



Certificate of Type Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Ertecna, Lda.
Address	EN 109 Araújos Brenha, 3080-436 Figueira da Foz, Portugal
Type	Photoluminescent Material
Description	Marine, offshore, industrial and commercial applications for safety signs, escape route illumination systems and tunnels.
Trade Name	Sinalux – LLL / Everlux – LLL
Specified Standard	Fire retardance: IEC 60392-101:2018(Clause 4.7) Fire retardance: NBR 16820:2020 (Clause 7.1) Luminance Performance: ISO 16069:2017 (Clause 7.2.1& 7.2.2) Luminance Performance: ISO 15370:2021 Luminance Performance: DIN 67510-1:2020 Luminance Performance: UNE 23035-4:2003 Luminance Performance: NBR 16820:2020 (Clause 7.5) Luminance Performance: NS 3926-1:2017 (Clause 7.2) Luminance Performance: NS 3926-2:2017 (Clause 4.10) Luminance Test: DIN 67510-1:2020 Luminance Test: ISO 16069:2017 (Annexe B) Luminance Test: UNE 23035-1:2003 Luminance Test: NS 3926-2:2017 (Clause 4.5)

71 Fenchurch Street London, EC3M 4BS, United Kingdom

Lijo Thomas

Fire & Safety - Senior Surveyor to Lloyd's Register EMEA
A member of the Lloyd's Register group

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This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The attached Design Appraisal Document forms part of this certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.



DESIGN APPRAISAL DOCUMENT

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2500778SS

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

This Design Appraisal Document forms part of the Certificate.

This is renewal of certificate No: LR2002404SS-03

EXAMINED DOCUMENTS

Technical Characteristics, Sinalux LLL/ Everlux LLL, Mod.217F_UK, dated 02-05-23

TEST REPORTS

- Determination of colour of phosphorescent material according to ISO 3864-4:2011(Annexe B), test report dated 11th February 2020.
- Fire retardant test according to Standard IEC 60092-101:2018 (Needle-flame Tests according to IEC 60695-11-5), Test report No: LFF.2025.002, dated 03/01/2025
- Determination of horizontal burning rate according to ISO 3795:1989, Test report No: LFF.2025.005, dated 13/01/2025
- Determination of luminance and period of light decay according to DIN 67510-1:2020, NT11, NT22 RT-SCIE (ANEPC), ISO 17398:2004 (clause 7.11), ISO 16069:2017 (Annex A), NP 4386:2014, NS 3926-2:2017 (clause 4.5) and ABNT NBR 16820:2020(7.5.1.1). Test Report: No. ULLOY002, dated 8th January 2025
- Determination of luminance and period of light decay according to ISO 16069:2017(Annex A, clause 7.2.2) and ABNT NBR 16820:2020(7.5.). Test Report: No. ULLOY003, dated 8th January 2025
- Determination of luminance and period of light decay according to NS 3926-1:2017. Test Report: No. ULLOY004, dated 8th January 2025
- Determination of luminance and period of light decay according to ISO 15370:2021- Annex A & IMO Resolution A.752(18). Test Report: No. ULLOY0007, dated 8th January 2025

CONDITIONS OF CERTIFICATION

	After 10 minutes	After 30 minutes	After 60 minutes	After 90 minutes
Measured luminance, mcd/m ² , ISO 16069:2017(Annex A, clause 7.2.2) and ABNT NBR 16820:2020(7.5.) for luminance exposure 25lux	80	-	10	5.5
Measured luminance, mcd/m ² for luminance exposure 1000lux	150	-	21	-
Measured luminance, mcd/m ² , NS 3926-1:2017 for luminance exposure 25lux	57	23	11	-
Measured luminance, mcd/m ² , ISO 15370:2021 & IMO Resolution A.752(18) for luminance exposure 25lux	72	27	14	-
Measured time decay to reach 0.3 mcd/m ² for luminance exposure 1000 lux	2000 minutes			
Measured time decay to reach 0.3 mcd/m ² for luminance exposure 25 lux	1000 minutes			

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Measured time decay to reach 0.3 mcd/m ² , NS 392-1:2017 for luminance exposure 25 lux	3756 minutes
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1. Chromaticity area(colour)- K- Yellow Green.
2. When fitted on SOLAS vessels, the photoluminescent (PL)materials shall provide a luminance of at least 15 mcd/m² measured 10 min after the removal of all external illuminating sources and shall continue to provide luminance values greater than 2 mcd/m² for 60 min.
3. Minimum incident light for marine applications: 2.5 Lux. When fitted on SOLAS vessels, all photoluminescent materials are to be provided with no less than the minimum level of incident/ambient excitation light necessary to charge the material to provide luminance greater than 2 mcd/m² after 60 min. The minimum required excitation illuminance (lx) for lamp of standard F2 cool white with a colour temperature of 4100 °K to provide luminance greater than 2 mcd/m² after 60 min is 2.5 lx.
4. The minimum excitation illuminance for the tested light source is to be marked on the product.
5. When fitted on SOLAS vessel, the arrangement of low location lighting systems on vessels shall be approved by the competent authority. For this purpose, the manufacturer or the installer shall submit the installation plan and description, including certificates which state that the materials and components of PL to the competent authority. On board arrangements in each case to be approved by competent authority at the design stage in accordance with IMO Resolution A.752 (18).
6. After the installation on a SOLAS vessel, photoluminescent systems shall be tested at the place of use in accordance with Annex B of ISO 15370:2021 at least twice on each deck and the measurements shall be recorded in accordance with Annex C of ISO 15370:2021. This measurement shall be repeated and recorded whenever the lighting system, walls, floor or ceiling decorations in the area are substantially changed.
7. After the installation on a SOLAS vessel, at least once a year, Low location lighting systems should be tested on one deck in each main vertical zone. The complete installations should have their luminance tested at least once every five years.
8. This certificate only covers the photo-luminescent and flame retardance characteristics of the signage material.
9. If the specified standards are amended during the validity of this certificate, this product type is to be re-approved prior to it being supplied to applications to which the amended standards apply
10. Production items are to be manufactured in accordance with a quality control system and records maintained
11. Should a change of Place of Production from that stated below be required i.e. where the stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to Lloyd's Register prior to the change taking place. This Certificate will require to be updated for Approval to be maintained

PLACE OF PRODUCTION

Ertecna, Lda.
 EN 109 Araújos Brenha
 3080-436 Figueira da Foz
 Portugal



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Certificate No: LR2500778SS
Issue Date: 18/03/2025
Expiry Date: 17/03/2030
Reference: UKITSO/LSA/TA/LT/ TSO/24-020210/PRJ11100464517

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Lijo Thomas
Senior Specialist
Fire & Safety, Statutory Discipline Team
UK&I Technical Support Office, Marine & Offshore
Lloyd's Register EMEA

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s)

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