
Instructions for use of products by consumers

Instructions d'emploi des produits par les consommateurs

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

Draft Guides adopted by the responsible Committee or Group are circulated to the member bodies for voting. Publication as a Guide requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC Guide 37 was prepared by the ISO Committee for consumer policy (ISO/COPOLCO).

This third edition cancels and replaces the second edition (ISO/IEC Guide 37:1995), which has been technically revised.

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Introduction

Instructions for use are the means of conveying information to the user on how to use products and product-related services in a correct and safe manner. The following are used as means of communication, either separately or in combination:

- texts;
- words;
- graphical symbols;
- diagrams;
- illustrations;
- audible, visible or tactile information.

The instructions for use can be on the product itself or its packaging, or in accompanying materials, e.g. leaflets, manuals, media and computerized information such as the product supplier's website.

While much of the advice in this Guide is equally relevant to instructions for consumer services, it is not intended to cover all aspects of services. See ISO/IEC Guide 76 for further information.

This Guide is not intended to provide comprehensive information covering each case. It offers guidance to all interested parties in the form of general principles and detailed recommendations on the design and formulation of all types of instructions necessary or helpful to the final user of consumer products. Practical recommendations for the assessment of such instructions are included in the informative Annexes A and B.

This Guide can be used in conjunction with the requirements of specific product standards or, where no such standards exist, with the relevant requirements of standards for similar products.

Since the previous edition of this Guide was published, the developments listed below have occurred.

- a) An International Standard for writing instructions (IEC 82079-1) has been published, which provides the possibility for normative references to be made in product standards. However, contrary to physical safety requirements, in practice the effectiveness of the information supplied with a product has hardly ever been subjected to independent verification or certification.
- b) There has been a substantial increase in cross-border movement of both fully-packaged products and of consumers, through migration, tourism, relocation of manufacturing and the opportunities for personal imports provided by the Internet. It can now no longer be assumed by a manufacturer that every consumer can read the official language of the country from which a product was retailed.
- c) It has become recognized that for many products there will be a proportion of older consumers and consumers with disabilities who can use the product safely and independently when given adequate information, but who are unable to gain access to this information in the usual medium in which it is supplied with the product — most often because the size of print that can be accommodated on the product is too small.

This edition of this Guide has been thoroughly revised to take into account both the developments listed above and the many research studies into the effectiveness of product instructions and warning labels, which vary a great deal in the degree to which consumers read, notice and comply with them.

The effectiveness of instructions in preventing harm can never be assumed to be as high as supervised training or designing the product to be fail-safe (when this is possible). The aim of this Guide is to help convey necessary knowledge to the end users of consumer products, and to facilitate understanding and use of instructions.

If reliance is placed on just one medium, one phrase or one graphic to communicate a crucial safety message, then some proportion of consumers will not receive that message and another proportion will fail to recall it at the crucial moment.

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Instructions for use of products by consumers

1 Scope

This Guide establishes principles and gives recommendations on the design and formulation of instructions for use of products by consumers.

This Guide is intended to be used by the following:

- committees preparing standards for consumer products;
- product designers, manufacturers, technical writers or other people engaged in the work of conceiving and drafting such instructions;
- importers, regulators, inspection bodies and researchers.

The principles and detailed recommendations in this Guide are intended to be applied in combination with the specific requirements on instructions for use specified in standards for particular products or groups of products. Some model formats and wordings are suggested for inclusion in standards.

This Guide contains some practical recommendations and a proposed methodology for assessment in order to help establish common criteria for the assessment of the quality of instructions for use.

Annexes A and B provide checklists to help principal target groups using this Guide.

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.

ISO/IEC Guide 14, *Purchase information on goods and services intended for consumers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC Guide 14 apply.

4 General principles

IMPORTANT — Instructions for use cannot and should not compensate for design deficiencies (see ISO/IEC Guide 51)

4.1 Instructions for use are an integral part of the delivery of the product. Their purpose is to reduce

- the danger of injury or ill health to people or animals, and
- the risks to the product (or other property) of damage, malfunction or inefficient operation.

4.2 Instructions for use should be integrated and the information should be consistent with all other material about the same product issued by the manufacturer/producer (such as advertising, packaging, any warranty and Internet-based information). There should be consistency in all instructional and promotional materials, including markings, labels and shipping containers.

4.3 Instructions for use should:

- motivate the user to follow and remember the instructions;
- recognize the potential safety hazards;
- clearly identify the product;
- recognize all types of users, in terms of the following:
 - age;
 - gender;
 - cultural background;
 - capabilities, including novice and skilled users and those with disabilities (see ISO/IEC Guide 71) or low levels of literacy;
- (if necessary) define the intended use of the product (see ISO/IEC Guide 51);
- contain all information required for correct and safe use of the product and/or for service and maintenance.

4.4 Instructions for use should cover reasonably foreseeable misuse of the product, and adequate warnings should be given (see ISO/IEC Guide 51). In most countries, the manufacturer/producer has a legal obligation to include such warnings.

4.5 Instructions for use should cover information, separately or in combination, as far as it is relevant, on the following:

- function and operation, including any adaptations for people with specific disabilities and other special considerations, e.g. access to the product by children or pets;
- transport and handling of product, lifting weight, assembly, installation and storage conditions;
- cleaning, maintenance, fault diagnosis, signs of deterioration and repair;
- destruction/disposal of the product and/or any waste materials with due regard to safety and environmental considerations;
- consumer-relevant technical specifications.

4.6 Instructions for use should convey important messages to the user about environmental aspects related to the following:

- destruction/disposal of waste;
- recycling;
- contaminants or pollutants;
- noise;
- consumption and conservation of energy and other resources.

