BLUE ANGEL

The German Ecolabel

Foam and Water Fire Extinguishers

DE-UZ 232

Basic Award Criteria

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Version 1

The Environmental Label is supported by the following four institutions:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection is the owner of the label. It regularly provides information on the decisions taken by the Environmental Label Jury.

Umwelt Bundesamt

The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labelling and Environmentally friendly Procurement" acts as office of the Environmental Label Jury and develops the technical criteria of the Basic Criteria for Award of the Blue Angel.

Jury Umweltzeichen

The Environmental Label Jury is the independent, decision-making body for the Blue Angel and includes representatives from environmental and consumer associations, trade unions, industry, the trade, crafts, local authorities, academia, the media, churches, young people and the German federal states.

RAL gGmbH

The RAL gGmbH is the awarding body for the Environmental Label. It organises the process for developing the relevant award criteria in independent expert hearings – which involve all relevant interest groups.

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Table of contents

This document is a translation of a German original. In case of dispute, the original document should be taken as authoritative.

1 Introduction

1.1 Preface

In cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, the German Environmental Agency and considering the results of the expert hearings conducted by RAL gGmbH, the Environmental Label Jury has set up these Basic Criteria for the Award of the Environmental Label. RAL gGmbH has been tasked with awarding the Environmental Label.
Upon application to RAL gGmbH and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL gGmbH, the permission to use the Environmental Label may be granted to all products, provided that they comply with the requirements as specified hereinafter.
The product must comply with all the legal requirements in the country in which it is to be marketed. The applicant shall declare that the product meets this requirement.

1.2 Background

Portable fire extinguishers fulfil an important function in fire protection, e.g. in residential and commercial buildings as well as in vehicles and aircraft. As a fire is always accompanied by the emission of substances harmful to the environment and human health into the air, water and soil, consumers and companies can also help to protect the environment by selecting suitable portable fire extinguishers. However, it is important to note that especially the emission of foam extinguishing agents and the surfactants contained within them can also have a significant negative impact on organisms that live in water and soil. Although the effect of an unextinguished fire is usually more serious than the emitted extinguishing agent, it would seem to make sense to limit the possible impact of the extinguishing agents as far as possible.
In particular, this applies to so-called PFAS (perfluorinated and polyfluoroalkyl substances), which are added to 35% of foam fire extinguishers in Germany according to figures published by the ECHA in 2022.[1] The group of PFAS pose a special risk due to their chemical structure because they have a high persistence and mobility in the environment ("forever chemicals"). The use of some PFAS substance groups is already prohibited across the EU due to their verifiable harmful impact on human health and the environment, while further bans on the use of PFAS, e.g. those found in fire extinguishers, were already being developed by the ECHA in 2023.
As foam extinguishing agents can be emitted into the environment during the deployment of the extinguisher to put out a fire, during training exercises, due to leakages or due to improper storage, this ecolabel follows two approaches to help consumers select the most environmentally friendly foam and water fire extinguishers. On the one hand, some of the criteria are designed to prevent the addition of very environmentally harmful substances to the foam and water extinguishing agents. On the other hand, there are also criteria designed to ensure the closely knit and low-threshold servicing and take back of the fire extinguishers by the manufactures in order to prevent emissions due to leakages or improper storage. By focussing on foam fire extinguishers that store the surfactants and other additives in the extinguishing agent as a concentrate separate from the extinguishing water (e.g. in a foam cartridge), the Basic Award Criteria also aims to improve the service life of the extinguishing agent and reduce disposal costs.

[1] Wood: The use of PFAS and fluorine-free alternatives in fire-fighting foams. Final report. P. 61, text available at: https://echa.europa.eu/documents/10162/6755610/pfas_flourine-free_alternatives_fire_fighting_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98?t=1666967340912

1.3 Objectives of the Environmental Label

The environmental label for foam and water fire extinguishers may be awarded to products that – above and beyond the legal regulations:

- contain no fluorinated organic compounds, especially PFAS, even before a possible ban on these substances comes into effect,
- have the least possible negative impact on the environment in addition to the combustion products in the event of a fire,
- increase the service life of the extinguishing agent and simplify its disposal by storing the foam concentrate separately from the extinguishing water,
- guarantee the proper disposal of no longer usable extinguishing agent due to a high level of transparency and the provision of information that will prevent unnecessary emissions into the environment.

