



Blue Angel for Printed Matter



Soft Legislation to Educate Printers and Print Customers?



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The Blue Angel



Type I Ecolabel (DIN EN ISO 14024)

- Addresses multiple environmental criteria
- Based on life cycle consideration of the product (or service)
- Has a high level of credibility
- Requires third-party verification

Established in 1978 – the first Ecolabel worldwide

- 120 product groups
- 1,500 companies
- 12,000 products and services

Strict criteria based on environmental performance:

- 20–30 % – best of the market in the corresponding product group (from an environmental perspective)
- Criteria revised after 2–4 years
- Testing conducted by laboratories according to ISO 17025

Blue Angel products differ from other products with the same use in better environmental sustainability and more health protection. Additionally the products fulfil high requirements on the fitness for use.

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Institutes responsible for the Blue Angel



 Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety



The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

- Official owner of the Blue Angel Logo
- Appointment of the Jury Umweltzeichen

German Environment Agency

- Acceptance of proposals for new product groups
- Criteria development for the Blue Angel

Jury Umweltzeichen

- The independent decision-making body for the Blue Angel including representatives for environmental and consumer associations, trade unions, industry, the trade, local authorities, academia, the media, churches, young people and the German federal states

RAL gGmbH

- Organisation of independent expert hearings
- Application assessment and awarding of the Blue Angel Logo

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The Blue Angel Logo



Starting from January 2018 the Blue Angel will have a new logo.

On printed matter the following components need to be present:



www.blauer-engel.de/uz195

This printed matter has been awarded the Blue Angel.



www.blauer-engel.de/uz195
This printed matter has been awarded the Blue Angel.

Logo:

Minimum size: 10x10 mm

Short link:

Minimum size: 30x3,5 mm; minimal font size: 7 pt

Printing house code:

Minimal font size: 7 pt; bold

Sentence "This printed matter has been awarded the Blue Angel.":

Minimum font size: 80 % of the font size of the printing house code (5,6 pt); standard

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RAL-UZ 195: The Blue Angel for printed matter



Published in January 2015

Since then:

- Number of label holders (= Printing Houses): 40
- Number of label users (= Distributor): 204
- Number of products/product groups: 289+
- Number of applications: 69

Handling:

- Currently in force parallel to RAL-UZ 14 and RAL-UZ 72
- For sheet-fed offset printing: up to now possibility to apply for any of the three basic award criteria documents
- End of 2018: Elimination of that possibility, starting from 2019 application only possible for RAL-UZ 195

→ **All printing houses, who want to continue to label their products with the Blue Angel after 2018, have to have a product group awarded pursuant to RAL-UZ 195.**

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Scope



Products made of paper and cardboard with at least **90 % paper and cardboard** (including printing ink and varnish) can be certified, for example:

- Newspaper
- Magazines, brochures, journals
- Books
- Catalogues
- Prospectuses, advertising supplements, newspaper supplements
- Flyers
- Operation instructions, assembly instructions
- Posters, bills, displays made of cardboard
- Annual reports, phone books, indexes
- Loose leaf systems
- Printed postcards
- Printed envelopes and protective bags
- Decorative calendars

→ *Finished products like exercise books or spiral note pads are in the scope of RAL-UZ 14b.*

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Scope



Following printing processes are approvable:

- Sheet-fed offset printing
- Coldset web offset printing
- Heatset web offset printing
- Rotogravure printing
- Flexographic printing
- Digital printing

Certification not possible for:

- printed packaging, secondary packaging, transport packaging
- Customized invoice paper, company letter paper, printed business cards

- *UV printing is currently problematic since the printing inks are either classified or not deinkable or both.*
- *Using varnishes is problematic since most of them have a very negative influence on deinking the deinkability.*

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Criteria overview



Product related criteria

- Requirements for the material composition (3.2)
- Requirements for paper and cardboard (3.3)
- Requirements for the recyclability of the material used (3.4)
- Requirements for all substances and mixtures added to the printed matter (3.5)
- Requirements for renewable raw materials (3.6)
- Requirements for the dyes, toners, printing inks and varnishes (3.7)