4.7 Attention should be drawn to the need for special protective measures, such as adult supervision or the wearing of special clothing, which are needed to protect users and bystanders. Consideration should be given to dangers to particular groups, e.g. children, older people and people with disabilities (see ISO/IEC Guide 50 and ISO/IEC Guide 71).

4.8 If some of the instructions are directed only to a specific group of users (e.g. for installation, repair or certain kinds of maintenance), those instructions should be given separately and marked adequately. In some cases, they need not accompany the product (see also 7.12).

4.9 Information related to specific use or safety requirements in specific countries should be clearly identified.

4.10 Instructions requiring professional expertise should be clearly distinguished.

4.11 For products that have a limited life (in terms of safety, quality of performance or economic benefit), clear information should be provided on the year of manufacture and/or on the date (and nature) of expiry.

4.12 The date of publication of the instructions for use should be given.

4.13 Depending upon the complexity of the product and the extent to which safe and correct use depends on conveying information to the user, instructions for use may need to be evaluated during the development stage and/or before the product is placed on the market. Assessment may take the form of

- desk research, and/or
- interactive panel testing of the product by users.

See also Clause 10 and Annex A.

4.14 Assessment of instructions for use covers the instructions on the product itself and/or its packaging, and/or in accompanying materials (e.g. leaflets, handbooks, audio and video tapes, CDs, websites). In accordance with 4.1, instructions for use should be assessed as an integral part of the delivery of the product, and for their compliance with the requirements of International Standards or national laws.

5 Content of standards

5.1 Standards should only specify the minimum information required by users to be able to minimize harm to people, property and the environment. Essential information can easily become lost amidst warnings of hazards that are obvious or that have been eliminated through design features: in such cases, it is communicated less effectively.

5.2 In some circumstances, it may be counterproductive to require any provision of instructions or warnings in standards, e.g.

- for simple common products with only obvious inherent hazards,
- for automated, intuitive or fail-safe devices in which there are no residual hazards.

5.3 Alternatively, it may be appropriate

- to specify the key issues about which users will require instruction, or
- to compile a list of hazards of which consumers are likely to be insufficiently aware.

The drafting of a requirement may be easier if the standard covers a wide range of product designs, or if the physical requirements permit several compliance options or levels of performance (see Table B.1).

5.4 Where necessary, standards should include clauses specifying the minimum specific content, wording or format of instructions or warnings to be provided (see Table B.2).

5.5 Standards may advise or require that producers follow specific guidelines on the writing of instructions when preparing and presenting instructions (see Table B.3).

5.6 Where any requirements for instructions and warnings in a standard exist, there should be a clause indicating how compliance with those requirements is to be assessed (see Table B.4).

5.7 Requirements for instructions for use should be listed in a separate clause or a normative annex of the standard, except for the following:

- instructions required to appear on the product itself should be specified in a clause entitled “Marking and labelling”;
- instructions also required to be available prior to purchasing should be listed in a clause entitled “Point of sale information”, or should be part of a product information system (see ISO/IEC Guide 14).

5.8 Standards for products of consumer interest should specify (e.g. in the form of a list of key issues) the matters which need to be covered in the instructions for use. This should be a separate clause of the product standard normally entitled “Instructions for use, including installation and maintenance” (for safety standards, see ISO/IEC Guide 51).

5.9 Where specific procedures are necessary for safe use, operation, assembly, disassembly, cleaning or maintenance of the product, or similarly for its destruction/disposal, or disposal of waste materials, they should be specified in the product standard (see ISO/IEC Directives, Part 2, 2011, 6.3.3 and 6.3.7).

5.10 Where instructions for use are to be given on the product itself, they should be specified in the clause dealing with marking and labelling (see ISO/IEC Guide 51, ISO/IEC Directives, Part 2, 2011, 6.3.3 and 6.3.7, and Clauses 8 and 9 of this Guide).

5.11 The circumstances in which the product standard should specify minimum font sizes and brightness contrast, or a viewing distance at which instructions are visible, are described in 7.2.

6 Placement and presentation

6.1 All instructions should be packaged and placed in such a way as to encourage recognition of them and motivate their use. Alternative formats should be considered, e.g. including one set of instructions in writing and another in pictures, in audio or on video (this could be particularly important for older people and those with disabilities).

6.2 Instructions for use, or parts of them, may be given in one or more of the following ways:

- on the product;
- on the packaging;
- in accompanying printed material and documentation;
- in audio, video or interactive media.

The placing of instructions, or parts of instructions, should take into account legal requirements, health and safety risks, environmental or similar requirements, the product design, the time that the user needs the information and the required level of skill.

6.3 Instructions for use that appear on the supplier’s website (if one exists) should be as detailed as those appearing in documentation. Both Internet and paper formats should be provided.

NOTE The World Wide Web consortium (W3C) standards provide further guidance on interoperability and access. Standards produced by ISO/IEC JTC 1/SC 35, *Information technology – User interfaces*, are other examples.

6.4 The placing of instructions on the product itself has clear advantages in terms of convenience for the user. However, for some products, because of their small size or their shape, or the fact that they are partially obscured from view during use, placing some or all of the instructions either on packaging or in accompanying materials may be the best or only solution.

6.5 Where instructions for use are complex, it may be helpful if certain important messages are given or displayed on the product by means of short reference or reminder cards, stickers or labels (see Clause 9).

6.6 Where safety depends upon correct installation, use, maintenance, destruction or disposal, and where correct methods are not self-evident from the product, the product safety standard should specify, as a minimum, a cautionary marking to draw the user's attention to the relevant part(s) of the instructions.