Therefore, following benefits for the environment and health are stated in the explanatory box:

1.4 Definitions

Reloadable fire extinguishers: Portable fire extinguishers according to DIN EN 3 in which the propellant is stored separately from the extinguishing agent in a replaceable propellant cartridge. This means that the extinguishing agent is not held under pressure in an idle state.
Continuous pressure fire extinguishers: Portable fire extinguishers according to DIN EN 3 in which the propellant and extinguishing agent are not stored separately and are held under pressure in an idle state.
Pressure gauge: A device that measures the internal pressure of a continuous pressure fire extinguisher and which can be used to read off and check the internal pressure.
Ready-to-use extinguishing agent: An extinguishing agent that can be directly used to extinguish a fire. Within the scope of these Basic Award Criteria, this also covers foam extinguishing agents in cartridge extinguishers after the foam concentrate has been mixed with the extinguishing water in the concentration required for extinguishing a fire.
Professional servicing: Servicing of portable fire extinguishers in accordance with DIN 14406-4.
Fire extinguishing powder: An extinguishing agent in the form of a fine powder.
Flame retardant: A substance added to e.g. plastics to limit, slow down or prevent the development and spread of fires.
Fluorinated organic compounds: All chemical compounds that contain at least one carbon atom bonded to at least one fluorine atom.
Mixture: Mix, mixture or solution composed of two or more substances.
Portable fire extinguishers: Fire extinguishers which are designed to be carried in accordance with the requirements of DIN EN 3.

List of candidates: List of substances which are identified as particularly alarming (SVHC) under the European Chemicals Regulation REACH (1907/2006/EC) and which have been incorporated into the list drawn up in accordance with Article 59, Paragraph 1 of the REACH Regulation (so-called "list of candidates").

Cartridge fire extinguishers: Portable fire extinguishers according to DIN EN 3 in which the extinguishing water is stored separately from a foam concentrate and is only mixed to produce a ready-to-use extinguishing agent after activation of the fire extinguisher.

Constituent components: Substances added to extinguishing agents, varnishes or plastic parts as such or as part of a mixture and remain there unchanged in order to achieve or influence certain product properties. This does not apply to residual monomers that have been reduced to a minimum.

a) **Plastic:** A macromolecular substance with a water solubility < 1 mg/L, obtained through:
b) a polymerisation process such as e.g. polyaddition or polycondensation or a similar process using monomers or other starting substances; or
c) chemical modification of natural or synthetic micromolecules; or
d) microbial fermentation.

Extinguishing agent: A substance or mixture designed to be applied to a fire to extinguish it.

Foam concentrate: A component of a foam extinguishing agent that is stored as a concentrate and mixed with the extinguishing water to produce a ready-to-use extinguishing agent at the time of use.

Extinguishing water: Water – which may contain additives to change the wetting behaviour and boiling point – either stored in water fire extinguishers to directly fight fires or in foam fire extinguishers for the purpose of mixing with a foam concentrate to produce the foam extinguishing agent.

Per- and polyfluoroalkyl substances (PFAS): According to the definition published by the ECHA, PFAS are all compounds with at least one fully fluorinated methyl or methylene carbon atom without any hydrogen, chlorine, bromine, or iodine atom attached to it.

Premix: Ready-to-use foam extinguishing agent stored in the fire extinguisher in the desired concentration for the fighting of fires.

Surfactants: Organic substances that can form foam due to their molecular structure and which make a significant contribution to the formation of foam in foam extinguishing agents.

Foam cartridge: A component of a cartridge fire extinguisher containing a foam concentrate that is mixed with the extinguishing water to produce the ready-to-use extinguishing agent after activation of the fire extinguisher. In foam fire extinguishers, this concentrate contains surfactants that make a significant contribution to the formation of the foam.

Foam fire extinguishers: Portable fire extinguishers according to DIN EN 3 that use a foam extinguishing agent to achieve their extinguishing effect.

Foam extinguishing agent: All watery extinguishing agents that are applied in the form of a foam and in which the foam is produced by adding surfactants.

Substance[2]**:** A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

[2] REACH, Article 3, and CLP Regulation, Article 2

In-can preservatives[3]**:** Products used for the preservation of manufactured products (other than foodstuffs and feeding stuffs) in containers by the control of microbial deterioration to ensure their shelf life.
Transport packaging: Transport packaging or delivery packaging is packaging that facilitates the transport of goods, protects the goods against damage during transport or which is used for reasons of safety of the transport.
Propellant: A non-flammable gas that is used in portable fire extinguishers according to DIN EN 3 to produce overpressure and thus discharge the extinguishing agent onto the fire.
Sales packaging (in the context of these Basic Award Criteria): All of the packaging contained in one sales unit (primary packaging = direct contact with the contents and, if relevant, a secondary packaging) as it is offered to the end user or consumer at a retail outlet in its smallest sales unit.
Impurity[4]**:** An unintended constituent present in a substance as manufactured. It may originate from the starting materials or be the result of secondary or incomplete reactions during the manufacturing process. While it is present in the final substance it was not intentionally added.
Water fire extinguishers: Portable fire extinguishers according to DIN EN 3 that use water as an extinguishing agent to achieve their extinguishing effect. Inorganic salts can be added to the water to improve the extinguishing properties. However, they do not form any foam when used to extinguish a fire.

