

# **BLUE ANGEL**

**The German Ecolabel**



## **Carbon Dioxide Cleaning Services**

**DE-UZ 126**

**Basic Award Criteria**

**Edition April 2009**

**Version 3**

## 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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## Table of contents

1	Introduction.....	4
1.1	Preface .....	4
1.2	Background .....	4
2	Scope .....	4
3	Requirements .....	5
3.1	Equipment Requirements .....	5
3.2	Water / Energy / Carbon Dioxide Consumption.....	5
3.3	Cleaning Agents .....	6
3.3.1	Solvents.....	6
3.3.2	Stain removal during pre-spotting .....	6
3.3.3	Exclusion of Ingredients .....	7
3.4	Wastewater / Waste .....	8
3.5	Commitment.....	8
4	Applicants and Parties Involved.....	9
5	Use of the Environmental Label.....	9

**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**

Apart from professional laundry services, there are, principally, four methods of cleaning in professional textile care:

- dry cleaning processes using the organic solvent perchloroethylene (PER),
- dry cleaning processes using organic hydrocarbon solvents,
- wet cleaning using water as a solvent,
- cleaning processes using carbon dioxide as a solvent.

Wet cleaning and carbon dioxide cleaning processes do without organic solvents. They only use water or carbon dioxide as solvents.

The carbon dioxide used in cleaning processes forms, above all, as a by-product from industrial and chemical production processes. Following processing and cleaning it is sent to the storage tanks of the carbon-dioxide cleaning system. Modern carbon-dioxide cleaning systems keep the carbon dioxide in a closed cycle so that carbon dioxide emissions from the process are very low.

If the cleaning services provider offers wet cleaning as a supplement to carbon dioxide cleaning the services provider will need to meet the criteria for the DE-UZ 104 eco-label in addition to the criteria listed herein.

## **2 Scope**

These Basic Award Criteria exclusively apply to textile cleaning services using carbon dioxide for textile care. In addition, these Criteria apply to textile cleaning using carbon dioxide in combination with wet cleaning for the treatment of home textiles.

### 3 Requirements

The Environmental Label shown on page 1 may be used to distinguish the textile cleaning service providers under para. 2, provided that they meet the following requirements.

#### 3.1 Equipment Requirements

**The following applies to wet cleaning services:**

- The special wet-cleaning system shall have a minimum drum volume of 100 litres.
- The wet-cleaning system shall be equipped with a programmable control system, temperature control unit as well as a detergent dosing unit.
- Dryers used for the wet-cleaning process shall be equipped with a temperature and a time-limiting unit as well with a humidity measuring sensor.

**The following applies to carbon dioxide cleaning services:**

- The special carbon dioxide cleaning system shall have
  - ♦ a minimum drum volume of 100 litres
  - ♦ a programmable control system, temperature-control unit, pressure-control unit as well as a detergent-dosing unit.
- The carbon dioxide cleaning system must comply with the applicable legal provisions, e.g.:
  - ♦ Gerätesicherheitsgesetz (Equipment Safety Act)
  - ♦ Pressure Equipment Directive 97/23/EEC.
- The carbon dioxide cleaning system must be equipped with a gas warning system including a carbon dioxide sensor that shall be installed not more than 2 metres from the system (and at a height of not more than one metre from the ground). The gas warning device must be able to give visual alarm signals (lamp) as well as acoustic gas alarm signals. It must - to the greatest extent possible - automatically prevent additional gas emissions and activate the emergency stop mechanism of the system.
- The carbon dioxide cleaning system must be equipped with at least one externally actuable emergency stop button.
- The carbon dioxide cleaning system may only be operated in buildings complying with the provisions of the German Bauordnungsrecht (Buildings Regulations Law).