6.7 Instructions for use in electronic format, e.g. video, digital video disc (DVD) or multimedia, should be designed for the widest possible audience, be easy to use and promote comprehension. DVDs and similar media can provide a range of sound track and subtitle options, including a sign language feature for consumers with a hearing impairment and an audio description for those with a sight impairment.

6.8 If instructions for use are necessary to make an informed purchasing decision amongst products, these instructions or the relevant parts of them should be readily available at the point of sale and from a website.

EXAMPLE The need for protective clothing; warnings to parents on restrictions on the use of a product by children below a certain age, weight or ability.

NOTE Product information systems such as those described in ISO/IEC Guide 14 (on product information) and in ISO/IEC Guide 41 (on aspects of packaging) give specific guidance on how to facilitate a reasoned purchasing decision.

7 Design and communication

7.1 General

7.1.1 Information related to safety should be presented at the beginning of the instructions, wherever possible.

7.1.2 Operating instructions should start by describing a normal function of the product, and follow a continuous learning process. Each task should be described in a logical sequence of smaller steps. Reference points (e.g. figure or paragraph numbers) are useful, particularly when assembly is required.

7.1.3 Repetition, preferably using rephrasing or graphical illustration, may help to reinforce key points of operation or safety, provided that each reoccurrence is relevant to the sequence, context or reader's needs at that point. Given that the understanding and memory of consumers can never be assumed to be perfect, there is a need for a degree of "redundancy" (in engineering terms) to be incorporated into the design and communication of product instructions in order to improve their effectiveness.

7.1.4 Instructions for use should clearly identify

- the manufacturer/service provider, by stating the company name, address, telephone number and website, and
- the product, e.g. by stating the model, version or type to which the instructions apply.

Cross-checks should be made to prevent product modifications, or differences (however small) between models or between subgroups within the same model, leading to a mismatch between the instructions in the hands of the user and the actual product in use (see 4.2).

7.1.5 The user of a particular model should preferably be provided with information referring only to that model. However, if instructions for two or more models are identical, a single set of instructions is acceptable provided that the range covered is specified.

7.1.6 Instructions concerning optional modules or extras should be kept clearly separated from general instructions and from instructions for other modules or extras (e.g. by the use of separate clauses or headings), so that users are not confused by irrelevant material.

7.2 Legibility of text

7.2.1 All instructions should be easily visible and legible (with normal eyesight) from the distance at which users need to read them. Elements contributing to legibility include the viewing distance and angle, the style, size and colour of text font, the colour of the background and the brightness contrast between them.

7.2.2 The location of on-product instructions and the angle between their surface and the vertical plane should be such that they can be easily read and understood by users from their position(s) during use of the product.

NOTE For any information that needs to be legible from a greater distance, the product standard might need to specify the minimum viewing distance.

7.2.3 Instructions on packaging should be visible and legible in the package's upright position. Where the visible surface area of the product or packaging available for text is necessarily very restricted, the product standard should specify minimum font sizes and brightness contrast.

7.2.4 Unless national legislation or standards make specific requirements for legibility (e.g. the relation between type size and reading distance), the rules below should be regarded as the minimum acceptable as good practice.

- a) Critical on-product text (e.g. control markings) should be expected to be as clear and as large as practicable to be legible (at distances up to 1 m) by as high a proportion as possible of older users with degenerating eyesight. This is likely to require a 14- or 16-point font with an "x-height" for lower-case letters of 4 mm or 5 mm.
- b) In contrast, where space is limited by product size (e.g. in containers of less than 10 ml in capacity), an absolute minimum font size of 6 points may be tolerated, but only for continuous text in a high resolution plain black font on a bright (but not high-gloss) white background (with headings and warning phrases in a minimum font size of 8 points and a good "x-height").
- c) Wherever space allows, continuous text in instructions on hand-held products, labels, packaging or multiple-folded instruction sheets should have a font of 9 points or larger. 12 points (with a good "x-height") is the desired minimum for critical safety limits (e.g. minimum user age, expiry date, maximum load) or warning phrases (unless also presented by a standardized symbol).
- d) Continuous text of instructions in accompanying printed documents (e.g. single-folded leaflets and manuals) or in electronic displays should have a minimum font size of 10 points if in dark or strong colour against a plain light background. White text on a dark background requires a font size of at least 12 points to be effective.
- e) In any document, headings, critical safety limits, key warning phrases and key details that the user needs to consult frequently should use a different font style, larger font size, or other means of making them conspicuous. A minimum font size of 12 points (with a good "x-height") should be used. If there is any doubt as to whether particular instructions are related primarily to safety or to fitness for purpose, considerations dealing with safety should be given precedence.

EXAMPLE "Heading", "*critical safety limit*", "KEY WARNING PHRASE".

7.2.5 A substantial number of older consumers and consumers with deteriorating eyesight have difficulty in reading the print on many packages and leaflets supplied with products. Whenever practical, suppliers should offer them options of access to the information in alternative media (preferably audio and large print).

7.2.6 As a minimum, whenever the instructions supplied with a product present any of the text in a font size smaller than 10 points, or the legibility of the text is decreased by other factors (such as poor contrast), the supplier should ensure that a larger print version (with a minimum font size of 12 points) is readily available to consumers upon request (e.g. as a download from their website and/or a leaflet available at the point of sale). This source should be indicated on the product/packaging/instruction leaflet supplied at purchase in a minimum font size of 10 points.

7.2.7 For other alphabets, the selection of lettering type and size should meet a comparable degree of legibility to that indicated above.

7.2.8 The minimum sizes recommended here for lettering assume an optimal brightness contrast (the difference between the percentage of light reflected from the background and the percentage of light reflected from the print). The contrast should normally be at least 70 %. For reference, good quality black print on white paper provides a contrast of about 80 %.