2 Scope

The Basic Award Criteria apply to portable fire extinguishers according to DIN EN 3 that contain a water-based extinguishing agent and are suitable either for only class A, only class B or only class F fires or for classes A and B or for classes A, B and F. This covers water fire extinguishers (with additives) for fires in class A as well as foam fire extinguishers for fires in classes A, B and F. Portable fire extinguishers that contain other types of extinguishing agents (fire extinguishing powder, CO2, etc.) are not currently covered by these Basic Award Criteria. These extinguishers may be included in the scope of these Basic Award Criteria at a later date.

3 Requirements

3.1 Structural requirements for portable fire extinguishers

3.1.1 Material requirements for plastic parts

The plastics may not contain as constituent parts any substances classified as:

a) Substances which are identified as particularly alarming (SVHC) under the European Chemicals Regulation REACH (1907/2006/EC) and which have been incorporated into the list drawn up in accordance with Article 59, Paragraph 1 of the REACH Regulation (so-called "list

[3] According to the definition of "Preservatives for products during storage" in Regulation (EU) No 528/2012, Annex V, text available at: https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:32012R0528

[4] Guidance for identification and naming of substances under REACH and CLP, Version 2.1 March 2017, Chapter 2.2, P. 17, text available at: https://echa.europa.eu/documents/10162/2324906/substance_id_de.pdf

of candidates").[5] The label holder is obligated to take into account current developments on the list of candidates.

b) Substances that according to the CLP Regulation (EC) No. 1272/2008 have been classified in the following hazard categories or which meet the criteria for such classification:[6]
   - Carcinogenic in categories Carc. 1A or Carc. 1B
   - Germ cell mutagenic in categories Muta. 1A or Muta 1B
   - Reprotoxic (teratogenic) in categories Repr. 1A or Repr. 1B
   -

Halogenated polymers are not permitted. Neither may halogenated organic compounds be added as flame retardants. In addition, no flame retardants classified according to the CLP Regulation as carcinogenic in category Carc. 2 or as hazardous to water in category Aquatic Chronic 1 may be added to the product.

The hazard statements (H Phrases) that correspond to the hazard categories can be found in Appendix A.

The following are exempt from this rule:
- process-related, technically unavoidable impurities
- plastic parts with a mass of less than 10 grams

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1 and submit a written declaration from the plastics manufacturer or guarantee the provision of these documents to RAL gGmbH. The declaration in Annex P-M confirms that the excluded substances have not been added to the plastics and provides a chemical description of the flame-retardant materials used including the CAS number and its rating (H-Phrase). In the event of changes to the list of candidates, the applicant shall inform RAL gGmbH within one month in the event that plastic parts do not comply with this criterion.
The applicant shall state which plastics are used in the housing for parts with a mass > 10 grams and provide a list of the plastics used in the housing according to Annex P-L.

3.1.2 Requirements for paints and coatings

For the priming and painting of the fire extinguishers, the following criteria must be fulfilled:
- The coating substances must not use any paint raw materials (fillers, pigments, drying agents) which contain any lead, chromium VI and cadmium compounds – except for impurities.
- The solvent emissions during the coating process must not exceed a total emission value of 70 g/m^2.

[5] The version of the list of candidates at the time of application is valid. The list of candidates in its currently valid version can be found at: http://echa.europa.eu/web/guest/candidate-list-table

[6] The harmonized classifications and labellings of dangerous substances can be found in Annex VI, Part 3 of the CLP Regulation. Furthermore, a comprehensive classification and labelling inventory, which also includes all of the self-classifications of hazardous substances made by manufacturers, has been made available to the public on the website of the European Chemicals Agency (ECHA): https://echa.europa.eu/de/home

- Coating systems with a consumption capacity of more than 150 kg of organic solvents per hour or more than 200 tonnes per year must not exceed a total emission value of 50 g/m2[7].

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. The applicant shall submit a declaration from the coating system manufacturer in accordance with Annex 4 verifying compliance with the requirements and shall submit the technical specifications and safety data sheets according to Article 31 and Annex II of the REACH Regulation (EC) No. 1907/2010 in its current version in either German or English.

3.1.3 Requirements for pressure gauges

Pressure gauges fitted to the fire extinguishers may not contain any lead or metal alloys containing lead.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. The applicant shall verify compliance with the requirements by submitting a declaration from the manufacturer of the fitted pressure gauge in Annex 5.

