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Information technology — Destruction of data carriers —

Part 2: Requirements for equipment for destruction of data carriers

Technologies de l'information — Destruction de véhicules de données —

Partie 2: Exigences aux machines de destruction de véhicules de données

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Foreword

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This document was prepared by DIN, German Institute for Standardization (as national standard DIN 66399-2) and drafted in accordance with its editorial rules. It was assigned to Joint Technical Committee ISO/IEC JTC 1, *Information technology*, and adopted under the "fast-track procedure".

A list of all parts in the ISO/IEC 21964 series can be found on the ISO website.

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Information technology — Destruction of data carriers —

Part 2: Requirements for equipment for destruction of data carriers

1 Scope

This standard applies to machines for the destruction of data carriers. This standard specifies the requirements for machines in order to ensure the safe destruction of data carriers.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN 19054, *Transparent microfiche, size A6 — General requirements, microfilming methods, headers and title areas in technical documents and catalogues*

ISO/IEC 21964-1, *Information Technology — Destruction of data carriers — Part 1: Principles and definitions*

ISO 216, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series, and indication of machine direction*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO/IEC 21964-1 apply

4 Requirements

4.1 Degree of destruction

Machines and equipment that comply with this standard shall meet at least the requirements in Tables 1 to 6 as regards the degree of destruction.

4.2 Materials referred to in security levels

P – information in original size (paper, film, printing plates etc.)

F – information in miniaturized form (microfilm/microfiche etc.)

O – information on optical data carriers (CD/DVD etc.)

T – information on magnetic data carriers (floppy discs, ID cards, magnetic tape cassettes etc.)

H – information on hard drives with magnetic data carriers (hard drives)

E – information on electronic data carriers (memory sticks, chip cards, solid-state drives, mobile communication equipment etc.)

4.3 Limits for particle sizes

The machines and equipment for destroying data carriers are classified according to the degree of destruction, taking the type of data carrier into consideration. The following table shows the limit values of each security level as regards the condition, shape and size after destruction.

The security level shall be tested and demonstrated in the form of a test certificate, declaration of conformity, certificate, expertise or other assessment. This can be carried out by the manufacturer or other competent bodies. The certificate shall be suitably enclosed with the user documentation for the machine.

For all data carriers, the additionally specified methods for the highest security levels shall also cover the requirements for the lower security levels.

Users should check the particle size during the operating life of the machine or equipment, because wear or damage to the shredding tools can reduce security.

Table 1 — Information in the original size

Information in the original size e.g. paper, film, printing plates		
Security level	**Condition, shape and size after destruction**	**Tolerance**
P-1	Particle size ≤ 2 000 mm^2 or Strip width ≤ 12,0 mm Unlimited strip length	10 % of the material may exceed the specified particle size, but shall not be more than 3 800 mm^2 in size.
P-2	Particle size ≤ 800 mm^2 or Strip width ≤ 6,0 mm Unlimited strip length	10 % of the material may exceed the specified particle size, but shall not be more than 2 000 mm^2 in size.
P-3	Particle size ≤ 320 mm^2 or Strip width ≤ 2 mm Unlimited strip length	10 % of the material may exceed the specified particle size, but shall not be more than 800 mm^2 in size.
P-4	Particle size ≤ 160 mm^2 and for regular particles: Strip width ≤ 6 mm	10 % of the material may exceed the specified particle size, but shall not be more than 480 mm^2 in size.
P-5	Particle size ≤ 30 mm^2 and for regular particles: Strip width ≤ 2 mm	10 % of the material may exceed the specified particle size, but shall not be more than 90 mm^2 in size.
P-6	Particle size ≤ 10 mm^2 and for regular particles: Strip width ≤ 1 mm	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm^2 in size.
P-7	Particle size ≤ 5 mm^2 and for regular particles: Strip width ≤ 1 mm or Dissolved with particle size ≤ 5 mm^2 or Shredded ash with particle size ≤ 5 mm^2	The particle size shall not be exceeded.