#### **Compliance Verification**

*The applicant shall declare compliance with requirement 3.1 and present a description of the cleaning process used. Applicant shall submit engineering specifications on process description.*

#### 3.2 Water / Energy / Carbon Dioxide Consumption

**The following applies to wet cleaning services:**

For normal outer garments with easily removable soiling the water consumption of wet cleaning systems shall not exceed 12 litres per kg of cleaned goods. For washing and drying programmes the energy consumption of all-electric wet cleaning systems for heating purposes must not exceed 0.5 kWh of electric current per kg of goods to be cleaned and 0.2 kWh of electric current per kg of goods to be cleaned for driving and auxiliary units.

For washing and drying programmes the energy consumption of steam-heated wet cleaning systems must not exceed 0.7 kg of steam per kg of goods to be cleaned and 0.2 kWh of electric current per kg of goods to be cleaned for driving and auxiliary units. All other units

used for drying purposes shall be named together with the energy consumption data (kWh per kg of cleaned goods).

**The following applies to carbon dioxide cleaning services:**

The cleaning system (including its auxiliary units, such as, for example, compressor, distillation unit, cooling unit) must not exceed an energy consumption of 0.5 kWh per kg of goods to be cleaned. The carbon dioxide consumption during a cleaning process must not exceed 0.25 kg of CO<sub>2</sub> per kg of goods to be cleaned.

**Compliance Verification**

*The applicant shall declare compliance with requirement 3.2. With respect to wet cleaning applicant shall provide data on washing water consumption (litres of water per kg of cleaned goods) as well as on energy consumption with respect to washing temperature, water consumption and the type of goods to be cleaned. A technical data sheet shall be submitted for the other units used.*

*With respect to carbon dioxide cleaning applicant shall submit data on the carbon dioxide consumption (kg of CO<sub>2</sub> per kg of cleaned goods). A technical data sheet shall be submitted for the other units used.*

### **3.3 Cleaning Agents**

#### **3.3.1 Solvents**

**The following applies to wet cleaning services:**

Cleaning must be done without adding organic compounds as solvents to the cleaning process.

**The following applies to carbon dioxide cleaning services:**

Cleaning must be done without adding volatile organic compounds as solvents to the cleaning process. Volatile organic compounds are organic substances having a vapour pressure of 0.01 kPa or more at a temperature of 293.15 K.

**Compliance Verification**

*The applicant shall declare compliance with the requirement under para. 3.3.1.*

#### **3.3.2 Stain removal during pre-spotting**

**The following applies to wet cleaning and carbon dioxide cleaning services:**

Stain removal during pre-spotting shall be done without using either substances classified in water-endangering class 3 (WGK 3) or halogenated organic compounds or any preparations containing the latter. Hydrocarbon-containing solvents and other halogen-free solvents may only be used on the basis of a good professional practice for pre and post-spotting. Post-spotting shall be done without the use of halogenated organic compounds or preparations containing the latter.

**Compliance Verification**

*The applicant shall declare compliance with the requirement under para. 3.3.2.*

### 3.3.3 Exclusion of Ingredients

**The following applies to wet cleaning and carbon dioxide cleaning services:**

Only those washing and cleaning agents according to Section 2, para. 1, WRMG (Wasch- und Reinigungsmittelgesetz - Washing and Cleaning Agents Act) may be used which do not contain any of the following ingredients:

- phosphate
- optical brighteners
- nitro-musk compounds
- phosphonates at a content greater than 1 weight percent
- NTA as complexing agent at a content greater than 1 weight percent
- chlorinated organic compounds except for the purpose of preservation, colour fixation and the like at a content of up to 0.1 percent
- alkylphenol ethoxylates (APEOs)
- alkylphenol derivatives (APDs) (applies to carbon dioxide cleaning only)
- fluorinated organic compounds

Fluorocarbon resins shall be exempted from this general ban.