3.1.4 Requirements for the provision of foam extinguishing agents in foam fire extinguishers

To enable better handling and disposal of the equipment during the servicing and take back of foam fire extinguishers, foam extinguishing agents should not be provided in a premixed form but rather as a concentrate in cartridges. These foam cartridges should be designed and produced in such a way that they can be dismantled and replaced without destroying them during servicing or disposal by the licence holder or a specialist company commissioned by them.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1 and submit a sketch of the design of the fire extinguisher for verification.

3.2 Requirements for extinguishing agents

3.2.1 Exclusion of substances with certain properties

In order to protect the environment and health, the following requirements are placed on the substances contained in the extinguishing agents and on the properties of the mixtures used.

a) Substances of very high concern (SVHC)

[7] The emission limit is based on the 31st Ordinance for the implementation of the Federal Immission Protection Act (ordinance for limiting the emission of volatile organic compounds due to the use of organic solvent in certain installations), the ordinance text is available at: https://www.gesetze-im-internet.de/bimschv_31/BJNR218100001.html

It is prohibited to use substances in the extinguishing agents that have been identified in accordance with Article 57 of Regulation (EC) No. 1907/2006 and listed in accordance with Article 59 of the same regulation on the list of candidates[8] for inclusion on the Annex of substances subject to authorisation. Impurities in substances added to the end product that correspond to the above named criteria are not permitted. The label holder is obligated to take into account current developments on the list of candidates.

b) Substances and mixtures with certain properties according to Regulation (EC) No 1272/2008

The ready-to-use extinguishing agent may not be classified as a mixture with the following H Phrases named in Table 1 according to the criteria of Regulation (EC) No 1272/2008[9] ("CLP").

Table 1: Excluded hazard statements (H Phrase).

Hazard statement EC Regulation 1272/2008 (CLP Regulation)	**Wording**
Health hazards	
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H350i	May cause cancer if inhaled.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H360F	May damage fertility.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.

[8] The version of the list of candidates at the time of application is valid. The list of candidates in its currently valid version can be found at: http://echa.europa.eu/web/guest/candidate-list-table

[9] Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006 (GHS Regulation), the text is available at: https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:32008R1272

H361	Suspected of damaging fertility or the unborn child.
H361f	Suspected of damaging fertility.
H361d	Suspected of damaging the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H362	May cause harm to breast fed children.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
EUH070	Toxic by eye contact.
Environmental hazards	
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long-lasting effects.
H411	Toxic to aquatic organisms with long-lasting effects.
H412	Harmful aquatic organisms with long lasting effects.
H413	May cause long lasting harmful effects to aquatic organisms.
Other health and environmental hazards	
H420	Hazardous to the ozone layer.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. In the event of changes to the list of candidates, the applicant shall inform RAL gGmbH within one month in the event that the extinguishing agent does not comply with this criterion. The applicant shall submit the exact formulation of the extinguishing agent in Annex 2. The applicant shall verify that all of the substances contained in the extinguishing agent comply with the criteria in Paragraph 3.2.1 by providing information that fulfils at least those requirements according to Annex VII of Regulation (EC) No. 1907/2006. Such information shall be specific to the particular form of the substance, including nanoforms, used in the extinguishing agent. For that purpose, the applicant shall submit a declaration of compliance with the criteria, together with information on the type (IUPAC nomenclature and CAS number) and content (% by mass) of all substances added to the extinguishing agent and the related safety data sheets in accordance with Annex II to Regulation (EC) No 1907/2006 for the extinguishing agent as well as for all substances or mixtures listed in the formulation(s). Concentration limits shall be specified in the safety data sheets in accordance with Article 31 of Regulation (EC) No. 1907/2006. The safety data sheets may not be older than two years. The manufacturer shall verify that he/she has requested that the suppliers of primary/intermediate products submit information on the content of substances up to 0.010 % by mass.

3.2.2 Biodegradability

Every single surfactant contained in the extinguishing agent must be aerobically readily biodegradable according to the requirements of the Detergent Regulation[10].

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.

