

Storage and handling for SCSF-78MJ fibers

1. Aging by high temperature and UV light

Our KURARAY scintillating fibers as well as SCSF-78MJ are very sensitive and weak to high temperature and ultraviolet (UV) light. Both high temperature and UV light affect the core materials of polystyrene mainly rather than the fluorescent dyes doped in the core, accelerating some chemical reactions like oxidation or decomposition. And the reaction makes some color centers and makes the transparency decrease due to UV absorption of polystyrene materials. This UV absorption causes the decrease of attenuation length in short wavelength blue region, resulting also in the decrease of light output. This is the cause of aging. Aging in attenuation length and light output is caused and accelerated by high temperature in the air (oxygen) and by weak UV light.

We should keep the scintillating fibers cool at the temperature under 25 centigrade degree. And also we should keep them dark in a box or black cover. We should never expose fibers beside a window, because even an indirect sunlight contains strong UV light. We recommend using yellow lamp or UV less fluorescent lamp during fiber assembling.

2. Handling naked fibers

Our KURARAY scintillating fibers are naked fiber without any coating or any cover materials.

In case of handling naked fiber without black or white coating, short component of attenuation length is influenced sensitively by cladding mode light that has a large angle and translates in the fiber by reflecting on the surface of the cladding and the air. Dust, impurity or stain on the surface of the fiber cladding affects this cladding mode light sensitively.

So we should not handle fibers with bare hands. We recommend using gloves – cotton gloves, for example.

Organic solvents like acetone and toluene may also damage the fiber. For cleaning and wiping naked fiber, please use soft paper or soft cloth soaked with water, soapy water or ethanol. Ethanol and isopropyl alcohol (IPA) are the only exceptional solvents for safely use.

