

PLASTIC FIBER OPTICS FOR END AND SIDE ILLUMINATION

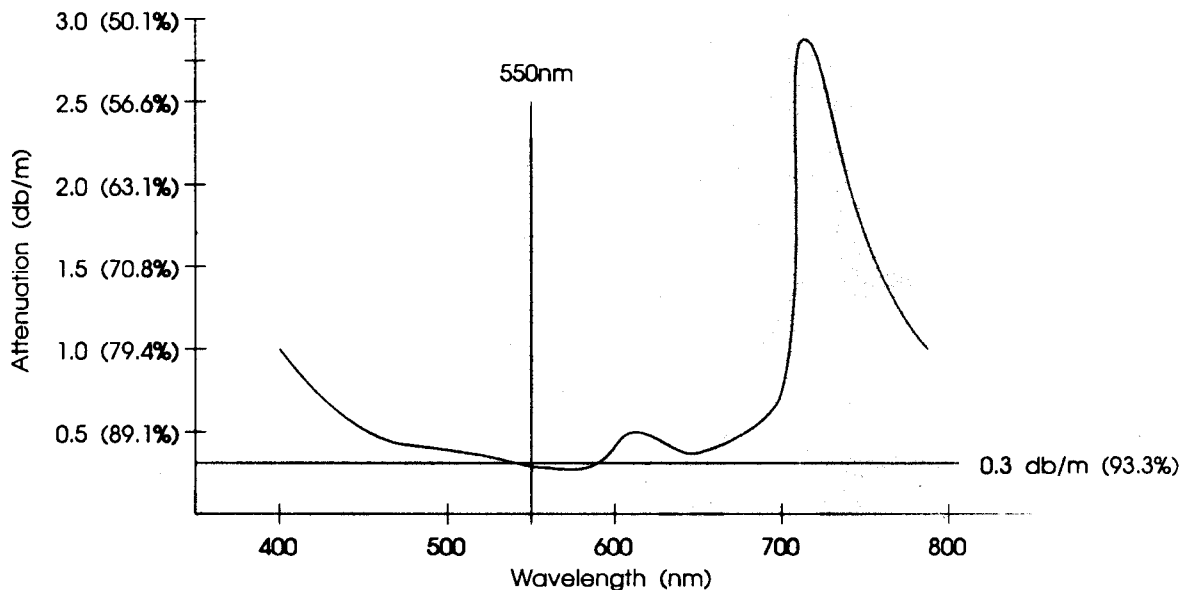
PMMA Plastic Fibers

Typical attenuation for PMMA plastic fibers are shown below, percent transmission per meter is shown in parenthesis. The greatest transmission is the visible region of spectrum, where there is very little discoloration of light transmitted over long lengths. PMMA fiber does uniformly fluoresce light from the side, although not as much as large core fiber. PMMA plastic fiber is available in the following diameters: 0.01", 0.02", 0.03", 0.04"(1mm), 0.06", 0.08"(2mm), 0.12"(3mm). The most common size is 0.03", simply because it is the least expensive. Light guides can be constructed of various bundle diameters depending on your application. Fiber bundles can be terminated and polished in a polymer ferrule to adapt to the illuminator at one end, and one or more fixtures at the other. Fibers are furnished in a PVC jacket for end lighting applications, left bare or placed in clear PVC tubing for side light applications. For displays fibers can be channeled into a light bar for fixed mounting on walls or in a display cases, construction is based on your needs, ports?, number of fibers?, etc.

Numerical aperture: 0.50
Acceptance angle: 60°
Minimum bend radius is 3"

Bundle sizes for 0.03" fiber:

<u># fibers</u>	<u>Bundle dia.</u>	<u>Dia. of jacket</u>
368	5/8"	1"
235	1/2"	3/4"
125	3/8"	1/2"
58	1/4"	3/8"



Large Core Plastic Fibers

Attenuation values for large core plastic fibers are significantly lower than PMMA, exact values are not available. Fibers consist of a flexible polymer core with a teflon outer jacket. Advantages include, 30% greater side luminance than PMMA, but over a much shorter length, and easier maintenance for they do not require polishing. Used with our Mark III Metal Halide Illuminator side emission of light approaches that of neon. Max. bundle size is two 1/2" fibers or four 3/8" fibers or twelve 1/4" fibers. We do not recommend runs longer than 35ft.

Numerical aperture: 0.66
Acceptance angle: 83°

Bend radii: 1/2" fiber = 5", 3/8" and 1/4" fiber = 3"