

BLUE ANGEL

The German Ecolabel



Movement Area De-icers for Airfields

DE-UZ 99

Basic Award Criteria

Edition May 2013

Version 2

The Environmental Label is supported by the following four institutions:



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



The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labeling 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.



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.



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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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 and Nuclear Safety, 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

Alongside mechanical clearing technologies, precipitation in the form of snow and freezing wintry rain at German airfields also requires the use of movement area de-icers for improving grip on runways, taxiways, aprons with parking spaces, hangar aprons and run-up, manoeuvring and offset areas. It is only using these de-icers that flight safety can be maintained during take-off, landing and taxiing. After movement area de-icers have been used, these products either make their way into the public sewerage system via the sewers or directly into the ground and thus into groundwater (seepage) and surface waters (direct or indirect discharge).

1.3 Objectives of the Environmental Label

The environmental label for movement area de-icers with low COD values (chemical oxygen demand) should make it possible for users of these types of de-icer to select those products that stand out due to ready biodegradability, low ecological toxicity and the lowest possible discharge of pollutants into the sewerage system (COD, nitrogen, chloride, heavy metals) and therefore reduce the environmental impact after winter maintenance at airports, as well as the impact on sewage treatment plants.

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



2 Scope

These Basic Award Criteria are valid for movement area de-icers for use on airfields.

3 Requirements and compliance verifications

The Environmental Label illustrated on the first page may be used for labelling of products pursuant to Paragraph 2, provided that the following requirements are complied with:

3.1 Biodegradability

The organic ingredients in the product greater than 1% by mass must be classified as being readily biodegradable.

In addition, the whole product must exhibit good biodegradability in municipal sewage treatment plants. The test results from a Zahn-Wellens test are used as a model. Inorganic product components are not taken into account in this context.

Compliance Verification

The ready biodegradability shall be verified by the applicant through the submission of one of the following tests (OECD Guideline for Testing of Chemicals (1992) 301 A-F or Regulation (EC) 440/2008, C.4 A-F or the relevant ISO standard):

- *DOC - die away test (OECD 301 A, EG C.4 – A, DIN EN ISO 7827) or*
- *Modified OECD screening test (OECD 301 F, EG C.4 – D, DIN EN ISO 7827) or*
- *CO₂ development test (OECD 301 B, EG C.4 – C, DIN EN ISO 9439) or*
- *Manometric respirometry test (OECD 301 F, EG C.4 – D, DIN EN ISO 9408) or*
- *Closed bottle test (OECD 301 F, EG C.4 – D, DIN EN ISO 10707) or*
- *MITI test (I) (OECD 301 C, EG C.4 - F) or*
- *CO₂ headspace test (OECD 310, DIN EN ISO 14593) or*
- *Closed bottle test in two phases (BODIS test, ISO 10708)*

Substances are considered to be readily biodegradable when the following minimum degradation values are achieved within a 10-day window during the 28-day studies completed above:

- *Tests based on dissolved organic carbon: 70 %;*
- *Tests based on oxygen consumption or carbon dioxide generation: 60 % of the theoretical maximum.*

The biodegradability of the whole product shall be verified through the submission of a test report of the Zahn-Wellens test according to OECD 302 B, DIN EN ISO 9888 or Regulation (EC) 440/2008, C.9. A DOC or COD reduction of at least 80% must be achieved within 7 days.

3.2 Chemical oxygen demand

The products must observe a chemical oxygen demand (COD) level of 0.25 g O₂/g of product.

Compliance Verification

Compliance with the requirement in Paragraph 3.2 is to be verified through the submission of a test report about the COD value in accordance with DIN 38 409-41.

3.3 Limitations on ingredients

The following values may not be exceeded in the products:

- Nitrogen content: 100 mg/kg
- Phosphorous content: 800 mg/kg
- Chloride content: 100 mg/kg

Compliance Verification

Compliance with the requirement in Paragraph 3.3 shall be verified by the submission of a test report for the total bound nitrogen in accordance with DIN EN 12260 or DIN ISO 11261, the phosphorus content in accordance with DIN EN ISO 6878 and the chloride content in accordance with DIN EN ISO 10304-1 or DIN 38405-1. The testing institution shall confirm compliance with the criteria.