[10] Regulation (EC) No. 648/2004 on detergents, the text is available at: https://eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX:32004R0648

The precise formulation of the extinguishing agent shall be submitted to RAL gGmbH together with an explanation of the function of every individual substance in Annex 2. The safety data sheet for the extinguishing agent or the safety data sheets for the substances and mixtures in the extinguishing agent can be submitted as verification of biodegradability insofar as they contain information on the aerobic biodegradability of every single surfactant contained in the extinguishing agent. If the safety data sheet for the extinguishing agent or the safety data sheets for the substances and mixtures in the extinguishing agent do not contain this information, the Detergents Ingredients Database (DID list) from the EU should be used as a reference for verifying the aerobic biodegradability. This process is explained in Appendix B. For every single surfactant contained in the extinguishing agent for which the DID list does not contain any information on its aerobic biodegradability, this information must be determined by a suitable testing laboratory in accordance with Appendix B and then submitted to RAL gGmbH.
The testing laboratory commissioned to carry out this test must complete the analysis method in accordance with good laboratory practice (GLP) or be accredited or notified for the analysis method by the German Accreditation Body (DAKKS). Verification of compliance shall be provided in the form of certification in accordance with Article 19b of the German Chemicals Act (ChemG)[11] *and a written declaration from the testing institution confirming that the test was carried out according to the principles of GLP or through submission of the accreditation certificate from the DAKKS or another national accreditation system that has been included in the Multilateral Agreement (MLA).*

3.2.3 Fluorinated organic compounds

No fluorinated organic compounds may be added to the extinguishing agent. This includes, in particular, compounds from the group of perfluorinated and polyfluoroalkyl substances (PFAS) according to the definition published by the ECHA[12].
The total concentration of fluorine contained in the sample, determined via combustion ion chromatography (CIC), should be used as a measure of the content of fluorinated organic compounds. The analysis method must not identify any concentrations of organically bound fluorine above the detection limit. The detection limit for the selected method must not be higher than 1 ppm.
For foam fire extinguishers, this verification must be submitted separately for the undiluted foam concentrate and also for the extinguishing water held in the extinguisher. For water fire extinguishers, the verification must be submitted for the extinguishing water (including all of its additives) held in the extinguisher.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. In addition, the applicant shall submit written declarations from the manufacturer of the extinguishing agent or the manufacturer of the primary products (Annex 3) to RAL gGmbH to confirm that their products comply with this criterion. The applicant shall submit the exact formulation of the extinguishing agent to RAL gGmbH in Annex 2 for this test. Furthermore, the total concentration of fluorine

[11] Law for Protecting against Harmful Substances (Chem. Gesetz), text is available at: https://www.gesetze-im-internet.de/chemg/index.html
[12] This definition can be found at: https://echa.europa.eu/de/registry-of-restriction-intentions/-/dislist/details/0b0236e18663449b

must be determined via CIC by a suitable testing laboratory in accordance with the requirements stated in Appendix B. The applicant shall submit the test reports to RAL gGmbH. If it can be proven that the limit value of 1 ppm was exceeded due to the presence of inorganic fluorine compounds in the sample (determined according to Appendix B), the criterion will still be considered to have been fulfilled. In this case, the test report for the test for inorganic fluorine compounds must also be submitted to RAL gGmbH.
The testing laboratory commissioned to carry out this test must complete the analysis method in accordance with good laboratory practice (GLP) or be accredited or notified for the analysis method by the German Accreditation Body (DAKKS). Verification of compliance shall be provided in the form of certification in accordance with Article 19b of the German Chemicals Act (ChemG) and a written declaration from the testing institution confirming that the test was carried out according to the principles of GLP or through submission of the accreditation certificate from the DAKKS or another national accreditation system that has been included in the Multilateral Agreement (MLA).

3.2.4 Propellants

The portable fire extinguishers are only permitted to use the propellants CO2, N2 and compressed air.

Compliance verification

The applicant shall verify compliance in Annex 1 and state the type of propellant used.

3.3 Requirements for servicing and disposal

3.3.1 Servicing of portable fire extinguishers

The licence holder must provide low-threshold specialist servicing and maintenance of the foam and water fire extinguishers it produces in accordance with DIN 14406, Part 4, in order to guarantee that the fire extinguishers have a long service life. The licence holder can either provide this service using its own specialist personnel or commission a suitable company to carry out the servicing of the fire extinguishers using their specialist personnel. Consumers must be informed about this servicing option and also contacted about the servicing of their fire extinguishers. During the service, any extinguishing agent that can no longer be used should be classified as hazardous waste according to the Waste Catalogue Ordinance (AVV)[13] and then collected and disposed of in accordance with the Circular Economy Act (KrWG)[14] and Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung)[15].

