Annex 3 **For the Application according to DE-UZ 239 Office Equipment with Printing Function**	

Declaration by the Device Manufacturer

The company

hereby confirms with respect to the device(s) or series:

Checklist "Recyclable Design of Office Equipment with Printing Function"

Using the Checklist

1) The equipment must be designed so that they are suitable for recycling and comply with the following requirement groups:

   A: Requirements regarding design for disassembly

   B: Requirements concerning a material selection for recyclability

   C: Reusability of components and assemblies

   The Checklist is organised in these requirement groups.

2) The requirements apply in reference to certain assemblies which are listed in the column "Applies to Assembly(-ies)": entire unit/all assemblies, casing parts, chassis, mechanical parts, electric/electronic assemblies, only modules or containers for colourants.

   Assemblies consist of at least two components that are joined together in a force- or form-fit manner.

   Casing parts protect the fixtures from environmental impacts, and the user from contact with moving and/or radiating components as well as with components under voltage. The casing consists of casing parts.

   The **chassis** is the supporting component of the device.

   Electric/electronic assemblies (and components) include at least one electronic or electric component.

   Modules for colourants contain – additionally to the container for colourants – one or more functional elements such as, for example, a photo semiconductor, a charging unit, a cleaning unit, an excess toner reservoir or an inkjet print head with nozzles and one or more integrated ink tanks.

   Mechanical parts are not included in electric/electronic assemblies and perform mechanical or optical functions (except for the casing and chassis).

   Recycling is the material utilisation of used (plastic) components.

   Reuse means the repeated use of components in their original design.

3) The requirements are divided into "**M**"-requirements, which must be fulfilled, and "**S**"-requirements, which should be fulfilled. The category of each requirement is identified in the column "Cat".

   The **compliance with the requirements** must be confirmed for the respective questions under "**Yes**". If the unit under review does not contain the assembly(-ies) in question, it will also be assigned a "**Yes**".

   The requirements for a design that is environmentally sound and suitable for recycling are met if the question at the end of the Checklist earns a "**Yes**".

Requirement	Applies to Assembly(-ies)	Cat.	Compliance? **Yes**

A: Requirements regarding design for disassembly

A.1	Are assemblies made of mutually incompatible materials separable or connected by separation aids?	Casing parts, chassis, electric/electronic assemblies, modules for colourants	M	☐

Connections between casing and chassis as well as between chassis and electric/electronic assemblies are important connections. Their separability is required for the separate reuse/recycling of the assemblies and materials and for a quick and safe separation of components containing harmful substances. Glued labels (i.e. company logos and stickers) are concerned as well. The term “separation aids” refers to predetermined breaking points, for example.

A.2	Are electric/electronic assemblies easy to find and to remove?	Entire unit, including lamps	M	☐

The minimal strategy for recycling is to remove hazardous materials. Electric/electronic assemblies and components according to Appendix 4 of the Electrical and Electronic Equipment Act (ElektroG), such as batteries and capacitors which have a risk of containing constituents bearing hazardous substances, as well as fluorescent lamps containing mercury, must be easy to find and separate.

A.3	Are detachable connections easy to find?	Casing parts, chassis, modules for colourants	S	☐

Connections that have to be detached during disassembly must be easy and quick to find. If they are hidden, this should be stated on the product (e.g. by laser labelling or injection moulding).

A.4	Can disassembly be done exclusively with general-purpose tools?	Casing, chassis, electric/electronic assemblies	M	☐

"General-purpose tools" refers to widely used, commercially available tools.

A.5	Have the points of application and the work space required for disassembly tools been considered?	Casing parts, chassis, electric/electronic assemblies	M	☐

At points of application the force of the tool is transmitted to the connecting element. This requires there to be enough work space to complete the loosening movement. This requirement especially covers snap-on connections, which, in contrast to the assembly process, can often be loosened by using tools only.

A.6	Are all connecting elements that have to be dismantled for recycling axially accessible?	Casing parts, chassis, electric/electronic assemblies	S	☐

Connections to be dismantled that can be accessed only with difficulty or indirectly make disassembly more laborious. For example, releasing screw connections with radial accessibility is time consuming.

A.7	Can screw connections for fastening assemblies be tightened with no more than three tools?	Casing parts, chassis, electric/electronic assemblies	M	☐

Standardised and uniform connection elements facilitate disassembly. The fewer tools needed, the simpler assembly and disassembly are. A tool is characterised by its type of drive (e.g. Phillips-head screwdriver) and size of drive (wrench size).

Requirement		Applies to Assembly(-ies)	Cat.	Compliance? **Yes**
A.8	Are detachable connections of plastic components at least half click/snap-on connections?	Casing parts	S	☐

The proportion of click and snap-on connections is the basis for assessing whether joining techniques have been selected for ease of disassembly.