Location related criteria

- Requirements for the printing process (3.1)
- Requirements for all substances and mixtures added to the printed matter (3.5)
- Requirements for emissions of organic solvents (3.8)
- Requirements for the pre-press process (3.9)
- Requirements for waste paper management (3.10)
- Requirements for energy management (3.11)

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3.3 Requirements for paper and cardboard



The paper used must comply with the requirements of

- RAL-UZ 14a (Recycled Paper)
- RAL-UZ 72 (Printing and Publication Papers Made Primarily from Waste Paper)

The cardboard used must comply with the requirements of

- RAL-UZ 56 (Recycled Cardboard)

The adhesive labels must comply with the requirements of

- RAL-UZ 14b (Finished Products Made from Recovered Paper for Office and School Demand)

→ Declaration by the printing house (in Annex 2) and paper/cardboard certificates.

Especially Blue Angel certified papers for magazine covers with a weight above 90 g/m² are very rare, but are highly requested by printing houses.

→ Some printed products cannot be certified at the moment, due to that.

3.4 Requirements for the recyclability of the material used

Deinkability (INGEDE Method 11)



Overview of the required amount of tests

If **NO** varnishes and similar coating materials are used:

Composition of the printed matter	Number of tests
coated OR uncoated paper + 1 set of printing inks	1
coated AND uncoated paper + 1 set of printing inks	2
coated OR uncoated paper + 2 sets of printing inks (same manufacturer)	1 + manufacturers declaration; if declaration not possible: 2
coated OR uncoated paper + 2 sets of printing inks (different manufacturer)	2
coated AND uncoated paper + 2 sets of printing inks (same manufacturer)	2 + manufacturers declaration; if declaration not possible: 4
coated AND uncoated paper + 2 sets of printing inks (different manufacturer)	4

3.4 Requirements for the recyclability of the material used *Deinkability (INGEDE Method 11)*



Overview of the required amount of tests

If varnishes and similar coating materials are used, using the example of varnish:

Composition of the printed matter	Number of tests
coated OR uncoated paper + 1 set of printing inks + 1 varnish	1
coated AND uncoated paper + 1 set of printing inks + 1 varnish	2
coated OR uncoated paper + 1 sets of printing inks + 2 varnishes	2
coated AND uncoated paper + 1 sets of printing inks + 2 varnishes	4
coated OR uncoated paper + 2 sets of printing inks (different manufacturers) + 2 varnishes (used each ink with each varnish)	4
coated AND uncoated paper + 2 sets of printing inks (different manufacturers) + 2 varnishes (used each ink with each varnish)	8

Deinking of printed matter with a printing ink/varnish combination is very difficult, because in most cases the varnish prevents a positive deinking result.

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3.4 Requirements for the recyclability of the material used *Removability of adhesives (INGEDE Method 12)*



Overview of the required amount of tests

In case of adhesives which are not soluble in water

Composition of the printed matter	Number of tests
1 adhesive	1
2 adhesives	2
1 side adhesive + 1 spine adhesives	1
2 side adhesives + 1 spine adhesive	2
1 side adhesive + 2 spine adhesives	2
2 side adhesives + 2 spine adhesives	4

At the moment every single adhesive or adhesive combination has to be tested separately.

→ *Room for improvement!*

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3.5 Requirements for all substances and mixtures added to the printed matter

Which products does it refer to?



