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| **Annex 1 to the contract**  **according to DE-UZ 223  THIS ANNEX IS FOR: APPLICANTS** | **Please only use this form!** |

**Environmental label for “Thermal paper”**

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| **Applicant (label holder):**  (full address) | | |  | |
| **Contact for any questions:** | | |  | |
| **E-mail address:** | | |  | |
| **Telephone:** | | |  | |
| **Trade name of the product:** | | |  | |
| **Distributor (Label User):**  (full address) (the distributor using the label for advertising purposes) | | |  | |
| **The above named product is a:** | | | | |
| Thermal paper |  | Finished product made of thermal paper | |  |

**Declarations by the applicant: Thermal Paper**

We hereby declare compliance with the following requirements

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| **Paragraph** | **Requirement** | | | | | |
| **3.1** | **Type of paper and structure of the thermal paper** | | | | | |
|  | The base paper must be paper with the sort key 01 60 30 05 “coating base paper, for SD paper, thermo paper, special office paper” based on the grade statistics from the German Pulp and Paper Association (Verband Deutscher Papierfabriken e.V. – VDP). | | | | | |
| **3.2** | **Requirements for the origin of the wood for the pulp** | | | | | |
|  | The fibrous raw materials used to produce the base paper must be sourced 100 % from certified fibres. The wood must be sourced from forests that can verify that they are managed in an ecological and socially responsible manner. Wood sourced from regional forestry businesses that remain close to nature also helps to avoid long transport routes, which have a negative ecological impact.  *Please state:* | | | | | |
| **Trading name of the pulp** | | **Certification system** | **Scientific name of the tree species** | **Geographical location of the forest (country)** | **Certificate number** | **Certification statement** |
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| **3.3.2** | **Emissions to waste water in the production of the pulp** | | | | | |
|  | Strict requirements apply to the emissions to waste water during the production of the pulp used in the thermal paper. Pulp plants usually have their own waste water treatment plants and are thus direct dischargers. The applicant must determine the levels of the following chemical substances in the emissions to waste water at the pulp plant (measurement specifications, see Appendix C “Measurement of emissions to waste water”):   * Chemical oxygen demand (COD) in kg O[[1]](#footnote-1) per air dry tonne[[2]](#footnote-2)  Proportion of chemically oxidising organic compounds in the waste water (usually based on analyses using dichromate oxidation) given as O * Total nitrogen content in kg N per air dry tonne  Total-N (Total nitrogen, Tot-N), given as N. This includes organic nitrogen, free ammonia and ammonium (NH4+-N), nitrites (NO2--N) and nitrates (NO3--N). * Total phosphorous content in kg P per air dry tonne  Total-P (Tot-P), given as P. This includes both dissolved phosphorous and also undissolved phosphorous which enters the waste water in the form of precipitates or microorganisms.   The following reference values apply to the named substances:  Chemical oxygen demand: COD\_reference = 18.00 kg O/air dry tonne  Total nitrogen content: N\_reference = 0.25 kg N/air dry tonne  Total phosphorous content: P\_reference = 0.03 kg P/air dry tonne  Based on the measurement values, the applicant must calculate so-called emission points (P) for each of the measured substances as a ratio between the measurement value and the reference value as follows:  The following requirements apply:  For each of the emission points P\_COD, P\_N and P\_P, a value of 1.5 must not be exceed in each case and the sum of the emission points for the emissions to waste water (P\_COD, P\_N, and P\_P) must not exceed a value of 3.0.  In addition, the AOX value in the waste water must also be determined. | | | | | |
| **3.3.3** | **Emissions to air in the production of the pulp** | | | | | |
|  | Strict requirements apply to the emissions to air during the production of the pulp used in the thermal paper. The emissions to air include those from the recovery boiler, lime kiln, steam boiler and incinerator for strong smelling gases. Diffuse emissions must also be taken into account. The applicant must determine the levels of the following chemical substances in the emissions to air at the pulp plant (measurement specifications, see Appendix D “Measurement of emissions to air”):   * Gaseous sulphur compounds (sulphur) in kg S per air dry tonne   Total reduced sulphur (TRS): Sum of the following reduced bad-smelling sulphur compounds released during the production of the pulp: hydrogen sulphide, methyl mercaptan, dimethyl sulphide and dimethyl disulfide, given as S, plus sulphur dioxide (SO2), given as S   * Nitrogen oxide (NOx) in Kg NOx per air