#### **Compliance Verification**

*The applicant shall present a declaration from the manufacturer of washing and cleaning agents confirming compliance with the requirements under para. 3.3.3.a with respect to each washing and cleaning agent according to Section 2 WRMG (Wasch- und Reinigungsmittelgesetz) (German Washing and Cleaning Agents Act).*

**a) In addition, the following applies to carbon dioxide cleaning services:**

No substances may be added to the detergents (substances and preparations) used in the CO<sub>2</sub>-cleaning to which one or more of the following risk phrases (R-phrases) have been or may be attributed:

- ♦ R23 Toxic by inhalation
- ♦ R24 Toxic in contact with skin
- ♦ R25 Toxic if swallowed
- ♦ R26 Very toxic by inhalation
- ♦ R27 Very toxic in contact with skin
- ♦ R28 Very toxic if swallowed
- ♦ R39 Danger of serious irreversible effects
- ♦ R40 Limited evidence of a carcinogenic effect
- ♦ R42 May cause sensitisation by inhalation
- ♦ R43 May cause sensitisation by skin contact
- ♦ R45 May cause cancer
- ♦ R46 May cause heritable damage
- ♦ R48 Danger of serious damage to health by prolonged exposure
- ♦ R49 May cause cancer by inhalation
- ♦ R50 Very toxic to aquatic organisms
- ♦ R50/53 Very toxic to aquatic organisms,  
May cause long-term adverse effects in the aquatic environment
- ♦ R51/53 Toxic to aquatic organisms,

- ♦ R52/53      May cause long-term adverse effects in the aquatic environment  
Harmful to aquatic organisms,  
May cause long-term adverse effects in the aquatic environment
- ♦ R52          Harmful to aquatic organisms
- ♦ R53          May cause long-term adverse effects in the aquatic environment
- ♦ R59          Dangerous for the ozone layer
- ♦ R60          May impair fertility
- ♦ R61          May cause harm to the unborn child
- ♦ R62          Possible risk of impaired fertility
- ♦ R63          Possible risk of harm to the unborn child
- ♦ R64          May cause harm to breast-fed babies
- ♦ R68          Possible risk of irreversible effects

Non-ionic tensides may be used even if they are or may be classified as R50.

Biocides which are used for product preservation and classified as R50/53 or R51/ 53 may be used but only if they are not bioaccumulative. In this connection a biocide shall be considered as possible bioaccumulative if  $\log P_{ow}$  (octanol-water partition coefficient)  $\geq 3.0$  (except if the bioconcentration factor BCF determined by experiment is  $\leq 100$ ).

#### **Compliance Verification**

*The applicant shall identify the precise ingredients of the detergents and present copies of the Material Safety Data Sheets of each ingredient (including CAS Number) of the detergents used together with a declaration from the manufacturer of washing or cleaning agents confirming compliance with this criterion.*

### **3.4 Wastewater / Waste**

#### **The following applies to wet cleaning services:**

The resulting wastewater load which apart from washed-out impurities contains textile cleaning and finishing agents must comply with the requirements of the Indirekteinleitungsverordnung (German Ordinance on Indirect Discharges) or the respective municipal wastewater regulations.

#### **The following applies to carbon dioxide cleaning services:**

All solid and liquid residues forming during the cleaning process shall, in compliance with the legal provisions, be properly disposed of as waste.

#### **Compliance Verification**

*The applicant shall declare compliance with the requirement under para. 3.4.*

### **3.5 Commitment**

#### **The following applies to wet cleaning services and carbon dioxide cleaning services:**

The operator of the cleaning system(s) shall undertake to use wet cleaning processes for all home textiles suitable for wet cleaning and to use carbon dioxide cleaning processes for all textiles suitable for carbon-dioxide cleaning. Hence, cleaning by use of perchloroethylene and/or hydrocarbon solvents shall be ruled out.



### **Compliance Verification**

*The applicant shall declare compliance with the requirement under para. 3.5.*

## **4 Applicants and Parties Involved**

Providers of carbon dioxide cleaning services 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)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.