The following substances and mixtures are covered by that criterion:

- Printing inks/-ink additives, dyes, inks, toners
- All kind of varnishes
- Adhesives
- Dampening solutions/-solution additives
- Wetting agents
- Coating agents (for example silicones), anti-set-off powder
- Alcohols/toluene
- All detergents/cleaning agents used in the printing house
- Burn-in gum/end gums, plate developer
- Auxiliary printing substances like anti-skin agents, idling oils, and so on
- Rubber blanket regeneration agents
- Substances and mixtures, which are needed for the production of printing cylinders

Not covered are for example:

- Cleaning agents for sanitary facilities
- Lubricants for the machines used

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3.5 Requirements for all substances and mixtures added to the printed matter

Requirements



Substances and mixtures used in printing shall not be classified with the following H-phrases: 300, 301, 304, 310, 311, 330, 331, 340, 341, 350, 350i, 351, 360F, 360D, 360FD, 360Fd, 360Df, 361f, 361d, 361fd, 362, 370, 371, 372, 373, 400, 410, 411, 412, 413, 420, EUH029, EUH031, EUH032, EUH070 or be classified as CMR pursuant to TRGS 905.

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

Exemptions:

- **Toluene** in rotogravure printing machines using capsules that are fitted with a toluene recovery system for the exhaust air
- **Chromium VI** and **copper sulfate**, if used for manufacturing the cylinders in rotogravure printing
- **Hardening additives** that are used in electroplating, if classified with H351, H361d, H411, H412, and with a content of thiourea less than 5 %
- **Cleaning agents** and **rubber blanket regeneration agents**, if classified with H304
- **Burn-in gums** and **end gums**, if classified with H411, H412, or H413
- **Developers**, if classified with H371 or H373

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3.6 Requirements for renewable raw materials



If the printing ink, varnish, solvent, or cleaning agent contains or is produced on the basis of renewable raw materials, it should be certified that they are not sourced from genetically modified plants or from rainforest deforestation.

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

Compliance verification:

- A declaration that the renewable raw materials are not sourced from genetically modified plants or from rainforest deforestation.
- A list of the renewable raw materials used and their amounts in the printing ink, varnish, solvent, or cleaning agent.
- An overview of the certification systems the renewable raw materials are certified with including the certificates.

→ *If no compliance verification is possible at that time, the manufacturer has to declare in detail why he cannot state the above mentioned.*

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3.7 Requirements for the dyes, toners, printing inks, and varnishes Subcriteria 3.7.1–3.7.4



3.7.1 Additives added at a later stage

→ *Declaration by the printing house (in Annex 1).*

3.7.2 Heavy metals

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

Progress:

→ *The development of cobalt free sheet-fed offset printing inks was necessary and successfully finished.*

3.7.3 Additional requirements for manganese compounds

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

3.7.4 Azo dyes

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

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3.7 Requirements for the dyes, toners, printing inks, and varnishes

Subcriteria 3.7.5



3.7.5 Hydrocarbons in printing inks and varnishes in offset printing process

Aliphatic hydrocarbons:

- Only chain length C10–C20
- C > 30 only allowed for microcrystalline waxes, Vaseline, polyolefin waxes, paraffin waxes, or Fischer-Tropsch waxes
- C20–C30 only allowed up to 1.5 % (w/w) for microcrystalline waxes, Vaseline, polyolefin waxes, paraffin waxes, or Fischer-Tropsch waxes

Aromatic hydrocarbons:

- Only 1 % (w/w) are allowed from mineral oils
- The defined thresholds for PAH from EU Regulation No. 1272/2013 are valid

→ Declaration by the manufacturer or distributor of the chemical (in Annex 7).

A stepwise approach was chosen to support the progress.

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3.7 Requirements for the dyes, toners, printing inks, and varnishes

Subcriteria 3.7.5



3.7.5 Hydrocarbons in printing inks and varnishes in offset printing process

Step 1: Until the end of 2016 this criterion should have been fulfilled but didn't have to be fulfilled.

→ *Sheet-fed offset printing inks fulfilled that criterion from the start.*

Step 2: Since January 2017 this criterion has to be fulfilled for all sheet-fed offsetprinting inks, heatset web offset printing inks and varnishes.

Coldset offset printing inks are currently exempted until end of 2019.

