

## LIQUID LIGHTGUIDES

### Handling Information

#### Lifetime

Liquid Lightguides have a limited lifetime, independent of whether they are stored or in use. However, lifetime may vary depending on climatic conditions. Cold and humid environments will extend lifetime, hot and/or dry environments will shorten it. Though the outstanding UV performance will not markedly degrade during usage, we recommend to replace the lightguide in advance of the expected lifetime expiration. Final degradation is generally caused by formation of bubbles in the liquid, and optical output may then drop very rapidly.

	Approximate lifetime	Typical usage
Active core Ø 3 mm	4 years	3 years
Active core Ø 5 mm	4 years	3 years
Active core Ø 8 mm	15 months	1 year

*Note: lifetimes are given at 23°C and 60% relative humidity*

The Ø8mm lightguides have a shorter lifetime due to design constraints. When not in use, storage in a humid container or refrigerator is an easy means of extending the lifetime.

#### Temperature Range

	Minimum	Maximum
Continuous storage and operation	-5°C / +23°F	+35°C / +95°F
Storage for maximum of a few days	-15°C / +5°F	+50°C / +122°F
Storage for maximum of a few hours	-20°C / -4°F	+70°C / +158°F

Stability at extreme temperatures is a factor of both temperature and time.

Exceeding these limits may cause formation of a bubble inside the liquid, which usually will disappear again after storage for a few days at room temperature

## **UV Degradation of Liquid Lightguides**

Liquid Lightguides are best suited for the spectral range from 320nm to 650nm. When exposed to this radiation they are free of optical degradation. Radiation between 280nm and 320nm can cause a limited degree of degradation of the UV transmission. Depending on radiation intensity the UV transmission can degrade up to 10%. This degradation will come to a stop within the first 500 hours. Any radiation below 280nm will cause severe degradation.

## **Explanatory Notes**

This document is to be considered a general guideline. Optical degradation of lightguides depends to a large extent on the radiation to which the individual lightguide is exposed. Above data was gathered with UV lamps most customary in the Spot Illumination Market. However, spectral behavior and intensities vary greatly between UV light sources and UV lamps of different manufacturers. Spectral behavior varies not only based on different design of lamps and filters but also due to manufacturing tolerances of the same. It is therefore the responsibility of the manufacturer or end user of the complete illumination system to test the suitability of a lightguide for the individual lightsource design.

When exposed to radiation they are not suited for, lightguides can be permanently damaged. This is out of control of the manufacturer and unqualified operation will generally leave no evidence. This is why optical qualities of lightguides cannot be guaranteed. However, we are dedicated to giving our customers the best optical quality possible, and it is our policy to replace obvious manufacturing defects generously.

All statements refer only to degradation through radiation under normal operating conditions. Optical transmission may also degrade through improper handling, i.e., kinking, overheating, vacuum, arid climate etc.

Additional handling instructions may need to be observed.