3.4 General exclusion of substances with certain properties

None of the following products may be added to the product:

- a) Substances which are identified as particularly alarming 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"). The version of the list of candidates at the time of application is valid.¹ If the substance is part of a mixture, its concentration must not exceed 0.1% by mass. If a stricter, more specific concentration limit is specified for a substance in a mixture in the criteria of the GHS Regulation (EC/1272/2008) then this is valid.
- b) Substances which according to the criteria of Regulation (EC) No 1272/2008 (or Directive 67/548/EEC)² are assigned the following H Phrases (R Phrases) named in the table or which meet the criteria for such classification. If the substance is part of a mixture then its concentration may not exceed the general generic cut-off values according to the GHS Regulation (EC/1272/2008). If a stricter, more specific concentration limit is specified for a substance in a mixture then this is valid.
- c) The following are exempt from regulations a) and b): impurities in concentrations that are not specified in the safety data sheet. The components listed in the material safety data sheet must correspond with the regulations according to Annex II no. 3 of the REACH regulation (EC/1907/2006). If the substance in this case is part of a mixture then its concentration may not exceed the general generic cut-off values according to the GHS Regulation (EC/1272/2008). If a stricter, more specific concentration limit is specified for a substance in a mixture then this is valid.

¹ The list of candidates in its relevant version can be found at:

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

² 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 GHS Regulation (Global Harmonization System) that has come into force on January 20, 2009, replaces the old Directives 67/548/EEC (Dangerous Substances Directive) and 1999/45/EC (Dangerous Preparations Directive). According to the said regulation, substances are classified, labelled and packed until December 1, 2010 according to Directive 67/548/EEC while mixtures (formerly preparations) are classified, labelled and packed until June 1, 2015 according to Directive 1999/45/EC. Thereafter, the GHS Regulation shall be applied. The new indications of danger (H Phrases), as well as the hitherto applicable risk phrases (R Phrases), shall be indicated for substances until June 1, 2015.

Regulation (EC) 1272/2008 (GHS Regulation)	Directive 67/548/EEC (Dangerous Substances Directive)	Wording
Toxic substances		
H300	T+ R28	Fatal if swallowed
H301	T; R25	Toxic if swallowed
H304	Xn R65	May be fatal if swallowed and enters airways
H310	T+ R27	Fatal in contact with skin
H311	T; R24	Toxic in contact with skin
H317	R43	May cause an allergic skin reaction
H330	T+ R26	Fatal if inhaled
H331	T; R23	Toxic if inhaled
H334	R42	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H370	R39 in combination with T R23, T R24, T R25, T+ R26, T+ R27 and/or T+ R28	Causes damage to organs
H371	Xn R68 in combination with R20, 21 and 22	May cause damage to organs
H372	T R48 in combination with R23, R24 and/or R25	Causes damage to organs through prolonged or repeated exposure
H373	Xn R48 in combination with R20, 21 and 22	May cause damage to organs through prolonged or repeated exposure
Carcinogenic, mutagenic and reprotoxic substances		
H340	R46	May cause genetic defects
H341	R68	Suspected of causing genetic defects
H350	R45	May cause cancer
H350i	R49	May cause cancer if inhaled
H351	R40	Suspected of causing cancer
H360F	R60	May damage fertility.
H360D	R61	May damage the unborn child.
H360FD	R60/61	May damage fertility. May damage the unborn child.
H360Fd	R60/63	May damage fertility. Suspected of damaging the unborn child
H360Df	R61/62	May damage the unborn child. Suspected of damaging fertility.
H361f	R62	Suspected of damaging fertility.
H361d	R63	Suspected of damaging the unborn child

Regulation (EC) 1272/2008 (GHS Regulation)	Directive 67/548/EEC (Dangerous Substances Directive)	Wording
H361fd	62/63	Suspected of damaging fertility. Suspected of damaging the unborn child
H362	R64	May cause harm to breast fed children
Water-hazardous substances		
H400	R50	Very toxic to aquatic life
H410	R50/53	Very toxic to aquatic life with long-lasting effects
H411	R51/53	Toxic to aquatic life with long-lasting effects
H412	R52/53	Harmful to aquatic life with long lasting effects
H413	R53	May cause long lasting harmful effects to aquatic life
Other Health and Environmental Effects		
EUH059 (H420)*	R59	Hazardous to the ozone layer

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 3 to the Contract in accordance with DE-UZ 99.