7.2.9 Many older people, or people with colour vision disabilities, perceive inadequate contrast in red/green combinations, subtle colours or pastel shades, patterned backgrounds or insufficiently opaque paper printed on both sides; consequently, instructional text should not be presented in these formats. Instructions should never be printed on transparent material unless an opaque background is given to the instructional text and diagrams.

7.2.10 If instructions appear within the material of the product itself, e.g. in the form of engraved or embossed lettering, figures or symbols on metal, glass or plastic, the advantages of such methods (e.g. durability, reduction of numbers of separate parts) should be weighed against the disadvantages (e.g. reduced contrast and consequent reduced legibility compared with that obtained with good printing). (See also 7.3.)

7.3 Colour

7.3.1 The use of colour and other vivid enhancing techniques should be considered, particularly with regard to controls, components, etc. that require clear and/or quick identification.

7.3.2 If the use of colour is adopted, it should be functional, systematic and consistent, and used to provide contrast. Any safety signs in instructions should be coloured as specified in ISO 3864-2.

7.3.3 Use of colour should always be combined with clear information in alternative formats. Perception of different colours should never be the only distinction relied upon for understanding text or graphics in instructions.

7.4 Communication principles

7.4.1 In order to achieve best results, those responsible for the design and formulation of instructions for use should apply the communication process “first read, then act” to the likely sequence of events in the use of the product. Instructions for use should follow the required procedure step by step.

In cases where the reader of instructions needs to react quickly (e.g. when using fire extinguishers), only a minimal thought process should be necessary in order to understand them.

7.4.2 Where complex operating procedures need to be followed for safe and correct use of the product, the instructions should enable and encourage the user to follow a continuous learning and understanding

process. Illustrations, tables and flow charts are particularly useful means of assisting this process (see 7.7, 7.9 and 7.10).

7.4.3 Instructions for use of a product that is intended to perform several different and independent functions should start with the basic or normal function, before dealing with other functions.

7.4.4 The instructions for use of a product should anticipate the user's questions, "where?", "who?", "what?", "when?", "how?" and "why?", and provide answers to them.

7.5 Wording and use of technical terms

7.5.1 Instructions for use should be as simple and brief as possible, and be readily understandable by a layperson. The meaning of unavoidable technical terms should be explained. Information should be expressed in consistent terms and units, with the equivalents in SI units where necessary (see ISO 80000-1).

7.5.2 The sequence of text in leaflets, manuals, etc., should follow the communication principles described in 7.4. Short and meaningful headings and/or marginal notes may help the user to locate the information desired (see 7.11).

7.5.3 A single sentence should normally contain only one command, or at most a small number of closely related commands.

7.5.4 Simple, clear phrases should be used, as illustrated in Table 1.

Table 1 — Recommendations for the wording and use of technical terms

Recommendation	Example to follow	Example to avoid
Use the active voice rather than the passive voice of verbs	Turn off power	Be sure that the power has been disconnected
Be assertive in using commands rather than weaker forms	Do not remove tabs	The tabs should not be removed
Use action verbs rather than abstract nouns	Use, keep, avoid	Utilization, maintenance, avoidance
Speak directly to users rather than saying what they might do	Pull black lever towards you	Users will pull the black lever away from the machine

7.5.5 The following should be avoided in all circumstances:

- ambiguous wording;
- double negatives;
- abbreviations and acronyms (unless defined);
- long sentences.

7.6 Language(s)

7.6.1 Written instructions for use in the official language(s) of the country of sale should be supplied with the product, as this is often a legal requirement. However, for maximum effectiveness, the most widely understood written language should be used for the primary target consumers of the product.

NOTE The commercial markets for some products might be mainly tourists, ethnic minorities or Internet shoppers.

7.6.2 Additional language versions may be necessary, depending upon the proportion of the consumers in the intended market who cannot read that primary language. Secondary (or equal) prominence should be given to the written language that will reach the most additional consumers in that market, i.e. the language that can be read by the largest number of those who would not understand the first language.

7.6.3 For on-product or on-packaging instructions the space available is often limited, and it may be impossible to know the country of sale at the time of manufacture, or the country for sale may have several official languages.

7.6.4 It may be impossible for a message to achieve the prominence necessary to catch the attention of consumers if the message needs to be given in more than one or two languages. These problems may be avoided by making use of graphical symbols on the product or packaging to emphasize those warnings and key directions that need to be prominent. See 7.8.

NOTE It can also be acceptable to supplement graphical symbols with certain words or abbreviations (e.g. “stop”, “max./min.”) that have become recognizable internationally.

However, if symbols are used, suppliers need to be confident that these will be clearly understandable to most of the intended users, and each symbol will need to be explained in each language in the accompanying printed instructions.

7.6.5 If more than one language is used, each language should be readily distinguished from the other(s). It is preferable to provide separate instructions (leaflet, manual, etc.) for each language. Where this is not practicable, instructions in each language should be clearly separated. It is preferable for each page of a booklet (or each panel of a leaflet or label) to have texts in only one language. Where it is not possible to avoid short phrases of different languages appearing next to each other, it is helpful for each language to be printed in a distinct colour or style of lettering.

7.6.6 If a product is supplied with instructions in more than two or three languages, there should be prominent directions (e.g. page numbers) to those versions not given prominence. All available language versions should be accessible through any of the producer’s websites, irrespective of the intended market targeted by the website.

7.6.7 The clarity (quality) of the language should be tested by potential users who are native speakers of that language, preferably by a sample representing below-average educational attainment. Where instructions for use are translated from one language into others, all steps in the process (including checking and proof-reading) should be carried out by competent linguists.