Compliance verification

The applicant shall verify the expertise according to DIN 14406-4 of his/her own personnel in servicing fire extinguishers by submitting further training certificates, training reports, training documents or similar. The training content or training documents must place a special focus on

[13] The legal text is available at: https://www.gesetze-im-internet.de/avv/AVV.pdf
[14] The legal text is available at: https://www.gesetze-im-internet.de/krwg/
[15] Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung), text is available at:https://www.gesetze-im-internet.de/nachwv_2007/BJNR229810006.html

the importance of correctly disposing of extinguishing agents and the appropriate disposal methods. If the applicant commissions third parties to service the fire extinguishers, the applicant shall submit the contracts concluded with these third parties and verifications of the expertise of the personnel employed by the third-party companies. The proper disposal of portable fire extinguishers that are no longer usable must be verified in accordance with the Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung). The various verifications and certificates according to the Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung) must be submitted to RAL gGmbH annually for examination. The number of fire extinguishers handed over and the amounts of extinguishing agent collected during the servicing and disposal processes must be documented in the form of a balance sheet to verify the proper disposal of the fire extinguishers handed over for servicing in the long term. This balance sheet must be submitted to RAL gGmbH on request for examination.

3.3.2 Take back of portable fire extinguishers

In order to guarantee the environmentally friendly disposal of the portable fire extinguishers, the licence holder must ensure the take back, proper disposal and destruction of the extinguishing agent and the professional disposal and, as far as possible, reuse of the components in the fire extinguishers. If the licence holder does not offer the take back and disposal services itself, it must conclude agreements with suitable specialist companies. When purchasing and commissioning the products, consumers must be informed in a clear and understandable way about the take back service for fire extinguishers that have been removed from service and the process to follow. The licence holder must ensure that sufficient information is proved to consumers. Portable fire extinguishers that have been removed from service and especially any foam cartridges contained within them should be classified as hazardous waste according to the Waste Catalogue Ordinance (AVV) and then collected and disposed of in accordance with the Circular Economy Act (KrWG) and Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung).

Compliance verification

The applicant shall verify that the responsible personnel have the necessary specialist knowledge of waste management regulations by submitting further training certificates, training reports, training documents or similar. The training content or training documents must place a special focus on the importance of correctly disposing of extinguishing agents and the appropriate disposal methods. The proper disposal of the portable fire extinguishers must be verified in accordance with the Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung). The various verifications and certificates according to the Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung) must be submitted to RAL gGmbH annually for examination. The number of fire extinguishers handed over and the amounts of extinguishing agent collected during the servicing and disposal processes must be documented in the form of a balance sheet to verify the proper disposal of the fire extinguishers handed over for servicing in the long term. This balance sheet must be submitted to RAL gGmbH on request for examination.

3.4 Consumer information, packaging and advertising claims

The following information, instructions and recommendations must be enclosed with the product (in printed form or via a prominent link to a website via a QR code and URL on the product, as well as on the sales packaging where relevant):

- Instructions on the correct use of the portable fire extinguisher
- Instructions on the scope of use for the portable fire extinguisher (fire classes with explanation, extinguishing performance with explanation)
- Information that the use of the portable fire extinguisher in the event of a fire will prevent the emission of environmentally harmful substances but that the extinguishing agent contained in the portable fire extinguisher can damage the environment if it is activated without cause
- Information on the servicing of the portable fire extinguisher (interval, process, contact details (telephone number and email address) for personnel of the licence holder responsible for this task or a contact person at the licence holder who can put people in contact with the companies commissioned to service the fire extinguishers)
- Instructions on the disposal of the portable fire extinguisher and information and contact details for the take back of the fire extinguishers

The sales packaging for the portable fire extinguisher must not contain any PVC and must contain at least 50% recycled materials. An exception to this requirement is made for transport packaging, such as shrink hoods for pallets. In addition, the sales packaging must comply with the current minimum standard for determining the recyclability of packaging[16].

The scope of use must be clearly identifiable on both the sales packaging for the portable fire extinguisher and the fire extinguisher itself (fire class with explanation, extinguishing performance).

Even those extinguishing agents that are considered more environmentally friendly than other products can also have a negative impact on the environment if released in an uncontrolled manner. According to Article 25 (4) of the CLP Regulation (EC) No. 1272/2008, no advertising claims may be used that could play down the risks of the extinguishing agents and especially the foam concentrates. This excludes the use of claims such as "non-toxic", "non-harmful to health", "environmentally friendly", "ecological", "non-hazardous to the aquatic environment", "non-hazardous to the environment" and similar claims, insofar as they contradict the labelling requirements according to the CLP for the extinguishing agent or foam concentrate.

Claims about possible environmental benefits of the portable fire extinguishers must be included in the explanatory box for the ecolabel according to Paragraph 1.3. The explanatory box is obligatory and must be depicted in a clearly visible position on the portable fire extinguisher and its sales packaging.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1. In addition, the applicant must inform RAL gGmbH about the proportion of recycled materials and submit the requested consumer information (as files or links if necessary) as well as explanations from the manufacturer/supplier of the sales packaging (Annex 6). In addition, the applicant shall submit documents or files to RAL gGmbH showing the design of the portable fire extinguisher and, if relevant, any sales packaging.

