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Asset marking products

Part 1: Vehicles and associated equipment — Specification



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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 July 2022. It was prepared by Technical Committee GW/2, *Secure storage of cash, valuables and data media*. A list of organizations represented on this committee can be obtained on request to the committee manager.

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Use of this document

It has been assumed in the preparation of this document that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

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Introduction

This British Standard was devised to allow for testing of products used to mark items and materials having value. It is considered beneficial to purchasers or specifiers of these products to be able to make decisions based on a standardized method of testing. The standard recognizes that there is a wide diversity of products and that very few of these are suitable for an identical range of applications.

1 Scope

This British Standard specifies requirements related to products designed to deter theft of the marked asset and to support repatriation of the marked asset when used in accordance with application instructions for the marking of assets. This standard also gives requirements for products used to indicate the source of an item. This standard is intended to be used for marking of private, leisure, commercial and industrial vehicles and associated equipment (the asset).

This standard specifies requirements that enable specifiers and purchasers of asset marking products to determine their suitability for use and provides test methodologies to demonstrate their performance.

Products claiming conformance with this standard require the use of an associated database or asset register to enable identification of the registered keeper of the marked asset. This standard does not include requirements for the design, management and/or operation of such databases or asset registers.

This standard gives requirements for the provision of information to ensure purchasers can make correct use of the asset marking product. This standard neither specifies requirements regarding the method of application of asset marking products nor does it give requirements for design and installation of equipment for the application of marks (e.g. etching equipment).

This standard does not specify requirements for the manufacturing process of the product.

This standard does not specify requirements for any tracking devices, marking of cash or products used to identify offenders who have been tagged with forensic marking solutions. The application of vehicle identification numbers (VIN) to vehicles in accordance with BS AU 175-3b:1983, [ISO 4030:1983](#) is excluded.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

BS EN 60068-2-6, *Environmental testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal)*

BS EN 60529:1992+A2:2013, *Degrees of protection provided by enclosures (IP Code)*

BS EN IEC 60068-2-11, *Environmental testing — Part 2-11: Tests — Test Ka: Salt mist*

[BS EN ISO/IEC 27001](#), *Information technology — Security techniques — Information security management systems — Requirements (ISO/IEC 27001:2013)*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

BS EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:2016)*

[BS EN ISO 4892-3:2016](#), *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV Lamps*

BS ISO 10605, *Road Vehicles — Test methods for electrical disturbances from electrostatic discharge*

Other publications

[N1] LPS 1224, *Requirements for companies providing secure asset registration services. Issue 3.1*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

3.1.1 application

action of applying the mark to the surface of an asset in accordance with the manufacturer's instructions

3.1.2 attack resistance

ability of a mark to resist a physical attack over a given time

3.1.3 chemical etching

overt form of marking using a chemical compound to produce a visible mark on an asset

3.1.4 chemical (UV) etching

covert form of marking assets using a chemical compound to produce a mark that is only visible by using an ultra-violet light source

3.1.5 contamination

deliberate or accidental mixing of the components of a mark (typically in liquid form) such that the mark is rendered incapable of providing traceability

3.1.6 covert mark

mark that requires specialist equipment to read and is not apparent, or difficult to see with the naked eye

3.1.7 engraving

method of marking a surface (usually metallic) by electromechanically cutting or carving the surface by drawing a harder object across it

3.1.8 forensic coding material

material that enables the mark (and therefore the asset) to be uniquely identified using content that can be distinguished only by personnel trained in the appropriate method and using appropriate technology.

NOTE The process of identification might require the use of a laboratory.

3.1.9 forensic marking

method of marking a surface using a forensic coding material

3.1.10 functional life

period of time from the application of the product, during which the product achieves its purpose

3.1.11 laser etching

the process of using a laser that marks the surface of the material through ablation of the surface layer

3.1.12 manufacturer

company that makes the product or marking equipment, or is responsible for the placement of the product on the market

3.1.13 mark

attribute given to an asset, intended to provide information linking the asset to its registered keeper

3.1.14 microdot

text or image substantially reduced in size to prevent detection by unintended parties

NOTE This is normally circular around 1 mm diameter and made from metal or polyester.