7.6.8 However, allowance should be made for the fact that some consumers will be reading instructions in what is, for them, a second or third language, and that their vocabulary will be limited in that language as a result. A substantial proportion of consumers reading versions of instructions in the major international languages should be expected to be non-native speakers; consequently, colloquial expressions should be avoided. A standard or widely used word or phrase should be used for product features or tools for which a wide variety of regional terms exist.

7.6.9 Translations of instructions into English should follow the principles of “Plain English” (see Reference [29]), and preferably be edited or tested by independent organizations specializing in writing documents simply for a wide public.

NOTE Translators of this Guide into other languages can supplement or amend this subclause with references to equivalent movements or organizations working for easier understanding of documents of other languages.

7.6.10 Text and illustrations that need to be read and seen together should be adjacent. Where needed, illustrations should be reproduced in each language text. Captions to illustrations should be written only in the language of the adjacent text (see also 7.7.7).

7.6.11 International Standards aim to facilitate trade and travel across national boundaries; consequently, it is inevitable that in the future an increasingly sizeable minority of consumers will find themselves needing to use products whose instructions are not written in any language they adequately understand. In addition, millions of adult consumers (even in developed countries) remain functionally illiterate. Therefore, for those products for which it is practicable, suppliers should also attempt to convey key instructions (particularly those relating to safety) through self-explanatory illustrations.

7.7 Illustrations

7.7.1 Illustrations and diagrams should be used to illustrate key principles for safety and use. Illustrations should be relevant, motivating for the reader and effective in improving comprehension and memory.

7.7.2 Whether photographs, line drawings or other media are chosen to illustrate a principle, quality and clarity are vital. Visual representations of complex or specific instructions need to be selective in terms of level of detail and degree of subtlety if they are intended to be self-explanatory. By contrast, graphical symbols usually need to be designed for immediate recognition, even from a distance. Each illustration should be designed by a competent graphic artist or technical illustrator for a specific purpose, rather than be reconstituted from images composed for other purposes.

7.7.3 Assembly and operation of a product can often be demonstrated more effectively through sequential diagrams alone (i.e. without text) than through text alone (i.e. without diagrams), but generally text and illustrations are most effective when used together. Illustrations should not be separated from the text to which they refer. If a sequence of operations is being described, text and illustrations should follow the same sequence.

7.7.4 Illustrations should be supplemented with captions providing written details, locating and identifying controls, sub-units, etc.

7.7.5 One illustration should not give more information than is needed for the relevant function.

7.7.6 Illustrations or detailed parts of illustrations should be repeated in the relevant part(s) of instruction material(s) as needed to assist the user.

7.7.7 Illustrations, tables or flow charts that fold out may usefully be placed on pages of the leaflet or manual in such a way that they can be seen adjacent to different pages of text at different times.

7.8 Graphical symbols

7.8.1 Graphical symbols should be unambiguous and readily understood. Where graphical symbols have been standardized by ISO and IEC, they should be specified in accordance with relevant standards (see ISO 7000, IEC 60417 and product specific standards). For more information on designing new symbols, applying symbols, etc., see the ISO 9186 series, ISO 81714-1, IEC 80416-3 and ISO/IEC Guide 74).

7.8.2 The instructions for use should clearly indicate and explain the symbols appearing on the product.

7.9 Tables

7.9.1 Information should be presented in the form of tables where this will enhance understanding.

7.9.2 Tables should be presented adjacent to the text to which they belong (see also 7.7.7). Tables or parts of tables should be repeated in the relevant part(s) of instruction manual(s) as needed to assist the user.

7.10 Flow charts

Where a specific sequence of operations is necessary for the safe and correct use of the product, a flow chart may be helpful to the user. Flow charts should be presented adjacent to the text to which they belong (see also 7.7.7).

7.11 Table of contents/index

7.11.1 When instructions for use comprise more than one page, the pages (or the paragraphs) should be numbered. Leaflets, manuals, etc., beyond four pages should have a table of contents and/or an index.

7.11.2 When the instructions are lengthy and complex, an index of keywords presented in alphabetical order should be included and referenced in the table of contents. Computer-accessed instructional media should have a word-search facility.

7.11.3 For complex appliances, a separate list of operator controls and indicators (such as dials, gauges or lights) should be provided.

7.11.4 Headings appearing in the table of contents should be the same as those used in the text.

7.12 Action in the event of errors or malfunctions

7.12.1 If users of the product can perform fault diagnosis and repair without risk of harm to themselves, to other people or to the product, the instructions leaflet/manual should provide a checklist of possible faults (or “frequently asked questions”) with appropriate diagrams, illustrations, etc., and with a clear indication as to whether users can attempt the repair themselves or whether they should call in a qualified person.

7.12.2 Address and telephone details should be provided for contact in the event of a complaint or customer service query, identifying the authorized representatives of the producer in the country or countries in which the product is marketed (in addition to Internet contact details).

7.12.3 Advice should be given to enable consumers

- to recognize any chronic medical symptoms likely to arise from use of the product (e.g. repetitive strain),
- to seek first aid or emergency treatment recommended for foreseeable acute medical conditions (e.g. ingestion, toxic shock, epileptic fit), and
- to avoid injury in other foreseeable emergencies (e.g. hazardous leaks, out-of-control fires).

8 Warning notices

8.1 In accordance with the parameters of 7.2.1 to 7.2.4 and 7.3, warning notices should be emphasized by the use of larger and/or different style of font, and/or by the use of symbols and/or colour respectively.

8.2 In the formulation and design of warning notices, achieving maximum effectiveness can be facilitated by:

- limiting the text and/or illustration to the essential;
- making the location, content and style of the warning conspicuous;
- ensuring that the user and any other people at risk can see the warning from their positions during use and at the right time;
- explaining the nature of the hazard (and, if appropriate, its causes);

- providing clear guidance on what to do;
- providing clear guidance on what to avoid;
- using clear language, graphical symbols and/or illustrations;
- avoiding the overuse of warnings and false alarms, as this may reduce the effectiveness of necessary warnings.