dry tonne   Sum of nitrogen oxide (NO) and nitrogen dioxide (NO2), given as NO2   * Dust emissions (dust) in kg dust per air dry tonne   Sum of the dust emissions at the recovery boiler and lime kiln, given as dust Solid particles of any form, structure or thickness that are dispersed during the gas phase and remain upstream of a defined filter after drying under specified conditions. According to DIN EN 13284 - 1  The following reference values apply to the named substances:   * Gaseous sulphur compounds: SulphurReference = 0.6 kg S/air dry tonne * Nitrogen oxide: NOxReference = 1.5 kg NO/air dry tonne   Based on the measurement values, the applicant must calculate so-called emission points (P) for each of the measured substances as a ratio between the measurement value and the reference value as follows:  The following requirements apply:  For each of the emission points PSulphur and PNOx, a value of 1.5 must not be exceed in each case and the sum of the emission points for the emissions to air (PSulphur and PNOx) must not exceed a value of 2.0.  Dust emissions must not exceed the limit value of 0.33 kg dust/air dry tonne. | | | | | |
| **3.3.4** | **Bleaching process used in the production of the pulp** | | | | | |
|  | In the production of the pulp, the following requirements apply to the bleaching process:   * The pulp must not be bleached using elementary chlorine. * The specific amounts of poorly biodegradable complexing agents (ethylenediaminetetraacetic acid (EDTA) and diethylenetriaminepentaacetic acid (DTPA)) must be stated in kg per air dry tonne, expressed as an annual average. * A total chlorine free (TCF) process is preferred for the bleaching process, although an elemental chlorine free (ECF) process is permitted. In this case, the specific amount of bleaching agent consumed, expressed as an annual average, must be stated in kilograms of ClO2 per air dry tonne. The adsorbable organically combined halogens (AOX) must be measured in the waste water. The annual average for the measured AOX emissions to waste water must not exceed a value of 0.12 kg AOX per air dry tonne. | | | | | |
| **3.3.5** | **Energy consumption in the production of the pulp** | | | | | |
|  | The specific energy consumption in the production of the pulp must not exceed the following limit values:   * Electrical energy: ≤1,125 kWh/air dry tonne * Heating energy: ≤7,500 kWh/air dry tonne   Electrical energy (electricity):  The electricity consumed in the production of the pulp must be measured over a period of 12 months and stated in relation to the pulp produced (air dry tonnes) during this period.  The electricity consumption is calculated as follows:  Electricity consumption = electricity generated at the plant  plus the electricity purchased from outside of the plant  less the electricity sold outside of the plant  less the electricity consumed at the treatment plant  less the electricity consumed for processes not related to the pulp production at the plant  Heating energy (fuel):  The heating energy consumed in the production of the pulp must be measured over a period of 12 months and stated in relation to the pulp produced (air dry tonnes) during this period. Heating energy can be in the form of gaseous, liquid or solid fuels (e.g. natural gas, heating oil, biomass) or in the form of heat transfer media (e.g. water, steam). For the energy content of the fuel, the lower heating value (LHV) for the relevant fuel is used. In the case of damp fuels (e.g. wood, biomass), the effective calorific value (after subtracting the evaporation energy of the enclosed water) is used, while the effective energy content is used for heat transfer media.  The heating energy consumption is calculated as follows:  Heating energy consumption = fuel produced at the plant  plus the purchased heating energy or fuel  less the heating energy or fuel sold  less 1.25 x the electricity generated at the plant  less heating energy consumed for processes not related to the pulp production at the plant  Please note:  The heating energy includes all fuels used (their lower heat value) and the heating energy recovered from the incineration of pulping liquors and waste at the production site (e.g. waste wood, sawdust, pulping liquor, waste paper, rejected paper), as well as the heating energy recovered from the plant’s own electricity generation. The applicant must present the calculation for the energy consumption for the production of the pulp in the form of an energy statement together with the calculation parameters used. If the applicant does not have their own heating values for the fuels used, the heating values documented in the Nordic ecolabel for paper products[[3]](#footnote-3) may be used. | | | | | |
| **3.4.1** | **Direct discharge** | | | | | |
