the more rapidly evaporating alcohols, especially methanol.

Plastic scintillators may be cleaned with water solutions of quality detergents such "Alconox" and dishwashing detergents which do not contain lemon oils. These should be well rinsed when done.

ELJEN TECHNOLOGY
PO Box 870, Sweetwater, TX 79556
Tel: (325) 235-4276 or (888) 800-8771
Fax: (325) 235-0701

Handling

During handling and assembly of counters, clean cotton gloves should be worn to minimize scratching and fingerprints. Bonding should be accomplished by using a good grade of epoxy, such as ELJEN EJ-500 Optical Cement. Do not use solvent bonding materials often used with acrylic plastics. If a reflective foil is to be used as a wrapping for the counter, use only food grade aluminum foil. Do not use aluminized mylar or similar materials as a reflector.

Summary

While ELJEN plastic scintillators are far more resistant to crazing than plastic scintillators from the past, their functioning longevity can be optimized by observing a few easy guidelines.

- Do not store the plastic where solvent vapors might be expected.
- Leave the protective adhesive paper on a clean scintillator until use.
- Avoid sharp pressure points.
- Bare-handed handling of scintillators should be avoided by using gloves.
- Clean by using only tepid water or pure isopropyl alcohol.
- Avoid rapid changes in temperature.
- Avoid direct exposure to sunlight.
- Maximum temperature should be just below 60^{O}C (140^{O}F). Normal operating and storage temperatures should be well below this.

High Temperature Operation

iIf you plan to use ELJEN plastic scintillators for extended periods (months) at temperatures above 95^{O}F (35^{O}C), please contact ELJEN Technology for advice in optimizing their performance in your application.

30 March 2000

ELJEN TECHNOLOGY **Tel: (325) 235-4276 or (888) 800-8771**
PO Box 870, Sweetwater, TX 79556 **Fax:)325) 235-0701**