

BLUE ANGEL

The German Ecolabel



Low-Noise and Low-Pollutant Municipal Vehicles and Buses

DE-UZ 59

Basic Award Criteria

Edition April 2014

Version 1

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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1 Introduction

- 1.1** The Environmental Label Jury has set up these Basic Criteria for Award of the Blue Angel Eco-Label in co-operation with the Federal Minister for the Environment, Nature Conservation and Nuclear Safety, the German Umweltbundesamt (Federal Environmental Agency) and considering the results of expert hearings conducted by RAL gGmbH. 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 Blue Angel eco-label may be granted for all products, provided that they meet the requirements specified hereinafter.

- 1.2** The purpose of awarding this Blue Angel eco-label is to reduce the serious pollutant, greenhouse gas and noise emissions caused by municipal vehicles and buses, especially in inner-city, metropolitan and special protection areas.

The Blue Angel eco-label is awarded regardless of the fuel used. The fuel must, however, be EC type approved.

The pollutant emission requirements to be met by the vehicle drive systems and separate engines meet the state of the art in exhaust-gas minimization technology and call for the use of particulate reduction systems.

The noise reduction requirements follow and undercut the legal noise limits.

The use of climate-neutral refrigeration technology is already being tested and promoted for the use on buses. That is why the Environmental Label Jury requires the next revision of these Basic Criteria to include the requirement for an environmentally friendly air conditioning using halogen-free refrigerants. Moreover, limits for vehicle surface coatings need to be met where the solvent emissions during the coating of buses must be below the legal limits.

2 Scope

These Basic Award Criteria apply, regardless of the fuel used, to municipal vehicles (only street sweepers and garbage trucks) and buses according to StVZO (Straßenverkehrs-zulassungsordnung) (German Road Traffic Licensing Regulations) as well as to mobile machinery and equipment according to Directive 97/68/EC which is used here as separate engines and equipped with an additional particulate reduction system. Electric buses do not fall within the scope of these Basic Criteria.

3 Requirements

The Blue Angel eco-label on page 1 can be awarded to the products under paragraph 2, provided that the following requirements are met:

3.1 Noise Emissions

Requirements have been set for the driving, operating and workplace noise of the vehicles.

- The **driving noise** shall be assessed on the basis of the type approval value for the driving noise in dB(A)¹.
- The **operating noise of street sweepers and garbage trucks** shall be assessed on the basis of the measurement and marking of the guaranteed sound power level in dB².
- The **workplace noise** of street sweepers and garbage trucks shall be assessed on the basis of the specification of the daily noise exposure level of an operator running the vehicle as intended, in dB(A)³.

As a rule, a separate application shall be filed for each vehicle. In the case of three or more identically designed vehicles, a **type application** may also be submitted.

3.1.1 Driving Noise Test Values to be met by Buses

The A-weighted maximum driving noise level shall not exceed

- 75 dB(A) for vehicles with an engine power of less than 150 kW,
- 77 dB(A) for vehicles with an engine power of 150 kW or above.

Compliance Verification:

¹ in accordance with Annex 1 to Directive 92/97/EEC relating to the permissible sound level and the exhaust system of motor vehicles

² in accordance with Annex III to Directive 2000/14/EC relating to the noise emission in the environment by equipment for use outdoors

³ in accordance with Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) in conjunction with ISO 1999:1900

The driving noise test value of single vehicles (e.g. municipal vehicle) according to para. 3.1.1 shall be verified by submission of a copy of the Registration Certificate of the vehicle, Part I (Column U.3).

In the case of type tests, the applicant shall present the relevant type test documents.

3.1.2 Operating Noise Test Value to be met by Street Sweepers and Garbage Trucks

The declared A-weighted sound power level of the operating noise shall not exceed 98 dB.

3.1.3 Workplace Noise Test Value to be met by Street Sweepers and Garbage Trucks

Even with roof hatch and side window open and the auxiliary units running, the workplace noise exposure shall not exceed 85 dB.

Compliance Verifications:

The operating noise test values under para. 3.1.2 or the workplace noise test values under para. 3.1.3 shall be verified by submission of

- a test report prepared by a testing laboratory accredited under ISO 17025 for measurements according to 2000/14/EC or 2003/10/EC respectively, and*
- a confirmation of the marking in accordance with Article 11 of Directive 2000/14/EC (for example, by means of a photo of the type plate).*

3.2 Pollutant Emissions

3.2.1 Vehicle Engine according to Exhaust Emission Directive 582/2011/EC

The driving engine of the vehicle shall meet the EURO VI air pollution limits as specified in the Exhaust Emission Directive 2011/582/EC.

Work machinery equipped with a drive engine according to the Exhaust Emission Directive 2011/582/EC shall meet the EURO V standard.