|  | In the production of thermal paper, the emission limits for the waste water load that are listed by the EU Commission in the “Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board PP BREF“ must be complied with by direct dischargers. These limits have been implemented in Germany in Appendix 28 of the German Waste Water Ordinance. The limits listed in Table 1 go above and beyond the statutory requirements in some cases so that the environmental label can only be used to certify paper that is produced in a particularly environmentally friendly way. Therefore, the emission limits for the waste water load that are listed by the EU Commission in the “Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board” must be complied with by direct dischargers. These limits are listed in Table 1 below:  Table 1: Maximum limits for the average annual emission parameters (waste water) in the paper production process   |  |  | | --- | --- | | Parameter | Maximum limit for the waste water emissions (average annual value as a load or concentration)[[4]](#footnote-4) | | Volumetric flow rate of waste water | 15 m3/Adt | | COD | 3 kg/Adt | | BSB5 | 0.15 kg/Adt or 25 mg/l | | Total N (inorganic + organic N) (TNb) | 0.07 kg/Adt or 15 mg/l | | Total P | 0.008 kg/Adt or 1.2 mg/l |   Adt = air dried ton  TNb = total nitrogen bound. This parameter defines the total pollution of water by nitrogen compounds, which can appear in the form of e.g. ammonia, nitrites, nitrates or organic nitrogen compounds. A suitable method for determining this parameter is DIN EN 12260. | | | | | |
| **3.4.2** | **Indirect discharge** | | | | | |
|  | Indirect dischargers must declare compliance with the emission limits for the parameters stated in Table 1 after treatment. | | | | | |
| **3.5** | **Requirements for energy consumption and the origin of the electricity for the paper production process** | | | | | |
|  | The paper industry is one of the most energy-intensive industries in Germany, which is why it is important to further reduce the consumption of heat and electricity at the production sites and switch to environmentally friendly/friendlier energy sources.  For the production of thermal paper, the following limits for the consumption of electricity and process heat must not be exceeded as an annual average:   * Electrical power: ≤1,000 kWh/t paper * Process heat: ≤1,700 kWh/t paper   These limits were derived from the data collected for the BAT reference document for the paper and pulp industry (PP BREF[[5]](#footnote-5), here Section 7.3.15, Table 7.30, 7.31).  The sum of the process heat and electrical power is permitted to exceed the limit by a total of 10 %.  In addition, the applicant must state the energy mix used at the plant based on the type and origin of the energy. The consumed electricity should be sourced from renewable energies. | | | | | |
| **3.6** | **General exclusion of substances with certain properties** | | | | | |
|  | No substances may be added as colourants (incl, printing inks, toners, dyes), coating materials, production aids and paper refining agents that contain constituent components with the following properties:  It is prohibited to add substances of very high concern (SVHC) that have been identified as being particularly alarming in accordance with Article 57, Paragraph 1 of Regulation (EC) No 1907/2006 (REACH) and added to the so-called “candidate list” according to Article 59, Paragraph 1 of the same regulation[[6]](#footnote-6).  No substances may be added to the product that   * according to the criteria of Regulation (EC) No 1272/2008 are classified with the following H Phrases named in Table 2 or which meet the criteria for such classification. * or which are classified as carcinogenic, mutagenic or reprotoxic substances in the currently valid version of TRGS 905[[[7]](#footnote-7)](#_bookmark13).   Table 2: H Phrases according to the CLP Regulation   |  |  | | --- | --- | | H Phrases according to the  CLP Regulation | Wording | | H340 | May cause genetic defects. | | H341 | Suspected of causing genetic defects. | | H350 | May cause cancer. | | H350i | May cause cancer if inhaled. | | H351[[8]](#footnote-8) | Suspected of causing cancer. | | H360F | May damage fertility. | | H360D | May damage the unborn child. | | H360FD | May damage fertility. May damage the unborn child. | | H360Fd | May damage fertility.  Suspected of damaging the unborn child. | | H360Df | May damage the unborn child.  Suspected of damaging fertility. | | H361f | Suspected of damaging fertility. | | H361d | Suspected of damaging the unborn child. | | H361fd | Suspected of damaging fertility.  Suspected of damaging the unborn child. | | Other potential hazards | | | H362 | May cause harm to breast fed children. | | H370 | Causes damage to organs. | | H371 | May cause damage to organs. | | H372 | Causes damage to organs through prolonged or repeated exposure. | | H373 | May cause damage to organs through prolonged or repeated exposure. | | H400 | Very toxic to aquatic life. | | H410 | Toxic to aquatic organisms. | | H411 | Toxic to aquatic organisms with long-lasting effects. |   The use of substances or mixtures which upon processing change their properties (e.g. become no longer bioavailable, undergo chemical modification) in a way that the identified hazard no longer applies are exempted from the above requirement. | | | | | |