Table 2 — Information in miniaturized form

Information in miniaturized form e.g.: microfilm		
Security level	**Condition, shape and size after destruction**	**Tolerance**
F-1	Particle size ≤ 160 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 480 mm² in size.
F-2	Particle size ≤ 30 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 90 mm² in size.
F-3	Particle size ≤ 10 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm² in size.
F-4	Particle size ≤ 2,5 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 7,5 mm² in size.
F-5	Particle size ≤ 1,0 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 3,0 mm² in size.
F-6	Particle size ≤ 0,5 mm² or Shredded ash ≤ 0,5 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 1,5 mm² in size.
F-7	Particle size ≤ 0,2 mm² or Shredded ash ≤ 0,2 mm² or Dissolved	The particle size shall not be exceeded.

Table 3 — Information on optical data carriers

Information on optical data carriers e.g.: CD/DVD		
Security level	**Condition, shape and size after destruction**	**Tolerance**
O-1	Particle size ≤ 2 000 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 3 800 mm² in size.
O-2	Particle size ≤ 800 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 2 000 mm² in size.
O-3	Particle size ≤ 160 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 480 mm² in size.
O-4	Particle size ≤ 30 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 90 mm² in size.

Table 3 *(continued)*

Information on optical data carriers e.g.: CD/DVD		
O-5	Particle size ≤ 10 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm² in size.
O-6	Particle size ≤ 5 mm² or Shredded ash ≤ 5 mm² or Melted compound	10 % of the material may exceed the specified particle size, but shall not be more than 15 mm² in size.
O-7	Particle size ≤ 0,2 mm² or Shredded ash ≤ 0,2 mm² or Melted compound	10 % of the material may exceed the specified particle size, but shall not be more than 0,6 mm² in size.

Table 4 — Information on magnetic data carriers

Information on magnetic data carriers e.g.: floppy discs, ID cards, magnetic tape cassettes		
Security level	**Condition, shape and size after destruction**	**Tolerance**
T-1	Medium physically unusable	
T-2	Medium broken into several parts and Particle size ≤ 2 000 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 3 800 mm² in size.
T-3	Particle size ≤ 320 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 800 mm² in size.
T-4	Particle size ≤ 160 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 480 mm² in size.
T-5	Particle size ≤ 30 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 90 mm² in size.
T-6	Particle size ≤ 10 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm² in size.
T-7	Particle size ≤ 2,5 mm² or Shredded ash ≤ 2,5 mm² or Melted compound	10 % of the material may exceed the specified particle size, but shall not be more than 7,5 mm² in size.

Table 5 — Information on hard drives with magnetic data carriers

Information on hard drives with magnetic data carriers		
Security level	**Condition, shape and size after destruction**	**Tolerance**
H-1	Hard drive physically/electronically unusable	
H-2	Data carrier damaged	
H-3	Data carrier deformed	

Table 5 *(continued)*

Information on hard drives with magnetic data carriers		
H-4	Data carrier broken into several pieces and deformed and Particle size ≤ 2 000 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 3 800 mm² in size.
H-5	Data carrier broken into several pieces and deformed and Particle size ≤ 320 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 800 mm² in size.
H-6	Data carrier broken into several pieces and deformed and Particle size ≤ 10 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm² in size.
H-7	Data carrier broken into several pieces and deformed and Particle size ≤ 5 mm² or Heated above Curie temperature	10 % of the material may exceed the specified particle size, but shall not be more than 15 mm² in size.

Table 6 — Information on electronic data carriers

Information on electronic data carriers (solid-state drives) e.g.: memory sticks, chip cards, solid-state drives (SSD), mobile communication equipment		
Security level	**Condition, shape and size after destruction**	**Tolerance**
E-1	Medium physically/electronically unusable	
E-2	Medium broken into pieces	
E-3	Medium broken into pieces and Particle size ≤ 160 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 480 mm² in size.
E-4	Data carrier (chip) broken into pieces and Particle size ≤ 30 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 90 mm² in size.
E-5	Data carrier (chip) broken into several pieces and Particle size ≤ 10 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 30 mm² in size.
E-6	Data carrier (chip) broken into several pieces and Particle size ≤ 1 mm² or Shredded ash ≤ 1 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 3 mm² in size.
E-7	Data carrier (chip) broken into several pieces and Particle size ≤ 0,5 mm² or Shredded ash ≤ 0,5 mm²	10 % of the material may exceed the specified particle size, but shall not be more than 1,5 mm² in size.

