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# International Standard



# 2078

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Textile glass — Yarns — Designation

*Verre textile — Fils — Désignation*

Fourth edition — 1985-09-01

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO 2078:1985](#)

<https://standards.iteh.ai/catalog/standards/sist/78e2b43c-1845-492d-8108-8e729105e0e3/iso-2078-1985>

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UDC 677.521

Ref. No. ISO 2078-1985 (E)

Descriptors : textile glass, textile glass yarns, designation.

Price based on 4 pages

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2078 was prepared by Technical Committee ISO/TC 61, *Plastics*.

This fourth edition cancels and replaces the third edition (ISO 2078-1978), of which it constitutes a technical revision. <https://standards.iteh.ai/catalog/standards/sist/78e2b43c-1845-492d-8108-8e729105e0e3/iso-2078-1985>

# Textile glass — Yarns — Designation

## 1 Scope and field of application

This International Standard specifies a system of designating textile glass yarns [including single, multiple wound, folded (plied), cabled and textured yarns, strands, slivers and rovings] based on their linear density expressed in the Tex System.

This International Standard applies the rules of the single-to-fold designation given in ISO 1139 to these textile glass products.

## 2 References

ISO 2, *Textiles — Designation of the direction of twist in yarns and related products*.

ISO 1139, *Textiles — Designation of yarns*.

ISO 6355, *Textile glass — Vocabulary*.

## 3 Definitions

The terms used in this International Standard are defined in ISO 6355 and ISO 2.

## 4 Designation of a yarn

### 4.1 Elements of the designation

According to the definition given in ISO 1139, the designation of a yarn (single, strand, sliver, . . . , roving) is a condensed technical description containing the following elements.

#### 4.1.1 Glass used

A first letter, to specify the glass used by the manufacturer.

NOTE — The types of glass in general use are given in the table.

Table

Type	General indications
E	for general purposes; good electrical properties
D	high dielectric properties
A	high alkali content
C	chemical resistance
S,R	high mechanical strength
AR	alkaline resistant

### 4.1.2 Type of yarn

A second letter to describe the type of yarn :

- C (continuous) for continuous filament yarns;
- D (discontinuous) for staple fibre yarns.

NOTE — These letters are placed in the prefix, as it is of special importance in the case of textile glass to distinguish between continuous filament yarns and staple fibre yarns; their use renders superfluous the notation for the number of filaments, preceded by the symbol f suggested in ISO 1139.

### 4.1.3 Nominal diameter of fibre

A number, consisting of one or two figures, giving the nominal diameter, in micrometres, of the filament or staple fibre.

### 4.1.4 Linear density, direction and amount of twist and number of components

Some, or all of the following elements, as in ISO 1139 :

- a) a number giving the linear density expressed in the Tex System. It is strongly recommended that the tex be used as

the basic unit; in which case the word *tex* can be omitted from the designation. (If multiples or submultiples of the *tex* are used, these units must be indicated after the value given for linear density.);

- b) the direction(s) of twist;<sup>1)</sup>
- c) the amount(s) of twist, expressed in turns per metre, for the twist of the final stage, and (if necessary) in the full designation, for the twist of each intermediate stage;
- d) the number of components in folding (plying) or cabling.

**4.1.5 Manufacturer's code**

If desired, the designation may be completed with the manufacturer's code permitting the incorporation of any complementary information that does not appear among the previous elements, for example the type of size and the total linear density. If it is mentioned, the manufacturer's code shall be placed either before or after the designation defined below and never between components [for example in the case of folded (plied) yarns having dissimilar components].

**4.2 Designation of types of textile glass yarns**

4.2.1 to 4.2.8 give the elements that shall appear in the designation of glass yarns.

**4.2.1 Strands**

- a) type of glass used;
- b) the letter C for continuous filament yarns;
- c) the nominal diameter, in micrometres, of the filaments, followed by a space;
- d) the linear density, in *tex*.

*Example* : EC10 40

**4.2.2 Slivers**

- a) type of glass used;
- b) the letter D (discontinuous) for staple fibre yarns;
- c) the nominal diameter, in micrometres, of the staple fibres, followed by a space;
- d) the linear density, in *tex*.

*Example* : ED7 190

**4.2.3 Single yarns**

**4.2.3.1 Single continuous filament yarns**

- a) type of glass used;
- b) the letter C for continuous filament yarns;
- c) the nominal diameter, in micrometres, of the filaments, followed by a space;
- d) the linear density, in *tex*, followed by a space;
- e) the direction of twist, followed by a space;
- f) the amount of twist, expressed in turns per metre.

*Example* : EC9 34 Z 40

NOTE — When several strands are assembled in parallel and twisted together, give only the total linear density of all the strands before twisting.

For example, starting with four strands of EC9 34 and twisting these together, the designation of the resulting yarns is EC9 136 Z 40.

**4.2.3.2 Single staple fibre yarns**

- a) type of glass used;
- b) the letter D (discontinuous) for staple fibre yarns;
- c) the nominal diameter, in micrometres, of the staple fibres, followed by a space;
- d) the linear density, in *tex*, followed by a space;
- e) the direction of twist, followed by a space;
- f) the amount of twist, expressed in turns per metre.

