

# **BLUE ANGEL**

**The Environmental Label**



## **Municipal Vehicles**

**DE-UZ 59a**

**Basic Award Criteria**

**Edition January 2018**

**Version 3**

## The Environmental Label is supported by the following four institutions:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety

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**

The objective of awarding the environmental label is to reduce the pollutants and noise emissions caused by municipal vehicles, especially in inner cities, conurbations and areas worthy of protection.

The Blue Angel is awarded to conventional drive systems using fossil fuels that are permitted within the scope of the European type-approval system. The requirements relating to pollutant emissions from the vehicle drive systems and separate engines conform to the legal regulations for reducing exhaust emissions and require the use of highly effective systems for exhaust gas treatment. Depending on the type of municipal vehicle and the performance class of the engine, the emission values for light commercial vehicles or heavy duty vehicles or mobile machinery must be observed, whereby existing exemptions and transition regulations for individual classes of engines are not recognised by the Blue Angel.

Except for the obligation to label the noise emission levels, there are currently no legal requirements for the reduction of noise on municipal vehicles. The award of this environmental label is designed to set noise emission limits. Municipal vehicles awarded with the Blue Angel ecolabel are fitted with the best available noise reduction technology. The noise emission values for these vehicles are significantly lower than normal noise levels, which is why those municipal vehicles awarded with the Blue Angel are permitted to carry the label "low noise". The evaluation is based on legal measurement procedures and compliance with challenging noise level limits that have been defined by a panel of experts.

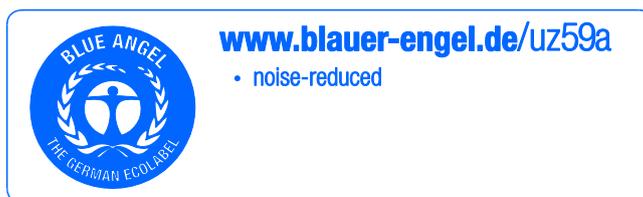
Purely electrically driven municipal vehicles may be added to the scope of these Basic Award Criteria at a later point in time, when sufficient experience has been gained and the technical basis for evaluating this technology is available. It is also not intended to include drive systems using fuel cells because a differentiated examination of the different fuel cell technologies based on their environmental properties is not possible. There is also a lack of specialist information for evaluating the technical properties.

### 1.3 Objectives of the Environmental Label

The Blue Angel environmental label for municipal vehicles may be awarded to products featuring the following environmental properties:

- Low noise emissions
- Exhaust gas and particulate reduction
- Low emission coating of the vehicle surfaces

Therefore, the explanatory box contains the following benefits for the environment and health:



### 1.4 Definitions

**Street sweepers:** Machines that are primarily designed for sweeping materials from streets, motorways, airports and other traffic areas (e.g. parking spaces, marketplaces, pedestrian zones, pavements and cycle paths, and car parks). These machines are found either attached to a specially designed chassis on a carrier vehicle (in a detachable or permanent manner), on a vehicle guided by a walking operator or on a towed vehicle. In these Basic Award Criteria, a differentiation is made between:

- a) **Truck-mounted street sweepers:** Street sweepers where the sweeping equipment has been fitted on or next to a standard vehicle chassis e.g. a truck chassis.
- b) **Self-propelled street sweepers:** Compact street sweepers have a specially designed vehicle chassis onto which the sweeping equipment is built. These machines can be in the form of a ride on, user controlled or walker controlled machine that are fitted with a seat or sulky.

**Refuse collection vehicles:** A vehicle which is used for the collection and transport of refuse (e.g. household refuse, bulky refuse, recyclable materials), whereby the vehicle is loaded from waste collection containers or by hand. The vehicle can be equipped with a compacting mechanism and/or a lifting device for waste collection containers.

### 1.5 Compliance with legal requirements

The observance of relevant existing laws, legal requirements and standards is a prerequisite for those products awarded with the environmental label. In particular, the following apply to municipal vehicles:

- German Road Vehicle Registration Ordinance (StVZO) or alternatively 2007/46/EC or Regulation (EU) 167/2013
- Regulation 2000/14/EC (noise emission in the environment by equipment for use outdoors)
- EU Regulation 582/2011b) incl. the amendment in Regulation 2016/1718 (especially the PEMS section of the type approval)
- Regulation (EU) 2016/1628 (emissions from mobile machinery)
- Regulation (EC) 595/2009 (emissions from heavy duty vehicles)
- Regulation (EC) 715/2007 (emissions from light passenger and commercial vehicles)

- 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)

## 2 Scope

These Basic Award Criteria are valid irrespective of the fuel used for the street sweepers and refuse collection vehicles in accordance with Paragraph 1.4, as well as for mobile machinery according to Regulation (EU) 2016/1628, that are used here as separate auxiliary engines and are possibly fitted with an additional particulate reduction system.

## 3 Requirements

### 3.1 Noise emissions

The assessment procedure for the operating noise of street sweepers and refuse collection vehicles is based on the measurement<sup>1</sup> and labelling of the guaranteed A-weighted sound power level in dB.