8.3 When alerting users, instructions writers should consider using a hierarchy of “signal words”, e.g.

- “DANGER” to call attention to a high risk;
- “WARNING” to call attention to a medium risk;
- “CAUTION” to call attention to a low risk.

However, such distinctions may be too subtle to affect behaviour (or to be translated). In certain circumstances, “signal phrases” such as “DANGER OF DEATH”, “RISK OF BLINDING” or “BEWARE OF FUMES” are likely to be more effective at drawing greater attention to some instructions or safety information than “signal words”.

NOTE See ISO 3864-2.

8.4 Warning notices for high and medium risks relating to products should be permanently affixed to, or attached to, the products so that the message continues to be clearly visible by users during the expected life of the product.

8.5 Warnings about hazards or restrictions on use (e.g. “NOT SUITABLE FOR CHILDREN UNDER THE AGE OF THREE YEARS” or “NOT SUITABLE FOR NON-PROFESSIONAL USE”) are crucial to safety and should be given at least equal prominence to that accorded to other instructions issued with the product. Such warnings should be clearly visible at the point of sale (see Clause 6 of this Guide and ISO/IEC Guide 50).

8.6 Visible signals (e.g. flashing lights) and audible signals (e.g. bleeps) may both be used to inform and warn the user (see ISO 11429 and IEC 61310-1. They should be explained in the instructions for use on, or accompanying, the product. If appropriate, the instructions should prescribe regular checking of these devices.

8.7 Packaging and containers with hazardous contents may require tactile danger warnings (conforming to ISO 11683) if there is a possibility of them otherwise being mistakenly misused by people unable to see a visual warning.

9 Durability of instructions for use

9.1 Throughout the expected life of the product and allowing for repeated use, on-product instructions for use should be permanently durable and clearly legible.

9.2 Instructions for use given on packaging or in materials accompanying the product (such as leaflets, manuals, etc.) should be produced in durable form. They should be designed and made to survive frequent handling by users during the expected life of the product in the environment where the product will be used.

9.3 It may be useful to mark such instructions, except those needed only for initial assembly or installation, “KEEP FOR FUTURE REFERENCE”. However, replacement copies of all such instructions for use should be made available upon request by the producer/manufacturer throughout the expected life of the product.

9.4 Since packaging is often impermanent and can be destroyed in the unpacking process, the permanent placing of instructions on packaging is generally undesirable. Where the instructions are so placed, the advice

to keep them for future reference should be prominent. If only a part of the packaging needs to be retained (e.g. because it contains instructions), that part should be easily detachable from the rest of the packaging.

10 Evaluation

10.1 As described in 4.13, an integral part of the product delivery needs to be the independent assessment of instructions for use of products. This can be done through

- a) desk research by an expert independent of the product team,
- b) evaluation in product use trials by a panel of users, or
- c) a combination of a) and b).

The additional checking required for translating instructions into other languages is described in 7.6.7.

10.2 Assessment by desk research may be carried out by suitably qualified experts who have no connection with any aspect of the design, production or marketing of the product and its instructions.

10.3 It may be necessary for desk research to be supplemented by independent third-party checking, e.g. where provision of information at the point of sale is a requirement (see 6.8). The actual situation should be investigated by or for the researcher or independent evaluator, rather than there being reliance on any statements by the manufacturer/producer.

10.4 Interactive panel testing is a means of establishing how much help is given to the user by the instructions for use of a product, by answering any queries he may have when using it, including queries on safety and environmental aspects. This testing should establish the extent to which the instructions are complementary to the design, ergonomics and function of the product.

10.5 The composition of the panel should be representative of the typical intended users and of the more vulnerable or marginal groups (e.g. people whose disabilities make it difficult for them to use similar products), taking into account:

- age and sex;
- general health;
- culture and language;
- physical skill, or level of ability/disability;
- left- or right-handedness;
- education/literacy/technical expertise;
- previous acquaintance with, or ignorance of, similar products.

10.6 The normal method of recording results is to require the panellists to fill in questionnaires based on the requirements in checklists such as those given in Annex A. Video and audio recording of the tests may help to establish objective ratings of the usefulness of instructions for use. Each test should be supervised by a suitably qualified and independent expert who should report separately his/her observations, especially any problems encountered by the panellists.

10.7 Each member of the panel should give a final assessment based on his/her individual experience, but the final evaluation of panel tests should be the responsibility of the supervising expert. He/she should take into account the number and seriousness of the difficulties experienced by the panel in using the product safely and correctly, and the responses to the questionnaire. He/she may develop quantitative or statistical criteria for evaluating these results, which could include weighting of difficulties and complaints

in relation to serious matters such as risk of injury or damage to the product. The evaluation of panel tests should include a narrative report by the supervising expert.

10.8 Annex A provides model checklists of the issues against which instructions for use of consumer products may be independently evaluated. Writers of instructions may also wish to use the checklists while preparing successive drafts in order to improve them.

10.9 The first checklist lists types and items of information content that, depending upon the type of product, may need to be supplied to (some or all) consumers by means of the instructions. Compliance could be indicated by items being ticked off one by one if they have been adequately covered.

10.10 The second checklist summarizes the communication criteria against which to evaluate the effectiveness of instructions in communicating the information to consumers and influencing their behaviour. For most products, 100 % effectiveness of instructions could be neither achieved nor measured quantitatively; consequently, in practice, assessment is a qualitative judgement.