| **3.7** | **Other requirements for production aids and paper refining agents** | | | | | |
|  | Only those production aids and paper refining agents that are listed in Recommendation XXXVI from the BfR for “Paper and board for food contact”[[9]](#footnote-9) (positive list) in sections B (production aids) and C (special paper refining agents) may be added to the product. The maximum quantities stated in this list must be observed. | | | | | |
| **3.8** | **Bisphenol A and other colour developers** | | | | | |
|  | In the production of thermal paper for direct thermal printing, no chemical colour developing systems may be used that are demonstrably toxic to humans, ecotoxic, very mobile or persistent or are suspected of being so. The use of the following colour developers is strictly prohibited:  CAS 80-05-7 Bisphenol A [[10]](#footnote-10),  CAS 77-40-7 Bisphenol B,  CAS 79-97-0 Bisphenol C,  CAS 620-92-8 Bisphenol F,  CAS 80-09-1 Bisphenol S,  CAS 97042-18-7 Bisphenol S-MAE,  CAS 2167-51-3 Bisphenol P,  CAS 41481-66-7 TGSH,  CAS 95235-30-6 D8,  CAS 191680-83-8 D90,  CAS 93589-69-6 DD70,  CAS 232938-43-1 Pergafast 201 [[11]](#footnote-11),  CAS 321860-75-7 UU.  No colour developers are used.  The following colour developer is used: | | | | | |
| **3.9** | **Biocides** | | | | | |
|  | In the production of the thermal paper, only those slimicides (substances in product type 12) and material preservatives for fibres (substances in product type 9) in the sense of the Biocidal Products Regulation that have been approved in accordance with the Biocidal Products Regulation (EU) No. 528/2012 (EU list of approved active substances) or are still being examined as a notified existing active substance for the relevant type of biocides as part of the EU work programme for the systematic examination of all existing active substances may be used.  Accordingly, it is only permitted to use those biocidal products classified in product types 9 and 12 that have been explicitly approved for the desired application.  For a transitional period, biocidal products that contain notified existing active substances of product types 9 and 12 that are still being examined as part of the EU examination process can also be used without approval if they have been registered in accordance with the German ordinance on the notification of biocidal products pursuant to the German Chemicals Act (Biocide Notification Ordinance – ChemBiozidMeldeV).  In addition, the biocidal products used in the product must not contain any substances that have been considered as candidates for substitution according to Article 10 of the EU Biocidal Products Regulation 528/2012.  Until the approval requirements for the biocidal products containing notified existing active substances come into force, only those substances that are also listed in Recommendation XXXVI from the BfR are permitted.  It is also possible that production aids and paper refining agents used for the production of the thermal paper contain biocidal products in product type 6 (protection of finished products in containers against microbial deterioration to ensure their shelf life) that have been made available on the market. Residual content of these biocidal products will be accepted. | | | | | |
| **3.13** | **Requirements for the recyclability of the thermal paper** | | | | | |
|  | In order to produce thermal paper, coating colours are applied to a base paper. These coatings produce the text when heat is applied. Unprinted thermal paper does not contain any printing inks. Deinking is a standard process in the preparation of graphic paper or graphic cardboard. Thermal paper should not have a significant negative impact on this process. The recyclability of the paper is verified by testing it in accordance with the defibration and flotation conditions in INGEDE Method 11 (Deinability test, version January 2018).  Unprinted thermal paper must comply with the following criteria:   * Using a starting mixture of 100 % wood-free, uncoated copy paper printed on both sides with a dry toner and with a surface coverage of 5 % (CEN\_TEST Master from EN 12281) on each side, the light absorption coefficient after flotation must only deteriorate by 6 points and filtrate darkening by 3 points when 1 % thermal paper is added to the mixture, in comparison to the floated starting mixture without thermal paper.   or   * Using a starting mixture of recovered paper from newspapers/magazines (offset, uncoated) with a 60%/40% ratio, the light absorption coefficient after floatation must only deteriorate by 6 points and filtrate darkening by 3 points when 5 % thermal paper is added to the mixture, in comparison to the floated starting mixture without thermal paper. | | | | | |