[16] "Minimum standard for determining the recyclability of packaging subject to system participation pursuant to Section 21 (3) VerpackG", text available at: https://www.verpackungsregister.org/fileadmin/files/Mindeststandard/Mindeststandard_VerpackG_2020.pdf

3.5 Outlook

The ecolabel will be expanded in the next few years to also cover portable fire extinguishers that use other extinguishing agents. In particular, this includes powder and CO2 fire extinguishers. The possible environmental impact of so-called fire extinguishing sprays will also be examined to determine whether to include them within the scope of these Basic Award Criteria. Furthermore, the possible environmental benefits of reloadable fire extinguishers over continuous pressure fire extinguishers with respect to their service life and thus the efficient use of resources will be examined and may be taken into account in a new version of the Basic Award Criteria.
Criteria for the sourcing of the CO2 used in the propellants and extinguishing agents from carbon capture or exclusively from biological processes will also be examined and may be included in the next version. In addition, criteria for testing and possibly reusing the steel containers of returned fire extinguishers by the licence holder could be added to the Basic Award Criteria and other criteria for the reuse of other suitable components may also be included.
A future version of the Basic Award Criteria could place requirements on the production conditions for the steel used in the fire extinguishers, such as e.g. the use of renewable energies and metals recovered from scrap metals.

4 Applicants and parties involved

Manufacturers of products according to Paragraph 2 shall be eligible for application.

Parties involved in the award process are:
RAL gGmbH to award the Blue Angel environmental label,
the federal state being home to the applicant's production site,
Umweltbundesamt, (German Environment Agency) which after the signing of the contract receives all data and documents submitted in application for the Blue Angel in order to be able to further develop the Basic Award Criteria.

5 Use of the environmental label

The use of the environmental label by the applicant is governed by a contract on the use of the environmental label concluded with RAL gGmbH.

Within the scope of such contract, the applicant undertakes to comply with the requirements under Paragraph 3 while using the environmental label.

Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under Paragraph 2. Such contracts shall run until 31 December 2028.
They shall be extended by periods of one year each, unless terminated in writing by 31 March 2028 or 31 March of the respective year of extension.
After the expiry of the contract, the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect products being still in the market.

The applicant shall be entitled to apply to RAL gGmbH for an extension of the right to use the ecolabel on the product entitled to the label if it is to be marketed under another brand/trade name and/or other marketing organizations.

The Contract on the Use of the Environmental Label shall specify:

- Applicant (manufacturer)
- Brand/trade name, product description
- Distributor (Label User), i.e. the marketing organization.

Appendix A Assignment of hazard categories and hazard statements for plastic parts

The following table assigns the hazard categories in Paragraph 3.1.1 for the general exclusion of substances to the corresponding hazard statements (H Phrases).

Hazard category	**EC Regulation 1272/2008 (CLP Regulation)**	**Wording**
Carcinogenic substances		
Carc. 1A Carc. 1B	H350	May cause cancer.
	H350i	May cause cancer if inhaled.
Carc. 2	H351	Suspected of causing cancer
Germ cell mutagenic substances		
Muta. 1A	H340	May cause genetic defects.
Muta. 1B	H340	May cause genetic defects.
Reprotoxic (teratogenic) substances		
Repr. 1A Repr. 1B	H360D	May damage the unborn child.
	H360F	May damage fertility.
	H360FD	May damage fertility.
	H360Df	May damage the unborn child.
	H360Fd	May damage fertility.
Environmental hazards		
Aquatic chronic 1	H410	Very toxic to aquatic life with long-lasting effects.

Appendix B Determining the total concentration of fluorine compounds and determining biodegradability

1 Determining the total concentration of fluorine compounds via combustion ion chromatography (CIC)

The total concentration of fluorine compounds in the foam concentrate should be determined using combustion ion chromatography (CIC) without any previous purification or extraction step. The selected analysis method should be based on the method to determine the total fluorine content according to ASTM D7359. The detection limit for the method must not be higher than 1 ppm. The calibration process can be carried out using a standard solution based on NaF, KF, NH4F or fluorobenzoic acid.

If the detection limit of 1 ppm is exceeded, the applicant is free to commission another test to determine the extent to which the detection limit was exceeded due to contamination with inorganic fluorine compounds. The foam concentrate should be tested for this purpose using ion chromatography (IC) without any prior combustion.

2 Assessing the biodegradability

The biodegradability of the surfactants is assessed based on the DID list. Part A of the DID list indicates whether a certain surfactant is aerobically biodegradable (those surfactants with an "R" in the column for aerobic biodegradability are readily biodegradable).

