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Part 4: Interpretation

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 272, *Forensic Sciences*.

The following is a list of all parts in the ISO 21043 series:

ISO 21043-1, *Forensic Sciences – Part 1: Terms and definitions*

ISO 21043-2, *Forensic Sciences – Part 2: Recognition, recording, collection, transport and storage of items*

ISO 21043-3, *Forensic Sciences – Part 3: Analysis*

ISO 21043-4, *Forensic Sciences – Part 4: Interpretation*

ISO 21043-5, *Forensic Sciences – Part 5: Reporting*

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Introduction

This document is part of a series of five that includes the different components of the forensic process from scene to courtroom. This document establishes requirements designed to safeguard the process for the interpretation of observations including the use of statistical models and/or human judgement to address alternative propositions based on the questions asked by the customer.

In this document, the following verbal forms are used:

- “shall” indicates a requirement;
- “should” indicates a recommendation;
- “may” indicates a permission;
- “can” indicates a possibility or a capability.

Further details can be found in the ISO/IEC Directives, Part 2.

[Annexes A, B, C](#) and [D](#) are for information only.

The notes given provide clarification of the text, examples and guidance. They do not contain requirements.

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Forensic Sciences —

Part 4: Interpretation

1 Scope

This document specifies requirements and provides recommendations for the interpretation of observations in order to reach opinions that answer questions that are relevant for decision making in investigations or legal proceedings. This document states requirements that are applicable to all forensic disciplines. This document states requirements that apply when the opinion is based directly on human judgment and when the opinion is based on interpretation through a statistical model. This document is applicable to interpretation that occurs at a scene, within a forensic facility or within a judicial setting.

Interpretation is not necessary, and the requirements of this standard do not apply, if the observations resulting from the analysis directly answer the relevant question.

EXAMPLE In analytical chemistry, substances are often identified or classified. Provided that the applied analytical methods are not limited in selectivity or sensitivity for the given question, the observations can lead to a direct statement of the name of the substance (identification) or a type of material (classification). This is not considered interpretation for the purposes of this standard.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21043-1, *Forensic Sciences - Terms and definitions* apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 General requirements

Forensic service providers shall have documented methods for interpretation.

The interpretation methods shall be suitable for the intended use and should be supported by relevant validation studies.

Any deviation from a documented interpretation method shall be technically justified and recorded.

Interpretation shall:

- a) be supported by task-relevant data, observations, and information that are within the examiner's area of expertise;
- b) be relevant to the question put forward by the customer;

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- c) take into account all available task-relevant information;
- d) be designed to reduce the risk of cognitive bias, including designed to attempt to limit the influence of information that is not task-relevant.

Examiners shall not interpret observations where that would take them outside their area of expertise.

The examiner shall record any observations, data, information, and interpretation methods used in forming an opinion.

Known limitations and sources of error in the analysis and interpretation methods used shall be recorded and taken into account in the interpretation.

5 Questions and propositions

5.1 Questions

5.1.1 General

The examiner should not address questions concerning the intent of an accused person.

The examiner shall not address questions defined in terms of guilt or innocence.

5.1.2 Types of questions

The types of questions asked in forensic science commonly include:

- a) what is the item? (classification/identification);
- b) how much is there of an item/how many are there of an item? (quantification);
- c) who or what is the source of an item/do two or more items have the same source? (question of source);
- d) what happened, where did it happen, when did it happen, who did what? (reconstruction).

5.1.3 Classification/Identification

The classes used for classification shall be clearly defined.

If classes are defined directly by observations that do not require interpretation, the requirements of this document do not apply to that classification.

Identification of an item shall be strictly separated from individualization, which refers to question of source (see [Section 5.1.5](#)).

5.1.4 Quantification

If quantitative data do not require interpretation, the requirements in this document do not apply.

Interpretation of quantitative data shall take into account measurement uncertainty.

If a sampling method is used, the interpretation shall consider the representativeness of the sample and how the sampling method impacts the opinion given.

NOTE Depending on the situation, quantification can require interpretation. For example, interpretation would be required when estimating the total number of items in a large number of containers when individual counting is not practicable. Conversely, if all the items were individually counted, then interpretation would not be required.