10.11 This checklist may be also be used as a guide to pin-pointing items in the instructions that are shown by experience to be ineffective, rather than constituting a simple list of criteria against which to award marks to the document as a whole. Constructive criticism needs to be very specific as to

- which part of the instructions needs to be improved,
- the reasons why that part is not considered to be effective, and
- (preferably) how it could be altered to become effective.

10.12 Neither checklist should be assumed to be comprehensive for every type of product. Either may need to be supplemented and/or amended in accordance with relevant product standards or (in the absence of such standards) in accordance with standards dealing with comparable products or functions, or in any other appropriate way.

Annex A (informative)

Checklists for evaluation of instructions for use

This annex provides model checklists for evaluation of instructions for use.

Table A.1 provides a checklist for information content. Compliance could be indicated by items being ticked off one by one if they have been adequately covered.

Table A.1 — Checklist for information content

Items to be checked		Relevant (sub)clause of this Guide	Relevant (sub) clause of IEC 82079-1:2012	Compliance/ comments
1. Identification				
1.1	Brand and type designation	7.1.4	5.2	
1.2	No. of model, version, type, subgroup	7.1.5	4.8.1 and 5.2	
1.3	Expiry date	4.11	4.6	
1.4	Up-to-date check (e.g. date of publication of the handbook coverage of product modifications)	4.2, 4.12 and 7.1.4	4.1.5 and 5.3	
1.5	Producer/supplier, distributor or other information	7.1.4	5.2	
1.6	Contact details of producer/service agency	7.1.4	5.8 and 5.9	
1.7	Certification references	5.6	4.8.1.1 and 5.6	
1.8	Requirements of specific product standards	Clause 5 and 6.8	4.7.1 and 5.3	
1.9	Optional modules/extras	7.1.6	4.8.1.5	
2. Technical specification of the product and its residual hazards				
2.1	Functions and range of application	4.5 and 7.1.2	4.8	
2.2	Safe and correct use; principal residual hazards, general warnings about product or use	4.5 to 4.7, 5.9 and 7.1	4.3 and 5.4 to 5.13	
2.3	Dimensions — mass — capacity	4.5	5.3 and 5.8	
2.4	Chemical composition	4.3 and 4.5	5.1.14	
2.5	Performance data	6.8	5.3	
2.6	Supply data for power, gas, water and other consumables (e.g. detergents, lubricants)	4.5	5.3	
2.7	Energy consumption and methods of measurement used	4.6	5.3	
2.8	Emission of noise, gas, waste water, etc., with methods of measurement used	4.5 and 4.6	5.3 and 5.8	
2.9	Expected product life and intended disposal	4.5 and 4.6	4.6 and 5.14	
2.10	Information on personal protection (e.g. clothing)	6.8	4.5	
2.11	Information on dangers to particular vulnerable groups (e.g. potential allergy or strobe effects)	4.7, 4.10 and 8.5	4.5, 5.1 and 4.8.2.2	
3. Preparing the product for use				

Table A.1 (continued)

Items to be checked			Relevant (sub)clause of this Guide	Relevant (sub) clause of IEC 82079-1:2012	Compliance/ comments
3.1	Safety precautions before installation		6.6 and 7.1.1	5.8	
3.2	Unpacking		4.5		
3.3	Safe disposal of packaging		4.5 and 4.6		
3.4	Installation and assembly (e.g. special tools, space for maintenance and repair)		4.5 and 4.6		
3.5	Storage and protection during intervals in normal use		4.5 and 4.11		
3.6	Repackaging to prevent damage in transport		4.5		
3.7	Information on operations to be carried out only by qualified people. Separation of this information from instructions to users. Comprehensiveness of instructions to qualified people.		4.8 and 4.10		
4. Operating instructions					
4.1	General:	structure from basic to sophisticated operations/functions	7.1.2	5.9	
		meaningful separation between basic product and optional modules	7.1.6		
4.2	Basic functions:	complete for correct intended use	4.5		
		complete for safe intended use	4.3 and Clause 8		
		complete for reasonably foreseeable misuse	4.4		
		conformity with minimum list in relevant product standard(s)	5.6, 5.9 and 5.10		
4.3	Secondary functions (identical to 4.1 above)		7.4.3		
4.4	Optional modules and extras		7.1.6	4.8.1.5	
4.5	Personal protection		4.7	4.5	
4.6	Quick reference instructions:	by reminder cards, stickers or labels	6.5, 8.4 and 8.5	6.8 and 5.5.5	
		by reference to handbook, etc.	4.2, 6.1 and Clause 9	5.9.4 to 5.9.7	
4.7	Disposal of waste products		4.5, 4.6	5.11.2, 5.11.3 and 5.14.4	
5. Information needed by operator					
5.1	Explanations of visible and audible signals		7.11.3 and 8.6	4.8.2.4	
5.2	Distinctions between characteristics of normal and faulty/dangerous operation		8.2	5.9.4	
5.3	Trouble-shooting advice (e.g. in the form of frequently asked questions and fault detection procedures) — intelligible to consumers and paying due regard to safety		7.12	5.9.5 to 5.9.7	
6. Maintenance and cleaning					
6.1	Safety precautions (e.g. personal protection, special tools)		4.7	5.10	
6.2	Maintenance and cleaning by users		Clause 9		
6.3	Maintenance and cleaning by qualified people		4.8 and 4.10		
6.4	Safety/deterioration checks during maintenance		7.12		
7. Critical safety and health information					

Table A.1 (continued)