*Example* : ED7 190 Z 160

**4.2.3.3 Textured yarns**

- a) type of glass used;
- b) the letter C or D for the designation of the original yarn (see 4.1.2);
- c) the nominal diameter, in micrometres, of the filaments, followed by a space;
- d) the linear density, in *tex*, before texturation, followed by a space;
- e) the linear density, in *tex*, after texturation, preceded by the letter T.

*Example* : EC9 340 T352

1) If the yarn has been subjected to a twisting operation, this will be described by its direction and followed by the degree of twist. If the designation carries no mention of twist, this shall always signify the *absence* of any twisting operation.

**4.2.4 Folded (plied) (doubled) yarns<sup>1)</sup>**

**4.2.4.1 Folded (plied) yarns having identical components**

- a) Full designation :
- 1) designation of the single continuous filament or staple fibre yarns used, according to 4.2.3.1 or 4.2.3.2, followed by a space;
  - 2) the multiplication sign, ×, followed by a space;
  - 3) the number of single continuous filament or staple fibre yarns, followed by a space;
  - 4) the direction of folding (plying) twist, followed by a space;
  - 5) the amount of folding (plying) twist, expressed in turns per metre.

*Examples :* EC9 34 Z 160 × 2 S 150  
ED7 190 Z 280 × 2 S 260

b) Simplified designation :

- 1) designation of the single continuous filament or staple fibre yarns used, according to 4.2.3.1 or 4.2.3.2, without indication of the direction and the amount of twist [the twist of folded (plied) yarns is generally balanced], followed by a space;
- 2) the multiplication sign, ×, followed by a space;
- 3) the number of single continuous filament or staple fibre yarns, followed by a space;
- 4) the direction of folding (plying) twist, followed by a space;
- 5) the amount of folding (plying) twist, expressed in turns per metre.

*Examples :* EC9 34 × 2 S 150  
ED7 190 × 2 S 260

**4.2.4.2 Folded (plied) yarns having dissimilar components :**

- a) designation of the single continuous filament yarns used according to 4.2.3.1, joined by the plus sign, +, preceded and followed by a space, the whole being placed in parentheses and followed by a space;
- b) the direction of folding (plying) twist, followed by a space;
- c) the amount of folding (plying) twist, expressed in turns per metre.

*Example :* (EC9 34 Z 150 + EC7 22 Z 150) S 100

**4.2.5 Cabled yarns**

a) Full designation :

Designation of the yarn used, with indications of the direction and the amount of twist for each stage, the indications for each stage being separated by the multiplication sign, ×, preceded and followed by a space.

*Example :* EC9 34 Z 150 × 2 S 100 × 3 Z 80

b) Simplified designation :

The twist of cabled yarns is generally balanced, and in most cases it is not necessary to know the direction and the amount of twist of each of the intermediate stages; consequently a simplified designation for a cabled yarn need only show the direction and the amount of the final twist.

It will consist of the following elements :

- 1) designation of the single continuous filament yarns according to 4.2.3.1, without indication of the direction and the amount of twist, followed by a space;
  - 2) the multiplication sign, ×, followed by a space;
  - 3) the number of yarns involved, followed by a space;
  - 4) the multiplication sign, ×, followed by a space;
  - 5) the number of yarns involved, followed by a space;
  - 6) the direction of twist, followed by a space;
  - 7) the amount of twist, expressed in turns per metre.
- } for each intermediate stage
- } for the final stage

*Example :* EC9 34 × 2 × 3 Z 80

**4.2.6 Multiple wound yarns<sup>1)</sup>**

**4.2.6.1 Multiple wound yarns having identical components :**

- a) designation of the yarn used, followed by a space;
- b) the multiplication sign, ×, followed by a space;
- c) the number of yarns wound together.

*Example :* EC5 11 Z 90 × 10

1) This term is defined in ISO 1139.

**4.2.6.2 Multiple wound yarns having dissimilar components**

Designations describing the yarns used, joined by the sign + preceded and followed by a space, the whole being placed in parentheses.

*Example* : (EC9 34 Z 40 + EC7 22 Z 40)

**4.2.7 Rovings**

**4.2.7.1** In general, a "summary" designation is used, the designation being composed of the following elements :

- a) type of glass used;
- b) the letter C for continuous filament yarns;
- c) the nominal diameter, in micrometres, of the filaments, followed by a space;
- d) the total linear density, in tex.

*Example* : EC10 2400

NOTE — For direct rovings, the total linear density equals that of the strand used.

**4.2.7.2** When requested, in particular for rovings to be chopped, the complete designation is given as follows :

- a) designation of the strand (see 4.2.1), followed by a space;
- b) the multiplication sign, ×, followed by a space;
- c) the number of strands assembled without twist.

*Example* : EC10 40 × 60

**4.2.8 Chopped strands**

The designation shall consist of the following elements :

- a) designation of the strand (see 4.2.1), followed by a space;
- b) a dash, followed by a space;
- c) the nominal length, in millimetres, of the chopped strands, followed by a space and the symbol mm.

*Example* : EC14 75 — 6 mm

NOTE — In the designation of the strand, the linear density to be stated is that of the strands before the chopping process.

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