If surfactants in the extinguishing agent are not included in Part A of the DID list, guidance is given in Part B of the list concerning the determination of the relevant calculation parameters for substances not present on the DID list.

For those surfactants which are not included in Part A of the DID list, relevant information from literature or other sources or corresponding test results must be submitted.

Tests of the aerobic biodegradability of surfactants must be carried out in accordance with OECD Test 301.

The required tests must be carried out individually for all surfactants that are not included in Part A of the DID list. A test of mixtures will not provide meaningful results and will therefore not be accepted as verification.

Appendix C Quoted laws, standards and literature

ASTM D7359-18: Standard Test Method for Total Fluorine, Chlorine and Sulfur in Aromatic Hydrocarbons and Their Mixtures by Oxidative Pyrohydrolytic Combustion followed by Ion Chromatography Detection (Combustion Ion Chromatography-CIC). https://www.astm.org/d7359-18.html, last checked on 04/04/2023

DIN 14406-4:2009-09: Portable fire extinguishers – Part 4: Maintenance. https://www.beuth.de/de/norm/din-14406-4/119017611, last checked on 30/03/2023

DIN EN 3-7:2007-10: Portable fire extinguishers – Part 7: Characteristics, performance requirements and test methods. https://www.beuth.de/de/norm/din-en-3-7/97482274, last checked on 19/01/2023

ECETOC Technical Report No 28 – Evaluation of Anaerobic Biodegradation (June 1988). https://www.ecetoc.org/wp-content/uploads/2014/08/ECETOC-TR-028.pdf, last checked on 04/04/2023

Gesetz zur Förderung der Kreislaufwirtschaft und Sicherung der umweltverträglichen Bewirtschaftung von Abfällen (Act to Promote the Circular Economy and Safeguard the Environmentally-Compatible Management of Waste) (Circular Economy Act – Kreislaufwirtschaftsgesetz – KrWG). https://www.gesetze-im-internet.de/krwg/, last checked on 04/04/2023

ISO 11734:1995: Water quality – Evaluation of the "ultimate" anaerobic biodegradability of organic compounds in digested sludge – Method by measurement of the biogas production. https://www.iso.org/standard/19656.html, last checked on 04/04/2023

Guidance for identification and naming of substances under REACH and CLP, Version 2.1 , March 2017. https://echa.europa.eu/de/guidance-documents/guidance-on-reach, last checked on 04/04/2023

"Minimum standard for determining the recyclability of packaging subject to system participation pursuant to Section 21 (3) VerpackG" (August 2020), text available at: https://www.verpackungsregister.org/fileadmin/files/Mindeststandard/Mindeststandard_VerpackG_2020.pdf, last checked on 05/04/2023

OECD Guidelines for the Testing of Chemicals, Section 3. Test No. 301: Ready Biodegradability. https://www.oecd-ilibrary.org/environment/test-no-301-ready-biodegradability_9789264070349-en, last checked on 04/04/2023

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=celex%3A32008L0098, last checked on 30/03/2023

31st Ordinance for the implementation of the Federal Immission Protection Act (ordinance for limiting the emission of volatile organic compounds due to the use of organic solvents in certain

installations – 31st Federal Immission Control Act (BImSchV). https://www.gesetze-im-internet.de/bimschv_31/BJNR218100001.html, last checked on 04/04/2023

Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006 https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:32008R1272, last checked on 30/03/2023

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. https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:02006R1907-20140410, last checked on 30/03/2023

Regulation (EC) No. 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents.
https://eur-lex.europa.eu/legal-content/DE/ALL/?uri=celex%3A32004R0648, last checked on 30/03/2023

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (Text with EEA relevance). https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:32012R0528, last checked on 06/04/2023

Verordnung über das Europäische Abfallverzeichnis (Ordinance on the European list of waste) (Abfallverzeichnis-Verordnung – AVV). https://www.gesetze-im-internet.de/avv/AVV.pdf, last checked on 04/04/2023

Verordnung über die Nachweisführung bei der Entsorgung von Abfällen (Ordinance on Waste Recovery and Disposal Records)(Nachweisverordnung – NachwV). https://www.gesetze-im-internet.de/nachwv_2007/BJNR229810006.html, last checked on 04/04/2023

Wood, 2018. Report produced for European Commission DG Environment / European Chemicals Agency (ECHA). The use of PFAS and fluorine-free alternatives in fire-fighting foams. Final report. https://echa.europa.eu/documents/10162/6755610/pfas_flourine-free_alternatives_fire_fighting_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98?t=1666967340912, last checked on 04/04/2023