

# European Aviation Safety Agency

## European Technical Standard Order

**Subject:** Aircraft Halocarbon Clean Agent Hand-Held Fire Extinguisher

### 1 — Applicability

This ETSO provides the requirements which an Aircraft Halocarbon Clean Agent Hand-Held Fire Extinguisher that is designed and manufactured on or after the date of this ETSO must meet in order to be identified with the applicable ETSO marking.

### 2 — Procedures

#### 2.1 — General

Applicable procedures are detailed in CS-ETSO, Subpart A.

#### 2.2 — Specific

None.

### 3 — Technical Conditions

#### 3.1 — Basic

##### 3.1.1 — Minimum Performance Standard

Standards set forth in the Society of Automotive Engineers (SAE) Aerospace Standard AS6271 'Halocarbon Clean Agent Hand-Held Fire Extinguisher', issued in January 2013, as modified by Appendix 1 to this ETSO.

##### 3.1.2 — Environmental Standard

Refer to the environmental qualification requirements specified in ANSI/UL2129.

##### 3.1.3 — Computer Software

None

##### 3.1.4 — Electronic Hardware Qualification

None

#### 3.2 — Specific

##### 3.2.1 — Failure Condition Classification

Failure of the function defined in paragraph 3.1.1 of this ETSO has been determined to be a minor failure condition.

#### **4 — Marking**

##### **4.1 — General**

Marking as detailed in CS-ETSO, Subpart A, paragraph 1.2.4.2 — Specific

The fire extinguisher type, as specified in paragraph 3.1 of AS6271, shall be marked on the article.

In addition, the fire extinguisher rating, as specified in ANSI/UL 711, shall be marked on the article.

#### **5 — Availability of Referenced Document**

See CS-ETSO, Subpart A, paragraph 3.

## **APPENDIX 1**

### **Halocarbon Clean Agent Hand-Held Fire Extinguisher**

This Appendix prescribes the Minimum Performance Standards (MPS) for aircraft handheld fire extinguishers. The applicable standard is SAE AS6271 'Halocarbon Clean Agent Hand-Held Fire Extinguisher', issued in January 2013. EASA did revise it as follows:

1. On page 4, replace paragraph 3.2 with the following:

Halocarbon clean agents shall be registered according to REACH<sup>1</sup> for use in a fire extinguisher to be sold in the European Union (EU). REACH is the EU Regulation on chemicals and their safe use. REACH applies to substances manufactured or imported into the EU in quantities of 1 ton or more per year (see 2.1.7).

2. On page 5, replace paragraph 4.1.1 with the following:

The fire extinguisher/mounting bracket assembly shall be shown to withstand without failure the highest ultimate inertia force/load, applied to all on-axis (X, Y, Z) orientations, specified in the Certification Specifications (CS) applicable to the specific aircraft type or types on which the fire extinguisher is suitable to be installed. The ultimate inertia forces/loads shall be increased, if necessary, to meet the aircraft manufacturer's specifications for flight and ground loads accordingly. A fitting factor of 1.33 as specified in C2X.561 shall be included to address wear and tear through frequent removal of the fire extinguisher from its mounting bracket. In addition, the manufacturer shall provide an Interface Control Drawing (ICD) specifying for the fire extinguisher/mounting bracket assembly:

- the ultimate inertia force/loads shown during qualification,
- the mounting orientations (X, Y, Z) for installation,
- the interface loads and the specified means of attachment for installation,
- the Certification Specification(s) (e.g. CS 25.561) including the amendment for which the assembly is demonstrated to be compliant.

3. Page 5, add a note to paragraph 5.2.2:

Note: If the proposed agent was already proven to pass the seat/toxicity test of the MPS in combination with another fire extinguisher, that test would not need to be repeated for the proposed fire extinguisher/agent combination.

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<sup>1</sup> Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

## **APPENDIX 2**

### **Halocarbon Clean Agent Hand-Held Fire Extinguisher**

This Appendix prescribes the Minimum Performance Standards (MPS) for aircraft handheld fire extinguishers. As referred to in SAE AS6271, the applicable standard is ANSI/UL 2129 'Halocarbon Clean Agent Hand-Held Fire Extinguisher', issued in February 2005. EASA did revise it as follows:

- 1 .** Page 9, replace paragraph 6.8 with:

An extinguisher shall operate as intended at temperatures from -40°C to 49°C as required per UL2129. Ground survival temperature of the unit shall be -54°C up to 85°C (refer to RTCA DO-160 release defined in CS-ETSO, Subpart A, paragraph 2.1, ground survival temperature).

- 2 .** Page 12, replace the first phrase of paragraph 12.4 with:

The maximum indicated gauge pressure shall be between 150 and 250 per cent of the indicated charging pressure specified by the manufacturer (at either 20° C or at 21° C).

- 3 .** Page 12, replace paragraph 12.5 with:

The mark used to indicate the charging pressure at the charging temperature (at either 20°C or at 21°C) as specified by the manufacturer shall be a minimum 0.6 mm and not more than 1.0 mm wide.

- 4 .** Page 12, disregard paragraph 12.6 and 12.7