(g/kWh)	Directive 2011/582/EC as of December 31, 2013		
	EURO VI Diesel	EURO VI Diesel	EURO VI Otto
CO	1.5	4.0	4.0
THC	0.13	0.16	-
NMHC	-	-	0.16
CH ₄	-	-	0.5
NO _x	0.4	0.46	0.46
NH ₃ (in ppm)	10	10	10
Particulate mass	0.01	0.01	0.01
Number of par- ticulates (numbers per kWh)	8.0x10 ¹¹	6.0x10 ¹¹	6.0x10 ¹¹
	WHSC test limits	WHTC test limits	

3.2.2 Driving Engine pursuant to Directive 97/68/EC for Work Machinery according to StVZO (Straßenverkehrszulassungsordnung) (German Road Traffic Licensing Regulations) and Separate Engine for Auxiliary Unit

Driving engines of work machinery pursuant to StVZO not covered by Directive 2011/582 (Euro VI) as well as separate engines for auxiliary units fall under Directive 97/68/EG (Mobile machinery and equipment). As regards the air pollutant emissions, they shall meet the exhaust emission limits of stage IV according to Directive 97/68/EC, Table „Limits for mobile machinery and equipment“, see Table.

The latest emission stages of the said directive shall apply to equipment with an engine power of less than 56 kW:

19-37 kW - stage III A

37-56 kW – stage III B.

Limits for Mobile Machinery and Equipment, Construction Machinery and Agricultural Tractors pursuant to Directive 97/68/EC						
Category	Engine Power in kW	Emission limits	NOx in g/kWh	HC in g/kWh	Particulates in g/kWh	CO in g/kWh
Q	130 - 560	Stage IV	0.4	0.19	0.025	3.0
R	56 - 130	Stage IV	0.4	0,19	0.025	5.0
P	37 - 56	Stage III B	4.7		0.025	5.0
K	19 -37	Stage III A	7.5		0.6	5.5

Source Umweltbundesamt, compiled by RAL

3.2.3 Particulate Reduction

The driving engines for work machinery according to StVZO (mentioned under para. 3.2.2 as well as separate engines covered by Directive 97/68/EC (Mobile machinery and equipment) shall be equipped with a particulate reduction system which reduces the particulate number by at least 99 percent and the particulate mass by at least 90 percent.

Compliance Verifications:

To verify compliance with the requirements of paras. 3.2.1, 3.2.2 und 3.2.3 the applicant shall present a test report. The testing laboratory shall be authorised by the German Kraftfahrt-Bundesamt (KBA) (Federal Motor Transport Authority) to perform the measurement in accordance with EC Directive 715/2007. The test report shall be confirmed by the emission testing laboratory of TÜV Nord.

3.3. Air Conditioning

Refrigerants are needed to air condition the passenger compartments of buses.

They shall meet a global warming potential (GWP) < 1500⁴, referenced to CO₂ and based on 100-year time period.

To ensure an environmentally friendly air-conditioning, only halogen-free refrigerants shall be used on two-axle buses, as of January 1, 2018.

⁴ The GWP values are based on the data listed in the „IPCC Fourth Assessment Report: Climate Change 2007, Working Group I: The Physical Science“.

For the table listing the GWP data of the substances please go to:
http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

Compliance Verification:

The applicant shall declare compliance with the requirement and submit appropriate technical documents to provide evidence of the refrigerant used to air condition the passenger compartment.

3.4 Painting and Coating

Priming and painting of the vehicles shall, except for impurities, be done by the use of coating materials free of paint raw materials (fillers, pigments, drying agents) which contain lead, chromium VI and cadmium compounds.

The solvent emissions shall not exceed the following limits during coating ⁵:

Vehicle	Total Emissions Limit (g/m ²)
Street sweepers, garbage trucks	70 50 Installations for the surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with a consumption capacity of more than 150 kg per hour or more than 200 tons per year".
Buses	130

Compliance Verification:

The applicant shall declare compliance with the requirement in para. 3.4

⁵ The emission limit values are based on the 31st BImSchV (31st Ordinance on the Implementation of the Federal Immission Control Act), Ordinance on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain installations

4 Applicants and Parties Involved

4.1 Manufacturers and operators of municipal vehicles and buses shall eligible.

4.2 Parties involved in the award procedure are:

- RAL to award the Blue Angel eco-label,
- the federal state being home to applicant's production site,
- Umweltbundesamt (Federal Environmental Agency) which after the signing of the contract receives all data and documents presented in application for the Blue Angel in order to be able to further develop the Basic Award Criteria.

5 Use of the Blue Angel Environmental Label

5.1 The terms governing the use of the Environmental Label by the applicant are stipulated by a Contract on the Use of the Environmental Label to be concluded with RAL.

5.2 Within the scope of such contract the applicant undertakes to meet the requirements under paragraph 3 for as long as the Blue Angel eco-label is used.

5.3 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, 2017. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2017 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.

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

5.4.1 Applicant

5.4.2 Brand / trade name, product designation