#### Sound power level

The guaranteed sound power level  $L_{WAd}$  is always commercially rounded to the nearest whole number. There are three possible methods for determining the  $L_{WAd}$ :

- Single application:
- The sound power level  $L_{WA1}$  of a single vehicle is measured.  $L_{WAd}$  is the sum of  $L_{WA1}$  and the standard deviation  $\sigma_R$  in accordance with RfU 07-003 R1<sup>2</sup>:

$$L_{WAd} = L_{WA1} + \sigma_R$$

- Type application A:
- The sound power level  $L_{WA1}$  of one vehicle is measured.  $L_{WAd}$  is the sum of  $L_{WA1}$  and the uncertainty factor 3 dB:

$$L_{WAd} = L_{WA1} + 3 \text{ dB}$$

- Type application B:
- The arithmetic mean of the noise level measurements for two or more identically designed vehicles  $L_{WAm}$  is determined.  $L_{WAd}$  is the sum of  $L_{WAm}$  and the uncertainty factor K.
- K is calculated in accordance with RfU 07-003 R1 based on the number of measurements and the resulting distribution.

$$L_{WAd} = L_{WAm} + K$$

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<sup>1</sup> According to Annex III of Regulation 2000/14/EC relating to the noise emission in the environment by equipment for use outdoors

<sup>2</sup> Guidelines for determining and inspecting the guaranteed sound power level (Working Group of Notified Body's 2000/14/EC Recommendation for Use No. 07-003 R1)

### Test results for operating noise

The labelled A-weighted sound power level  $L_{WAd}$  for the operating noise of municipal vehicles must not be greater than the following test values:

| Vehicle type<br>(in brackets:<br>No. according to Annex I<br>of Directive 2000/14/EC) | Net installed<br>power P<br>in kW | Test value<br>Guaranteed sound<br>power level<br>$L_{WAd}$ in dB | Single application:<br>Standard deviation<br>of reproducibility<br>$\sigma_R$ in dB** |
|---|-----------------------------------|--|---|
| (46) Street sweeper   | $P \leq 5$                        | <b>95</b>  | 0.6   |
|   | $5 < P \leq 30$                   | <b>88 + 11 log P*</b>  |   |
|   | $P > 30$                          | <b>104</b>   |   |
| (47) Refuse collection<br>vehicle   | $P \leq 150$                      | <b>101</b>   | 0.5   |
|   | $P > 150$                         | <b>103</b>   |   |

\* The test value is the result of the calculation formula, commercially rounded to the nearest whole number.

\*\* Standard deviation of reproducibility  $\sigma_R$  according to RfU 07-003 R1

### Compliance verification

The test value for the operating noise shall be verified by the applicant through the submission of a test report from a testing laboratory accredited in accordance with ISO 17025 for measurements according to 2000/14/EC, as well as by verifying the labelling in accordance with Article 11 of 2000/14/EC (e.g. in the form of a photo of the type plate).

The applicant shall declare that no modifications may be made to the municipal vehicles that could lead to an increase in the noise emissions, with corresponding reference to this information in the operating instructions.

### 3.2 Pollutant emissions

The combustion engines in the refuse collection vehicles and street sweepers must comply with the following legal requirements relating to pollutant emissions:

| EU Regulation   | Refuse<br>collection<br>vehicles | Truck-mounted<br>street sweepers<br>(drive engine) | Self-propelled<br>street<br>sweepers | Auxiliary<br>engines |
|---|----------------------------------|--|--------------------------------------|----------------------|
| Regulation (EC) 715/2007 –<br>Emissions from light<br>passenger and commercial<br>vehicles (Euro 6) in the<br>currently valid version | X                                | X  | X                                    | X                    |
| Regulation (EC) 595/2009 –<br>Emissions from heavy duty<br>vehicles (Euro VI) in the<br>currently valid version                       | X                                | X  | X                                    | X                    |
| Regulation (EU) 2016/1628<br>– Emissions from<br>mobile machinery (Stage V)   |                                  |  | X                                    | X                    |

Alternatively, engines complying with the previous emission stage to Stage V are allowed to be installed if they have been upgraded or retrofitted with diesel particulate filters (DPF) that have been tested according to one of the following certificates and have a gravimetric filtration efficiency of at least 90%:

- Annex XXVII Number 3 StVZO
- UNECE Regulation no. 132, reduction level 01, class I or II or the FAD e.V. seal (version February 2015 or newer)
- VERT Filter List (version September 2016 or newer) or
- BAFU Filter List

so that a reduction in the number of particulates of at least 99% and a reduction in the particulate mass of at least 90% is guaranteed.

### **Compliance Verification**

*The applicant shall declare compliance with the requirements according to Paragraph 3.2 and submit verification in the form of a report from a testing laboratory certified for the relevant measurement.*

### **3.3 Painting and coating**

- For the priming and painting of the vehicles, 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<sup>2</sup>.  
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/m<sup>2</sup><sup>3</sup>.

### **Compliance verification**

The applicant shall declare compliance with the requirement according to Paragraph 3.3.

## **4 Applicants and Parties Involved**

Manufacturers or operators of municipal vehicles 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.

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<sup>3</sup> 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 solvents in certain installations).

## **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, 2023. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2023 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/operator)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.

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