The manufacturer will also verify that they have asked their primary product suppliers to submit information on the pollutant content (up to 0.01% by mass) and by-products.

3.5 Exclusion of certain hazardous substances

The following hazardous substances may not be added to the product:

- Triazoles as anti-corrosion protection
- Perfluorinated surfactants (PFT)
- Alkylphenol ethoxylate (Octylethoxylate or Nonylethoxylate)
- The complexing agents EDTA and NTA

The following heavy metals may only be contained in the product up to a maximum level of 0.1 mg/kg:

arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni).

Compliance Verification

Submission of a manufacturer's declaration according to Annex 1.

3.6 Waste water toxicity

The product may not contain any ingredients that display an aquatic ecotoxicity for algae, daphnia, fish and bacteria in the product of $EC_{50} \leq 100$ mg/l.

Compliance Verification

The applicant shall submit tests for each of the groups of organisms named below:

- a) *Daphnia test in accordance with OECD 202 Part I, EG C.2 or DIN EN ISO 6341*

- b) *Fish test in accordance with OECD 203, EG C.1 or a fish embryo test in accordance with DIN EN ISO 15088.*
- c) *Algae test in accordance with OECD 201, EG C.3 or ISO 8692:2012*
- d) *Bacteria test (pseudomonas cell multiplication inhibition test) in accordance with DIN EN ISO 10712 or a luminescent bacteria test in accordance with DIN EN ISO 11348-1 or DIN EN ISO 11348-2.*

3.7 Technical requirements and fitness for purpose

The de-icer must correspond with the applicable requirements for its fitness for purpose and safety. The de-icing effect must be experimentally proven in a standard process.

Compliance Verification

The applicant shall submit a declaration in accordance with Annex 1 that the technical requirements for the product in accordance with SAE, AMS 1435 for liquid de-icers or AMS 1431 for solid de-icers have been observed and submit the relevant reports.

The experimental data for the de-icing effect of the product should be determined under specified temperature conditions (-2°C, - 10°C) after 5, 10 and 30 minutes in accordance with the SAE AIR 6170 test method. (SAE-International Engineering Society for Advancing Mobility Land, Sea, Air and Space; AMS-Aerospace Material Specification; AIR-Aerospace Information Report)

3.8 Consumer information

In order to ensure the sparing and optimal use of the de-icer as part of airport winter maintenance, the product documentation must include information about the recommendations contained in the winter maintenance handbook issued by the ADV (German Airports Association) and the information sheet "De-icing material in waste water from airports" (Enteisungsabwasser von Flugplätzen) from the Working Group on De-icing Material in Waste Water from Airports.

Compliance Verification

The applicant shall submit the relevant pages of the product documentation as Annex 2 to the Contract as verification of the requirement in Paragraph 3.8.

3.9 Testing institutions

The applicant shall submit test reports from testing institutions to verify compliance with the requirements in Paragraphs 3.1, 3.2, 3.3 and 3.6.

The testing institution must verify that:

- the tests carried out to produce all of the test results in accordance with Paragraphs 3.1, 3.2 and 3.6 correspond to the requirements of good laboratory practice (Annex 1 of ChemG)

or

- the testing institution is accredited according to DIN EN ISO/IEC 17025 and the testing field, procedures and specifications used for those tests carried out to produce all of the required test results are part of this accreditation. Tests carried out before the publication of the Basic Award Criteria that are based on the GLP guidelines will be recognised if they correspond to the test requirements in these Basic Award Criteria.

Compliance Verification

Verification is to be submitted in the form of:

- certification in accordance with § 19b ChemG
- a written declaration from the testing institution that the tests have been carried out in accordance with the principles of good laboratory practice or
- an accreditation certificate from the German Accreditation Body DAkkS (Deutschen Akkreditierungsstelle) or another national accreditation system incorporated in the multinational agreement (ML).

4 Applicants and Parties Involved

Manufacturers of final 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 Environmental Agency) which after the signing of the contract receives all data and documents submitted in applications 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 December 31, 2021. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2021 or March 31 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 (manufacturer) 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 organisations.

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

- Applicant (manufacturer/distributor)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.