Specifications for Plastic Optical Fiber

LUMINOUS TC-1000

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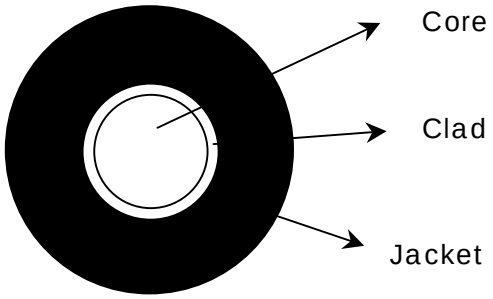
Issued by : Asahi Kasei EMD Corporation
Plastic Optical Fibers Department

1, STRUCTURE

ITEM	UNIT	Specifications
Core Material		PMMA
Clad Material		Fluorinated Polymer
Fiber Diameter	µm	1000 ± 60
NA		0.485
Jacket Material		PE
Jacket Diameter	µm	2200 ± 70
Jacket Color		Black



2, PROPERTIES

ITEM	UNIT	Specifications	
Application Temperature Range	ºC	-40 ~ 85	
Attenuation	dB/m	≤ 0.15	*1
Tensile Strength at Break Point	N	≥ 90	*2
Elongation at Break Point	%	≥ 90	*2
Minimum Bending Radius	mm	30	*3

Sample conditions

Temperature: T = 23ºC
Humidity: RH = 50%
Storage time: t = 200h

*1 : Monochromatic light at 650nm, LNA = 0.15, 52-2m Cut-back Method
*2 : Interval between grippers = 100 mm, Tensile Speed = 100mm/min
*3 : L = 2m, 90 degree bending at the middle of fiber
Light Source : LED (Peak Wavelength = 657nm)
Transmission Rate ≥ 90%

Precautions in Handling and Use

Restricted applications

DO NOT USE LUMINOUS FOR ANY APPLICATION WHICH IS INTENDED TO COME INTO DIRECT CONTACT WITH THE HUMAN BODY OR DIRECT CONTACT WITH FOOD. Consult Asahi KASEI EMD before considering LUMINOUS for any non-invasive medical device applications; invasive applications cannot be considered.

Installation and operating environment

LUMINOUS is not structurally or materially designed to bear large external loads. Do not place or drop heavy objects on LUMINOUS, or hang objects from LUMINOUS. Improper installation or service environment may seriously degrade its light transmission capability. The design of any system or instrument in which LUMINOUS is to play an essential role must provide effective control of its installation and operating environment (temperature, humidity, freedom from exposure to solvents, chemicals, ultraviolet light, etc.) and appropriate back-up in case of light transmission loss. Laboratory tests and experience have shown all of the following to require particular care, in both installation and service.

* Do not squeeze, pinch, or compress LUMINOUS with tools, fixtures, or securing devices.
* Do not bring into direct contact with any chemicals that might degrade the LUMINOUS plastic resins.
* Do not bring into direct contact with any tubes, cables, or other rubber or plastic objects containing plasticizer (DOP, etc.), stabilizer, or other additive that might migrate into the LUMINOUS cord or cable and cause discoloration or reduced photoconductivity.
* Do not apply or permit contact with any adhesive containing a solvent, monomer, or other component that might adversely affect the physical or optical properties of LUMINOUS.
* Do not use any alcohol or organic solvent in cleaning or wiping LUMINOUS, as it may cause cracking or hazing.
* Do not expose LUMINOUS to ultraviolet or radioactive rays, which may cause deterioration and loss of photoconductivity.

Heat exposure

LUMINOUS softens at approximately 100°C, decomposes and emits flammable gas at approximately 200°C, and above 200°C may ignite and burn. Any lamp or other light source assembly must include a cooling device to keep LUMINOUS below 80°C, and particularly in conjunction with the use of a condenser lens, the end surface of LUMINOUS must be kept free of dirt and other contaminants, which may cause elevated LUMINOUS surface temperature, decomposition, and fire.

Storage

Store LUMINOUS indoors, in a place free from direct sunlight, water and excessive humidity, to protect its properties and performance.

Disposal

LUMINOUS bare fiber and cord contain fluorine and vinyl chloride resins, and will emit hydrogen fluoride, hydrogen chloride or other toxic gases during incineration. Dispose of LUMINOUS either by land-fill burial or by incineration in a facility capable of removing and disposing of such gases, in strict accordance with national and local laws and regulations.

♦ The information is accurate to the best knowledge of ASAHI KASEI EMD as of the date of its publication, and may be changed when new knowledge or information is acquired.