4.4 Feed and collection apparatus

There shall be an apparatus that allows data carriers that have to be destroyed to be manually or mechanically fed in such a way that they are completely gripped and fed to the destruction mechanism.

There shall also be an apparatus that collects the destroyed data media, for example a discharge chute, a collector or an extractor unit.

4.5 Checking that destruction is complete

Machines and equipment for destroying data carriers shall be designed to allow users to check that there is no residual material inside which has not been completely destroyed.

Users or service personnel should be able without any undue effort to check for data carriers that have not been destroyed. Instructions on this shall be given in the operating manual or documentation supplied with the equipment.

5 Testing

5.1 Ambient conditions

Unless otherwise agreed, all tests are carried out in the following ambient conditions:

— temperature 10 °C to 40 °C;

— relative humidity 30 % to 80 %.

5.2 Test material

The following materials shall be used for testing machines or equipment for destroying data carriers, provided no other agreements are made:

— for material class P: 80 g/m^2 paper in A4 format in accordance with ISO 216. The test material shall be dry and free of staples, paper clips and dirt;

— for material class F: microfiche in accordance with DIN 19054 in A6 format according to ISO 216;

— for material class O: CD/DVD; Ø 120 mm polycarbonate;

— for material class T: floppy discs: 3 ½ inch format;

— for material class H: hard drives: 3 ½ inch format, construction height up to 28 mm for complete hard drive or its discs;

— for material class E: Solid-state drives: complete medium or its circuit board with chip.

When testing machines and equipment for destroying data carriers that are not listed above as test material (such as file folders or ring binders), suitable material for the purpose shall be used and documented.

5.3 Testing the rated throughput

During type testing, it shall be verified whether the machine or equipment achieves the rated throughput stated by the manufacturer. On equipment which destroys material individually or in stacks, the number of data carriers per cycle and the feed rate shall be determined. For machines or equipment where the design prevents the rated throughput from being determined using the feed rate, it shall be done by measuring the time taken to destroy a defined quantity of test material. A suitable quantity shall be chosen according to the size of the machine or equipment.

5.4 Testing the degree of destruction

5.4.1 Purpose of the test

The purpose of testing the degree of destruction is to assign machines and equipment for destroying data carriers to one of the seven security levels. The assignment is based on the values specified in 4.3 regarding the condition, shape, size and tolerance.

5.4.2 Feeding in the test material

The machine or equipment shall be free of residual material that might falsify the test results. The test material shall be weighed before and after it is destroyed. If there is a difference, a check shall be performed to see if any test material remaining in the machine has been destroyed. Manufacturers are obliged to indicate areas where data carriers that are not destroyed may accumulate in the machinery and equipment, and how they can be removed.

Test material that is destroyed during the start-up and run-out phase of the machine or equipment is included in the measurement. If the design of the machine or equipment allows, the following feed methods shall be tested:

— individually;

— in stacks or;

— as loose material.

5.4.3 Sample quantity

The sample quantity should be approximately the amount that the machine or equipment processes in one minute of operation, but not more than 10 kg, with the machine or equipment operated at the rated throughput.

5.4.4 Sampling from destroyed test material

In order to determine the size distribution of the destroyed data carriers, the sample shall be statistically representative, which means that when taking or dividing samples, no sizes shall be under- or overrepresented.

5.4.5 Analysis

The following methods are available, depending on the test material:

5.4.5.1 Optical analysis

The test material shall be measured in a manual or semi-automated analysis and pre-sorted into:

— particles whose condition, shape and size are within the limits stated in 4.3, and

— particles that exceed the limits in 4.3 but are still within the tolerance range.

The proportion (by weight) of each shall be measured. There shall be no particles that exceed the limits in 4.3 and are outside the tolerance range.

5.4.5.2 Sieve analysis

The test material shall be measured and pre-sorted by sieving into:

— particles whose condition, shape and size are within the limits stated in 4.3;

— particles that exceed the limits in 4.3 but are still within the tolerance range.