Items to be checked			Relevant (sub)clause of this Guide	Relevant (sub) clause of IEC 82079-1:2012	Compliance/ comments
7.1	Safety warn-ings/ cautions:	general	Clause 8	5.5	
		correct locations (e.g. to alert, remind, etc.)	Clause 6 and 8.2	5.5 and 6.8	
		on product and/or on packaging and/or in accompanying material.			
		if relevant, visibility at point of sale	6.8	6.8	
		correct use of terms	5.4 and 7.5.4		
		use of simple/standardized phrases	Clause 9		
		durability of warnings	Clause 9		
		conformity with requirements in relevant product standard(s)	5.8	5.3 and 4.8.1	
7.2	Safety signals	7.1.3, 8.3 and 8.6	4.8.2.4 and 5.9.4		
7.3	Information on residual risk	8.2	4.3 and 5.5.1		
7.4	Safe disposal of product at the end of its useful life	4.6	5.14		
7.5	Environmental impacts of using the product	4.5 and 4.6	5.8.2, 5.11.2 and 5.14.4		
8. Consistency in design of information and of whole “product” offered					
8.1	General	4.2	4.1.3		
8.2	Integrated design of product and instructions; no compen-sation for design deficiencies	4.1, 4.2 and 6.1	4.1.2 and 4.3		
8.3	Consistent terminology on the product itself on the packag-ing in accompanying material, on website resources and in marketing media	6.2, 6.3 and 7.5.1	4.1.3, 4.8.2.3 and 6.1.4		
8.4	Structure of text and graphics:	structure follows communication princi-ples	7.4 and 7.5.2		5.15, 6.1.1 and 6.1.3
		meaningful headings used	7.11.4		5.8 to 5.14
		unnecessary material excluded to avoid information overload (e.g. sales promo-tion, extensive repetition, too many docu-ments)	4.3		6.1.5, 6.1.6 and 6.1.10
8.5	Location(s) and presentation of instructions	Clause 6	4.7.2 to 4.7.3		
8.6	Numbered pages and/or paragraphs, with table of contents and/or index appropriate to length and complexity of text. Use of keywords.	7.11	5.15.2 to 5.15.5		

Table A.2 provides a checklist for effectiveness of communication. This checklist offers criteria against which to make subjective evaluation of each individual item in the instructions being assessed, e.g. each on-product warning, each paragraph in leaflets and each graphic. It is only necessary to record comments on those items or parts considered to be in need of improvement. The evaluations should be listed giving the reasons why the item is not considered to be effective (and preferably how it could be altered to become effective).

Table A.2 — Checklist for communication effectiveness

Issue to be addressed		Relevant (sub) clause of this Guide	Relevant (sub) clause of IEC 82079-1:2012
1	Location and medium		
	— Placement on product, on packaging or in accompanying media meets needs of availability and durability	Clause 6 and Clause 9	4.7.2 to 4.7.5, 6.2.5 and 6.8.4
	— Alerting function is appropriate to user's needs (prominence/visibility distance, etc.)	8.4 to 8.6	6.2.1 and 6.8
	— Place in order or sequence with respect to other instructions follows communication principles	7.4	5.15, 6.1.3 and 6.3.2
	— Grouped under appropriate heading and found in index	7.11	5.15.3 and 5.15.4
2	Legibility of text		
	— Clear typeface and adequate font size (depending on reading distance)	7.2	6.2
	— Contrast with background		
	— Durability of legibility of on-product (or on-packaging) text		
3	Wording and structure of text		
	— Text/use of words: — words and phrases not complicated or over-sophisticated — short phrases — one sentence-one command; not too much information in one sentence — direct active voice and assertive commands	7.5	6.1
	— Terms used for features and user actions: — terms familiar to consumers used if possible — technical features and terms well explained — consistent use of terms	7.5	
	— Communication principles: — encouraging quick reactions (e.g. simple and easy instructions for an emergency) — setting out learning process for complex functions — answering the questions "where?", "who?", "what?", "when?", "how?" and "why?"	7.4	
4	Multiple language versions		
	— Clear differentiation/identification of languages	7.6	4.8.3
	— Each language version checked by a native-speaking consumer for comprehensibility and absence of linguistic errors		
5	Illustrations		
	— Clarity of features and actions illustrated at intended viewing distance	7.7	6.3
	— Lack of ambiguity; self-explanatory without text (whenever possible)		
	— Sufficient number of illustrations for each one to provide clear and specific information		
	— Illustrations supported by clear and helpful captions		
	— Clear connections or cross-references between text and illustrations		
	— Can be viewed adjacent to relevant text when necessary		

Table A.2 (continued)

Issue to be addressed		Relevant (sub) clause of this Guide	Relevant (sub) clause of IEC 82079-1:2012
6	Use of graphic symbols	7.8	6.4
	— Adequate size to be recognizable at intended viewing distance		
	— Standardized symbols used where possible (in standard colours)		
	— Standard design principles (e.g. shape and colour) followed for any new symbols and non-registered symbols		
	— Each symbol clearly explained in text		
7	Tables, conceptual diagrams and flow charts	7.9 and 7.10	6.5
	— Provided and located where appropriate		
	— Clearly set out and informative		
	— Repeated where necessary		
8	Use of colours	7.3	6.2.2 and 6.9
	— Functional		
	— Clear and easily distinguishable		
9	Explanation of visual and audible signals	8.6	4.8.2.4 and 5.9.4
	— Clarity of information provided to user		
	— Lights, sounds text displays (or other indications) that may be given by the product at each stage are explained and referred to at each relevant point in text		
10	Instructions presented in audio, video or animated text	6.7	4.7.3, 4.7.6, 6.2.1 and 6.7
	— Indicate whether supplementing or replacing text instructions		
	— Follow structure and language of text except when this is unsuitable to medium		
11	Durability	Clause 9	4.7.4, 4.7.5, 6.2.5 and 6.8.4
	Those items of instructions that need to be kept for reference or new users should be in media that offer adequate provision against loss or deterioration in expected (normal) life of product and discouragement of their disposal.		