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Ionizing-radiation warning — Supplementary symbol

Avertissement pour rayonnements ionisants — Symbole supplémentaire

Reference number
ISO 21482:2007(E)

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Foreword

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ISO 21482 was prepared by Technical Committee ISO/TC 85, *Nuclear energy*, Subcommittee SC 2, *Radiation protection*.

Introduction

The basic ionizing-radiation symbol, “the trefoil” [ISO 361, ISO 7010:2003, Table 1 (Reference number W003)], is used internationally to indicate the presence of radiation. There is a history of people, in particular those persons with insufficient technical education or background, receiving serious injuries or fatalities from handling large sealed radioactive sources and not correctly understanding the meaning of the basic ionizing radiation symbol on the source. The ability to interpret and understand the symbol is of crucial importance for all people.

With these problems in mind, the competent UN authority, the International Atomic Energy Agency (IAEA) with direction from the international community saw a necessity to develop a new symbol that is capable of fulfilling all the requirements placed on a warning symbol.

For that purpose, the IAEA designed a number of symbols with different colours and shapes and evaluated them in a number of preliminary tests. A series of assessments and comparisons were completed among people with insufficient technical education or background, children and among different cultures in 11 different countries. The result is put forth in this International Standard.

This symbol is intended to supplement the basic ionizing radiation symbol.

Ionizing-radiation warning — Supplementary symbol

1 Scope

This International Standard specifies the symbol to warn of the presence of a dangerous level of ionizing radiation from a high-level sealed radioactive source that can cause death or serious injury if handled carelessly. This symbol is not intended to replace the basic ionizing radiation symbol [ISO 361, ISO 7010:2003, Table 1 (Reference number W003)], but to supplement it by providing further information on the danger associated with the source and the necessity for untrained or uninformed members of the public to stay away from it.

This symbol is recommended for use with International Atomic Energy Agency (IAEA) Category 1, 2, and 3 sealed radioactive sources. These sources are defined by the IAEA as having the ability to cause death or serious injuries.

2 Shape, proportions and colour of the symbol

The supplementary ionizing radiation warning symbol (see Figures 1 and A.1) is diagrammed below.

The symbol shall have a red (pantone red No. 187) background with black figures and a white outline of the figures. The symbol is acceptable without colour if the use of colour is not feasible, such as in the case of engraving the symbol on the source. The symbol should not be made smaller than 3,0 cm to assure that it is clearly visible.

Figure 1 — Supplementary ionizing radiation warning symbol

See Figures A.2 to A.6 for the individual elements of which this symbol is composed.

3 Application of the symbol

The supplementary radiation warning symbol should be placed in close proximity to the source preferably on the shield or near the point of potential access to the source. The intent in the symbol on the shield is to convey the message that dismantling the device is very dangerous.

Due to the small size of most sources, placing the symbol directly on the source might not be feasible. Placing the symbol on the device shielding so it can be seen prior to accessing the actual source is desirable. The symbol may be engraved, placed on a label and mounted on the housing or attached as a tab.

The symbol shall be closely associated with the device housing the source, as a warning not to dismantle the device or get any closer to the source.

When practical, the symbol should be located directly on the source shield and under the device covers, such that it is not visible during normal use but would be visible if anyone attempts to dismantle the device. If there is no device cover, the symbol should be located on the outside housing in a discrete location, clearly visible prior to disassembly, but not visible during normal use (e.g., locating the symbol close to the source access point).

The symbol shall not be located on the external surfaces of transport packages, freight containers, conveyances or on building access doors.

Annex A
(normative)

Technical Specifications

Figures A.2 to A.6 show the individual elements of which the supplementary ionizing radiation warning symbol (see Figure 1) is composed.

