



DOCUMENTATION

Phosphorescent Low Location Lighting systems

IMO/SOLAS, ISO15370

Fluor-Lux is a supplier of safety signs and safety way guidance systems (SWGS systems) and connected solutions - for offshore and onshore facilities. We are certified according to current regulations to ensure delivery of safe and secure products.

PRODUCT INFORMATION

A safety way guidance system (SWGS system) is complex and may consist of several components - from phosphorescent strips to supplementing signs, as directional indicators, fire signs and evacuation plans. The whole SWGS system shall give users consequent and logic information for efficient evacuation to a safe place. SWGS systems shall be designed, so that the visual information is in contrast to the surroundings for as long as it is dimensioned for evacuation. The components of SWGS shall be installed as continuously and uninterrupted as possible in the evacuation zone. The size and number of supplying signs shall be decided on based on a total risk assessment of the vessel.

The LLL is the central part of an SWGS system. All signs, as part of the LLL system, shall hold the same quality and luminance as the LLL strip itself. The components of an LLL system comprise guidance lines at low location (strips), directional indicators, marking of the escape route doors, fire signs and escape route signs.

Our LLL system is delivered according to ISO15370:2010 -Low Location Lighting, measurement of photoluminescence with low stimulation, type 60202 RGB-M-F yellow-green. The application glue/paste also comply with the IMO regulations. See product information, page 2.

INSTALLATION ON BOARD

1. Phosphorescent LLL system shall be installed in corridors, stairways, lobbies etc. so that all passengers readily can identify all escape routes and exits.
2. May be applicated with Sikafleks-292i (product quality page 2)
3. The LLL system shall – along the whole escape route, only interrupted by corridors and cabin doors - be located either on the bulkhead within 300 mm of the deck, or on the deck 150 mm of the bulkhead. The LLL shall be installed on at least one side of the corridor and stairways. Installation on the same side as the escape route door is preferable. In corridors and stairways wider than 2 m, LLL shall be installed on both sides. The top and the bottom of each set of stairways shall be identified.
4. For doors which form part of the escape route, the LLL strip shall be installed at the door frame, or at the door leaf up to the exit door handle. Sliding doors and watertight doors shall be marked how to open. All exit routes shall be marked with directional exit signs.
5. In dead-end corridors, the LLL system shall include directional indicators at intervals of no more than 1 m, pointing away from the dead-end.
6. All signs as part of the LLL system (directional indicators and fire signs) shall be installed at the same level as the phosphorescent strip.
7. All cabins shall be equipped with an escape route plan, that identifies at least the two closest escape routes.
8. When installation is complete, a luminance test shall be performed at the place, under real conditions, according to ISO15370, annex B - minimum two tests per deck. Results are to be logged for later inspection. Meaning the manufacturer of the LLL-product must supply certificates and proof of having met the requirements of the applicable standards and regulations.
9. Installation is to be approved by certified body.

MAINTENANCE, INSPECTION AND CONTROL

1. By repairs and replacements of phosphorescent components, the new products shall be of at least the same quality as the originals.
2. The LLL system shall be visually examined and spot-checked every week, and the area and the results recorded. The whole vessel shall be visually checked within a 6-months period. Checkpoints: the need for cleaning, performance of external light sources, missing or damaged phosphorescent strips and signs. Deviations to be improved immediately.
3. Cleaning to be performed according to visual check records. Cleaning with "normal" detergents is recommended, as soap and water (avoid chemicals). External light sources shall also be cleaned to secure optimal charging of the LLL system.
4. All LLL systems shall have inspection and testing of luminance at least every 5 years (according to IMO resolution A.752(18)). In case of noncompliance, the LLL components shall be replaced. The testing may also be performed every year, where possible, on one deck in each vertical zone (ref. ISO15370:2010).
5. A copy of technical product information, test results, information about the producer, risk evaluations, maintenance and control records, shall be kept on board the vessel and available for maintenance and inspection purposes.

PRODUCT TESTS AND QUALITY

PRODUCT: SAFETY WAY GUIDANCE SYSTEM		
STANDARDS	TESTS	TESTED BY
ISO17398:2004	Flame retardant test according to: IEC60092-101, section 2.28.2, type 60202 RGB-M-F yellow-green.	RISE/SP, Sweden
ISO17398:2004	Weather resistance test according to ISO4892-2.	RISE/SP, Sweden
ISO17398:2004	Salt spray and corrosion resistance according to ISO9227.	RISE/SP, Sweden
ISO17398:2004	Resistance to humidity.	RISE/SP, Sweden
ISO17398:2004	Measurement of photoluminescence according to sub-classification D (strictest classification). Measured before and after aging of samples having been exposed to weather resistance, salt spray and humidity.	RISE/SP, Sweden
ISO17398:2004	Impact resistance test according to IEC60068-2-75.	FluorLux
ISO17398:2004	Wipe resistance test according to ISO105-X12.	FluorLux
ISO15370:2010	Low Location Lightning, measurement of photoluminescence with low stimulation, type 60202 RGB-M-F yellow-green.	RISE/SP, Sweden
DIN67510-1:2009	Measurement of photoluminescence, type 60202 RGB-M-F yellow-green.	RISE/SP, Sweden
ISO17398:2004	Cleaning of product with isopropanol 20 times, with 1 kg press, results in no changes on the product.	FluorLux

PRODUCT: APPLICATION PASTE/GLUE FOR MARITIME INSTALLATIONS		
PRODUCT	DESCRIPTION	TESTS
SIKAFLEX – 292i	Polyuretan glue/paste, hardens when exposed to humidity. Excellent gluing properties and mechanical strength. For application on a broad specter of materials – aluminium, plastic, ceramics, painted surfaces etc. Solvent-free. Application temperatures between 10-40 Celsius. Mechanical removal of hardened product.	Flame retardant - Wheelmark approved

TECHNICAL DATA LUMINESCENCE

IMO - SAFETY WAY GUIDANCE SYSTEM		TEST MATERIAL	COMMENTS	CLASSIFICATION	2 min	10 min	30 min	60 min	Decay time to glow effect 0,3mcd/m ²
REQUIREMENT	ISO15370:2010 requirements for IMO	Special	Requirement applies for all safety systems as part of a safety way guidance system.		-	15	-	2	60 min
TEST RESULT	Test according to ISO15370-2010	60202 RGB- M-F yellow-green		Approved		65,5		16,8	-