A.9	Can the disassembly be performed by one person?	Entire unit	M	☐

Any number of snap-on connections of the same joining direction can be assembled simultaneously, whereas this may not hold for disassembly if the undercut angle is more than 90º. This requirement is not met if more than two snap-on connections have to be loosened at the same time.

A.10	Can the supporting surface be maintained during the entire disassembly process?	Unit to be handled	S	☐

With this requirement, the unit is indirectly checked for a hierarchical design.

A.11	Are casing parts free of electronic assemblies?	Casing parts	M	☐

To facilitate the clean and fast removal of hazardous materials and the separation of electronic fractions, all electric/electronic assemblies must be fastened to the chassis. The casing must not contain any electric/electronic assemblies. A control element fastened to the casing and casing parts at the same time fulfilling the function of the chassis are not considered as casing parts here.

A.12	Has the manufacturer carried out a trial disassembly (e.g. in accordance with A.1 - A.11) and recorded it with focus on weak spots?	Entire unit	M	☐

B: Requirements concerning a material selection for recyclability

B.1	Is the variety of materials used for plastic components of similar function limited to one material?	Casing parts, chassis, mechanical parts ≥ 25 g	M	☐

The smaller the variety of materials, the more efficient the separation and recycling processes are. This requirement does not apply to parts that are demonstrably reused.

B.2	Are components that are made of the same plastic dyed uniformly or compatibly?	Casing parts, modules for colourants	S	☐

Uniform dyeing of parts consisting of the same plastic improves possibilities to introduce material cycles for recycling. Compatible dyeings are different degrees of brightness of a colour (e.g. grey and anthracite). If in addition different types of plastics have different colours, this "colour code" facilitates reliable type-specific separation of plastics. Control elements on the equipment are exempt from this requirement.

B.3	Has the coating of plastic components been limited to a minimum? Have no galvanic coatings been used?	Casing parts, modules for colourants	M	☐

Large-area lacquer coatings, vapour deposition and imprints on plastic components require additional treatment for removal if the materials are to be recycled subsequently. Reasons must be given for coatings of special parts. Laser inscriptions are not considered as imprints. Demonstrably reused parts according to para. 3.1.1.4 are not affected by this requirement.

B.4	Are recyclable materials and material composites used?	Casing parts, chassis, modules for colourants	M	☐

This means that it is possible to produce recycled material identical to the original material (original recycling).

B.5	Are assemblies and materials easy to dismantle according to Annex 4 of the Electrical and Electronic Equipment Act (ElektroG)?	Entire unit	M	☐

Annex 4 ElektroG defines a number of parts that must be removed from separately collected waste electronic equipment.

B.6	Have materials been selected in accordance with B.1 to B.5 and has this been documented in writing?	Casing parts, chassis, modules for colourants	M	☐

B.7	Are plastic parts >25 g with a flat surface of at least 200 mm^2 marked in accordance with EN/ISO 11469 considering ISO 1043?	Entire unit (exempted are plastic parts contained in reused complex assemblies)	M	☐

The marking of plastics enables all recycling companies to separate plastics by type.

B.8	Is the share of post-consumer recycled plastics stated in the information and data sheet, calculated as percentage of total plastic (by weight) and indicated in intervals of 0-1%, 1-5%, 5-10%, 10-15%, 15-20%, and so on (in 5% intervals)?	All assemblies	M	☐

The following parts may be excluded from the calculation of the recyclate share: printed circuit boards, cables, connectors, electronic components, optical components, electrostatic discharge (ESD) components, electromagnetic interference (EMI) components, and biobased plastic material.

C: Reusability of components and assemblies

C.1	Are at least 50% of the components of the device, excluding standard parts, identical in construction to those of other devices of the same manufacturer, and the same performance category and generation?	Entire unit	M	☐

C.2	Have provisions been made to use refurbished assemblies or components and is this permitted?	Entire unit	M	☐

The manufacturer should be willing to use assemblies and components refurbished under his supervision as spare parts or ETN (Equivalent To New) parts in the device.

C.3	Can modules or containers for colourants for single colours be replaced separately?	Modules as well as containers for colourants	M	☐

The separate replacement contributes to economical handling of materials.

C.4	Is the use of refurbished toner modules and refurbished ink modules and containers according to DIN 33870-1, DIN 33870-2 and DIN 33871-1 not prevented by constructive, software-based or other measures and are the following functions available? (only if these functions were originally available): - Page count display, - Toner/Ink level display.	Entire unit	M	☐

C.5	Can modules for colourants be refurbished?	Modules for colourants (exempted are containers for colourants)	M	☐

Reuse shall not be precluded by constructive measures.

Have all “M”-requirements been fulfilled and confirmed with a “Yes”?	M	☐

Date: (Signature of authorized representative and company stamp)