**Declarations by the applicant: Finished products made of thermal paper**

We hereby declare compliance with the following requirements

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| **Paragraph** | **Requirement** | |
| **3.14.1** | **Use of paper** | |
|  | The finished product is exclusively produced using the following thermal paper certified with the environmental label: | |
|  | **Name of the thermal paper:** |  |
|  | **Manufacturer:** |  |
|  | **Contract number:** |  |
| **3.14.2** | **Mineral oils** | |
|  | For printing the finished products, no mineral oil-based additives, colourants or mineral oils that contain aromatic hydrocarbons (with ≥ 10 carbon atoms) as a component may be added. In the case of aliphatic hydrocarbons, only those substances with a chain length of C10 to C20 may be used. Plant-based substitutes for mineral oil should be free of genetic engineering and sourced from sustainable cultivation. The following certification systems are considered suitable for renewable raw materials: RSPO (Roundtable on Sustainable Palmoil), ISCC+, ISCC EU (International Sustainable & Carbon Certification) or RSB (Roundtable on Sustainable Biomaterial), Roundtable Responsible Soy (RTRS) und ProTerra (ProTerra Foundation) or a comparable certification system whose scope and requirement standards are equivalent to one of the named certification systems. | |
| **3.14.3** | **Perfluorinated or polyfluorinated substances** | |
|  | To avoid the release of persistent substances into the environment, the following requirements must be fulfilled:  No perfluorinated and polyfluoroalkyl substances (PFAS) may be added during production. | |
| **3.14.4** | **Recyclability of finished products made of thermal paper** | |
|  | In accordance with the requirements in Paragraph 3.13, it must be possible to largely remove the colourant from the finished products made of thermal paper in a subsequent recycling process. | |
| **3.14.5** | **Fitness for use** | |
|  | The readability and durability requirements must be guaranteed by the finished products made of thermal paper. The manufacturer must use this information to develop storage recommendations for the user, e.g. for documentation purposes. | |

1. O stands for oxygen [↑](#footnote-ref-1)
2. air dry: air dried pulp [↑](#footnote-ref-2)
3. <https://www.nordic-ecolabel.org/globalassets/ai001_3.0_basic_module_cd.pdf> [↑](#footnote-ref-3)
4. BREF (Best Available Techniques Reference Document) full version and BAT conclusions in German and English at <https://www.umweltbundesamt.de/themen/wirtschaft-konsum/beste-verfuegbare-techniken/sevilla-prozess/bvt-merkblaetter-durchfuehrungsbeschluesse> [↑](#footnote-ref-4)
5. See footnote 21 [↑](#footnote-ref-5)
6. <https://www.reach-clp-biozid-helpdesk.de/SiteGlobals/Forms/Suche/DE/Kandidatenlistesuche_Formular.html?nn=8790910> [↑](#footnote-ref-6)
7. <https://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/pdf/TRGS-905.pdf> [↑](#footnote-ref-7)
8. An exception is made for titanium dioxide because its classification is only based on the respirable dust. [↑](#footnote-ref-8)
9. The currently valid version of the BfR recommendation [↑](#footnote-ref-9)
10. [echa.europa.eu/de/registry-of-restriction-intentions/-/dislist/details/0b0236e1853413ea](file:///\\uba\gruppen\III1.3\pub\Überarbeitung%20Thermopapier\echa.europa.eu\de\registry-of-restriction-intentions\-\dislist\details\0b0236e1853413ea) [↑](#footnote-ref-10)
11. [echa.europa.eu/documents/10162/a264b52b-c474-5cad-7ef1-8485245e3d39](file:///\\uba\gruppen\III1.3\pub\Überarbeitung%20Thermopapier\echa.europa.eu\documents\10162\a264b52b-c474-5cad-7ef1-8485245e3d39) [↑](#footnote-ref-11)