Figure A.1

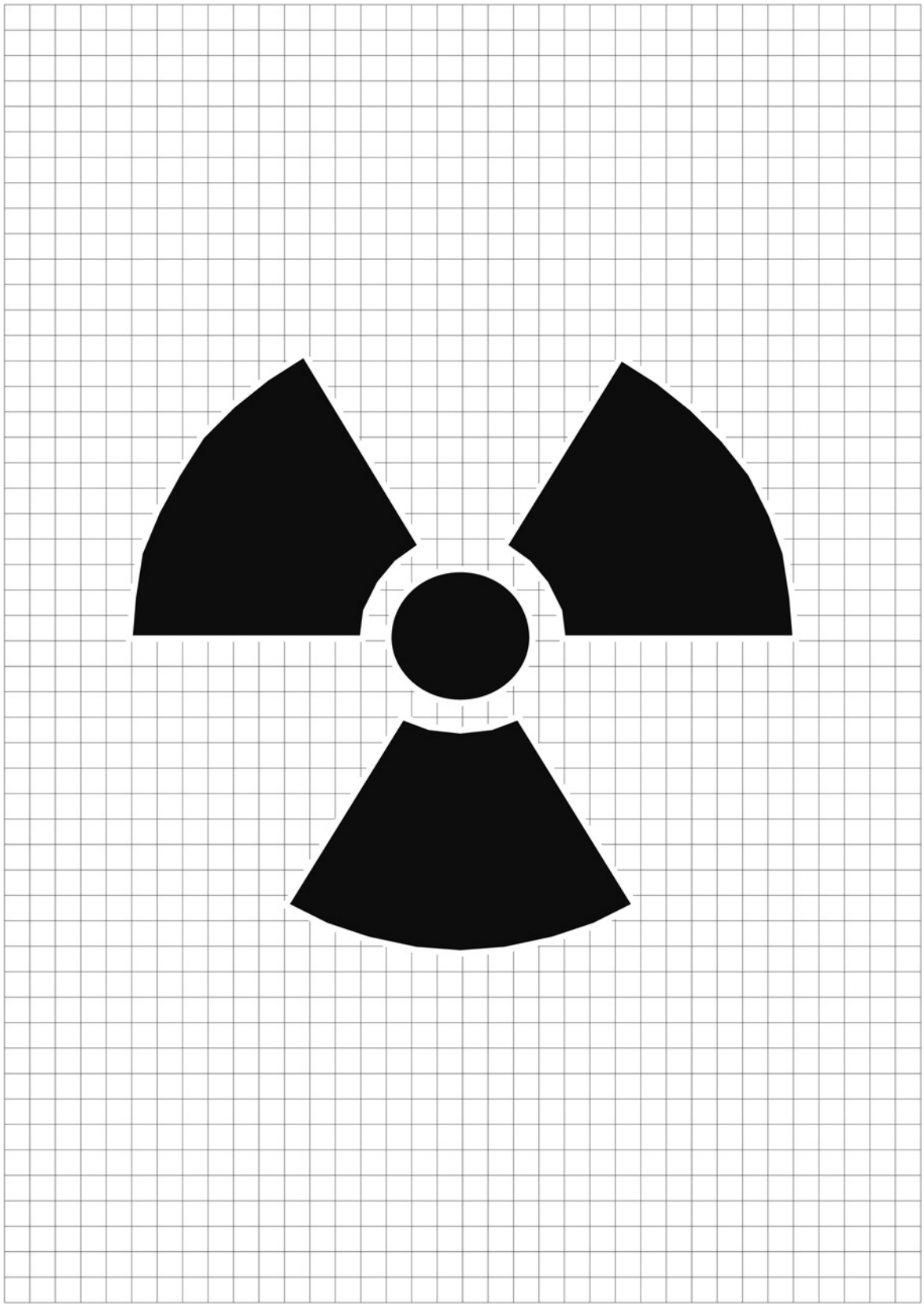

Figure A.2

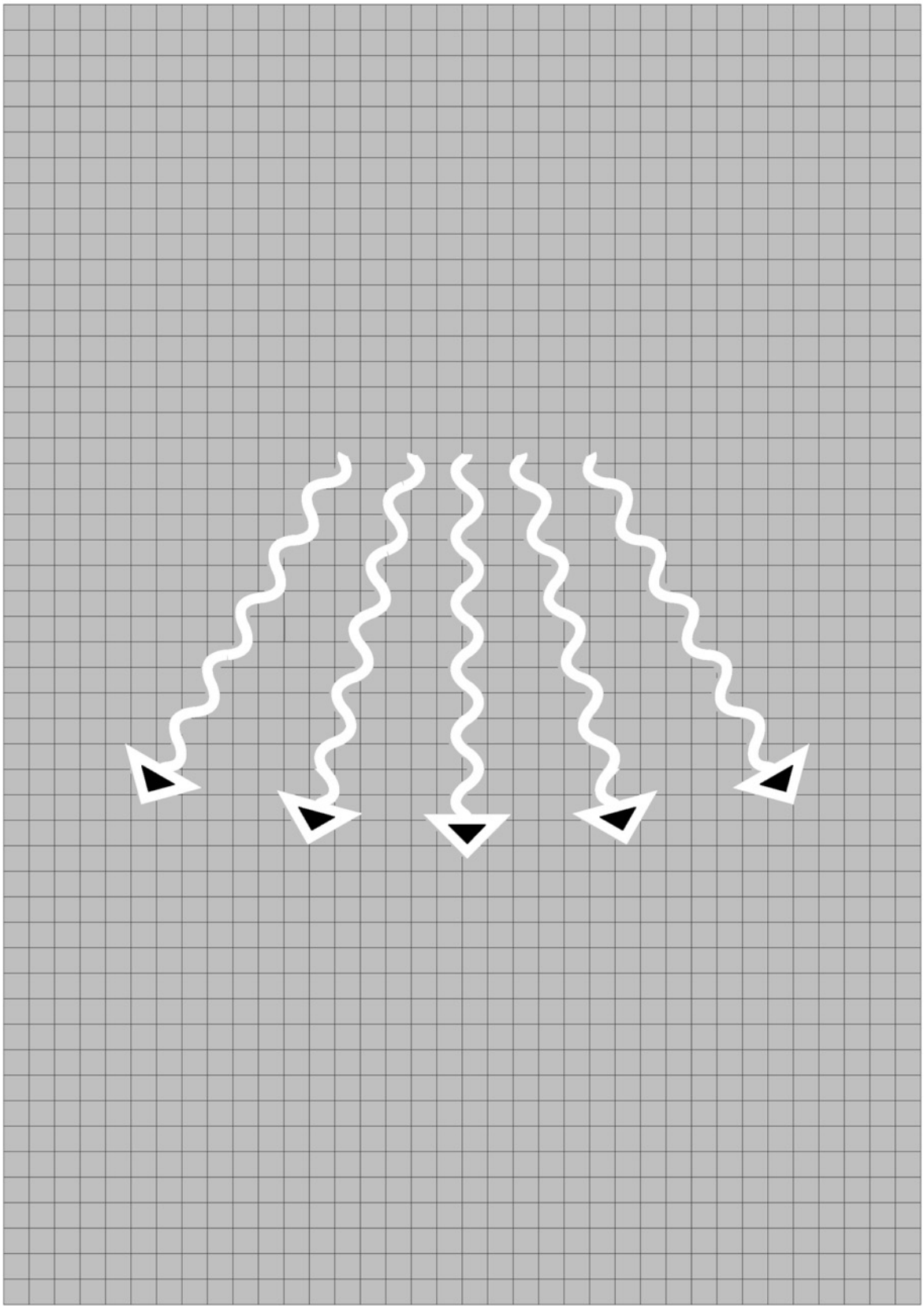

Figure A.3

Figure A.4

Figure A.5

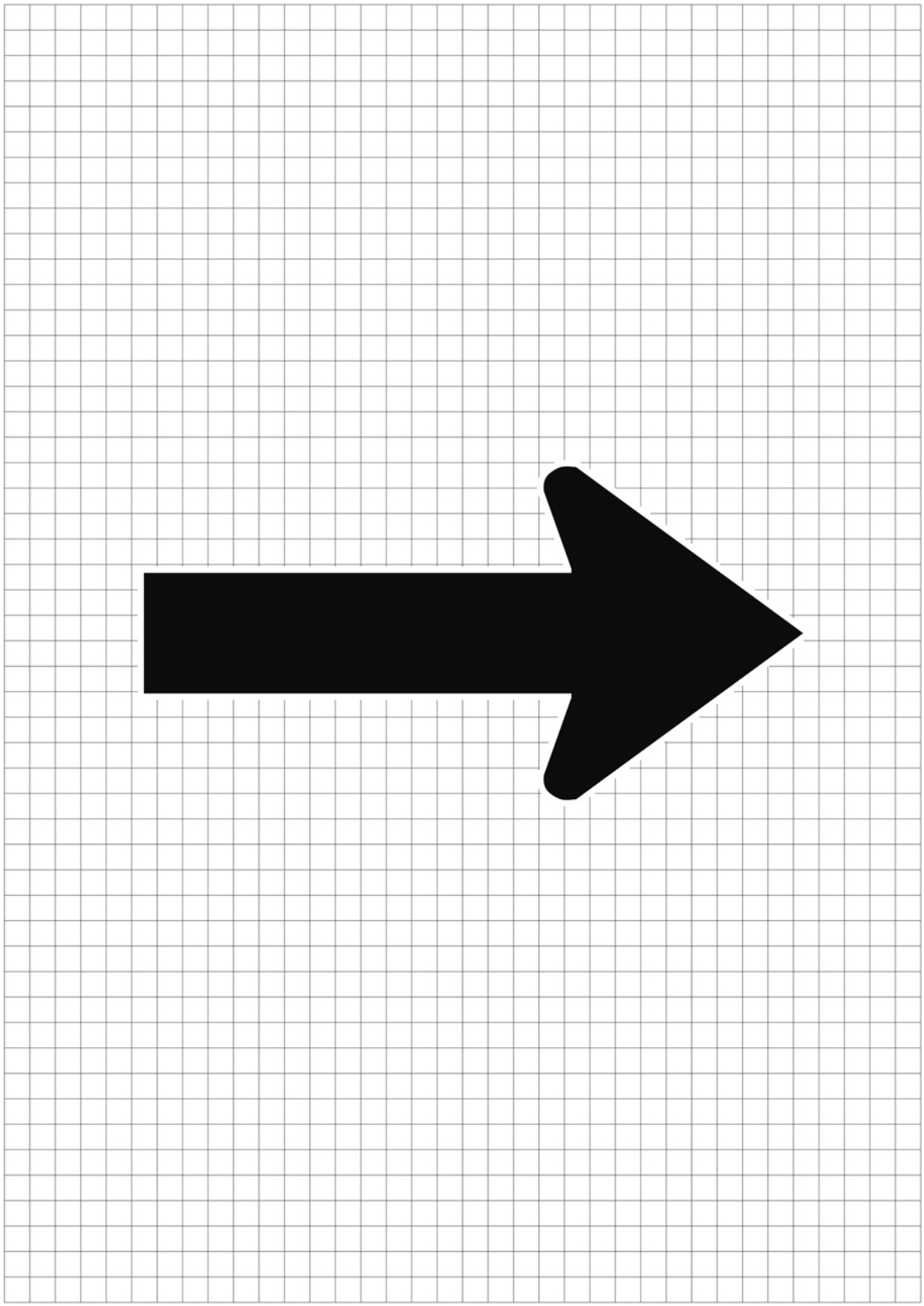

Figure A.6

Bibliography

[1] ISO 361:1975, *Basic ionizing radiation symbol*

[2] ISO 7010:2003, *Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas*

[3] *Code of Conduct on the Safety and Security of Radioactive Sources*, IAEA/CODEOC/2004

[4] *Categorization of Radioactive Sources*, IAEA, Safety Standards Series No. RS-G-1.9 (2005)

[5] *Danger Signs*, Karmasin Marktforschung, Osterr. Gallup Institut, May 2005[1)]

1) Available from the International Atomic Energy Agency, Vienna, Austria.

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