

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Buoyant smoke signals (pyrotechnics)**with type designation(s)
IKAROS Buoyant Smoke Signal, Orange

Issued to

Hansson PyroTech AB
Lindesberg, Örebro Län, Swedenis found to comply with
SOLAS 74 as amended, LSA Code as amended. IMO Resolution MSC.81(70) as amended**Application :****Approved for use as Buoyant smoke signals (pyrotechnics).****This certificate is recognized by Transport Canada.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-07-04**for **DNV GL**This Certificate is valid until **2024-07-03**.DNV GL local station: **Sweden CMC**Approval Engineer: **Jasna Jovovic-Lainis****Mårten Schei-Nilsson**
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-031510-1**
Certificate No: **TALB0000031**

Product description

"IKAROS Buoyant Smoke Signal, Orange"
buoyant smoke signals producing orange smoke for at least 3 minutes.

Design weight: 540 g

Application/Limitation

Approved for use as Buoyant smoke signals (pyrotechnics).

Acceptable lifetime: 4 years

Liferaft drop test has to be performed before installation on liferafts.

The design assessment is based on IMO Res. MSC.48(66) as amended by IMO Res. MSC.207(81) and IMO Res. MSC.218(82).

A statistically adequate sample of the production shall be tested in accordance with IMO Res. MSC.81(70), Part 2, Ch.4.

Type Approval documentation

Certification in accordance with Class Program DNVGL-CP-0338, September 2018.

The following documentation is basis for the DNV GL approval:

Documents	Date
Drawings as listed in "Document structure", No. DS 342130 Rev. 2	2019-04-05
Prototype test reports witnessed by Bureau Veritas	2015-03-30~04-02 and 2015-08-17 2013-09-30~10-02 2012-05-29~06-01 2011-08-16~18
Temperature cycling test and Salt spray test report No. SBTC 15-0082R by Bofors Test Center, Sweden	2015-03-30
Wave test report No. SBTC 15-0070 by Bofors Test Center, Sweden	2015-04-13
Laboratory measurements report No. TR 15-007 by Nammo LIAB, Sweden	2015-04-08

Tests carried out

Tests are documented in accordance with recommendation on testing of Lifesaving Appliances, IMO Res. MSC.81(70), Part 1, including IMO Res. MSC.200(80), IMO Res. MSC.226(82) and IMO Res. MSC.323(89).

Marking of product

The product is to be marked with name and address of manufacturer, type designation, date of manufacture, date of expiry and operational restrictions. The marking shall comply with the LSA Code (IMO Res. MSC.48(66)), item 1.2.2.9.

The product should be provided with brief instructions or diagrams clearly illustrating the use printed on the casing.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.



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Transport Canada Application/Limitation

All of the required instructions and markings must be in both French and English.

Periodical assessment

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Program DNVGL-CP-0338, Section 4.