→ *Since december 2016 all big printing ink producers are able to offer heatset web offset printing inks that fulfil those criteria.*

Step 3: Starting January 2020 this criterion has to be fulfilled also for coldset web offset printing.

→ *The printing ink manufacturers have 2 years time to develop coldset web offset printing inks that can fulfil the criteria.*

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3.8 Requirements for emissions of organic solvents

Subcriterion 3.8.1



3.8.1 Cleaning agents, rubber blanket regeneration agents and other auxiliary printing substances in offset printing processes

- The proportion of toluene, xylene and other aromatic hydrocarbons with a carbon number of more than C9 must not exceed a maximum of 1 % (w/w).
- The benzene content must not exceed a maximum of 0.1 % (w/w).
- Halogenated hydrocarbons, terpenes, n-hexanes, secondary amines, and amides may not be used.

→ *Declaration by the manufacturer or distributor of the chemical (in Annex 7).*

Progress:

→ *By now for some of the problematic cleaning agents and rubber blanket regeneration agents alternatives are offered, that can fulfil the criteria.*

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3.8 Requirements for emissions of organic solvents

Subcriterion 3.8.2



3.8.2 Cleaning of machines and machine parts in offset printing

Requirement: The flash point of cleaning agents used for cleaning machines and machine parts (except dampening rollers) in offset printing has to be > 55 °C.

Best case: The flash point of cleaning agents used for cleaning machines and machine parts (except dampening rollers) in offset printing shall be > 100 °C.

→ *If the flash point is between 55 °C and 100 °C: Explanation from the printing house why they use that agent and not one with a flashpoint above 100 °C (in Annex 9).*

Progress:

→ *The chemicals manufacturers were forced to have a deep look at their products and started to develop more cleaning agents with flash points above 100 °C. They also had to look into the labelling of the cleaning agents.*

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3.8 Requirements for emissions of organic solvents

Subcriterion 3.8.3



3.8.3 Dampening solution additives in offset printing processes

- Isopropanol or ethanol, content should be below 3 % (w/w)
→ Declaration by the printing house (in Annex 1a or 1b).

- Dampening solution should not have a VOC content of greater than 10 % (w/w)
→ If the VOC content is above 10 % (w/w): Explanation by the printing house why they use that agent and not one with a VOC content below 10 % (w/w) (in Annex 10).

Progress:

- There are some dampening solutions with a VOC content below 10 % (w/w) on the market but it is unclear if there is an increase in such products.

- The isopropanol content has to be continuously monitored by infra-red or ultrasonic measurement
→ Declaration by the printing house (in Annex 1a or 1b).

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Criteria 3.8.4 to 3.11.5



The remaining criteria aim at the overall emissions of VOC, the waste management and the energy management of the printing houses, for example:

- Thresholds for the quantity of volatile solvents purchased in relation to the amount of paper used
- Threshold for the exhaust gas from the dryer in heatset web offset
- Thresholds for paper waste in relation to the purchased paper
- A system to minimize the energy consumption
- Integrated heating/cooling concepts where applicable
- Optimization of the compressed air system

Progress:

- The printing houses were forced to start thinking about some topics
- Difficult for the printing houses, especially the smaller ones
- Hidden problems could be identified in some cases before they became big ones

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1.6 Overview of environmentally-damaging materials and technologies under development



Plans for a revision:

- Verification of sustainable production of renewable raw materials (palm oils, soybean oil, ...)
- Certification of absence of genetic engineering in the cultivation of raw materials.
- Energy-efficient recovery of high-quality solvents which evaporate in the heatset web offset dryer and can be reused as an ink solvent.
- Energy-efficient technologies for drying and exhaust air purification.
- Offset printing inks and varnishes in which less than 0.1 % (w/w) of aromatic hydrocarbons sourced from mineral oil are used as constituent ingredients.
- Largely using printing plate production with reduced hazardous wastes.
- ...

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**Thank you
for your
attention!**



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