3.1.15 overt mark

type of mark that is easily and deliberately visible to a majority of people under normal lighting conditions

3.1.16 product

element manufactured for the purpose of marking an asset

NOTE Where a material contains a forensic coding material in combination with other materials (e.g. in solution) it is the combination of materials that is considered the product for the purposes of the test methods described by this standard.

3.1.17 purpose

intended use of the product as defined within the documentation supplied by the manufacturer

3.1.18 Radio Frequency Identification (RFID) Tags

technology using electromagnetic fields to identify and track tags attached to objects or assets, with reading equipment

3.1.19 Secure Asset Register (SAR)

database containing a reference to a unique mark on an asset and linking it to the identity of the registered keeper and/or installed location of that asset

3.1.20 security labels

physical label that is difficult to copy or remove in one piece (tamper evident), used to uniquely identify an asset

3.1.21 shelf life

maximum period of time, from manufacture to application, that a product can be stored according to the manufacturer's documentation, in its original undamaged and unopened packaging, such that its fitness for purpose is maintained

3.1.22 stabilization

process a mark undergoes from its time of application until it has reached a stabilized state

NOTE 1 This process is commonly known as curing. Typically, the curing consists of a chemical process such as hardening of an adhesive.

NOTE 2 During the stabilization period a mark need not function according to the requirements of this standard. For example, it might not withstand an attack test or it might have increased visibility.

3.1.23 stabilized state

condition of a mark when any processes (e.g. curing) necessary to stabilize it have been completed

3.1.24 stamping

method of indenting or marking a hard surface (usually metallic) by electromechanically punching an impression into the surface

3.1.25 substrate

material to which a mark is applied

3.1.26 tamper evident labels

labels that show evidence of attempted removal or tampering

3.2 Abbreviated terms

ESD	electrostatic discharge
MRN	manufacturer reference number
RH	relative humidity
SAR	secure asset register
TRN	test reference number
UV	ultraviolet

4 Types of mark

4.1 General

COMMENTARY ON 4.1

Marks take many forms, both overt and covert, with different technologies being used. For the purposes of this standard test methodologies should be applied as appropriate to the type of mark and technology used.

For the purposes of product testing, the manufacturer shall declare the type of technology to which a mark is assigned.

NOTE It is not a requirement for manufacturers to provide documentation to customers and users making reference to the types of technology specified in this standard. However, if documentation is provided, it should enable determination of the product's applicability to the intended application.

4.2 Marking technology and type

The manufacturer shall indicate the applicable substrate so that the appropriate testing can be applied.

NOTE The technologies in [Table 1](#) are not suitable for all substrates.

Table 1 — *Technology and type*

Type	Technology	Overt	Covert
A	Chemical Etching	X	—
B	Chemical (UV) etching	—	X
C	Laser Etching	X	—
D	Engraving	X	—
E	Microdots	—	X
F	Forensic marking	—	X
G	Radio Frequency Identification Tags (RFID)	X	X
H	Security labels	X	—
I	Security labels with chemical etching	X	—
J	Security labels with chemical UV mark	X	X
K	Stamping	X	—

5 Documentation

5.1 Quality management systems

The manufacturer shall have a documented quality management system in place. This quality management system shall comply with a relevant quality-based standard.

NOTE BS EN ISO 9001 is an example of a relevant quality-based standard.

5.2 Documents and records

For products that are tested, the manufacturer shall maintain documented procedures for selecting samples for tests. These documents shall be version controlled and have specific effective dates.

For all manufactured products, records of the manufacture and dispatch of each marking product shall be securely kept.

The manufacturer shall determine the retention period for documents and records where legislation requirements do not apply.

5.3 Labelling of the product

The product label and/or packaging shall include the following information so that it is accessible to the user without opening:

- supplier or manufacturer's name and/or trademark;
- storage and handling requirements (e.g. refrigeration) to maintain shelf life and integrity of the product;
- date by which product shall be used if the product has a defined shelf life;
- date of manufacture, batch code or unique identifier (this information shall be in a format legible to the customer, e.g. text, barcode); and
- identification of conformance to this standard.

NOTE Other regulations and legal requirements (such as the Classification, Labelling and Packaging of Chemicals Regulations [1]) might apply concerning packaging information including the use of pictographic safety warnings.