TC 61

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Textile glass yarns — Designation

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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 aproval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2078 was developed by Technical Committee ISO/TC 61, *Plastics*. The second edition (ISO 2078-1976) was approved by the member bodies of the following countries :

Australia	Israel	South Africa, Rep. of
Canada	Italy	Spain
Chile	Japan	Sweden
Egypt, Arab Rep. of	Netherlands	Switzerland
France	New Zealand	United Kingdom
Germany, F.R.	Poland	U.S.A.
Hungary	Portugal	U.S.S.R.
India	Romania	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Belgium
Czechoslovakia

This third edition, which supersedes ISO 2078-1976, incorporates draft Addendum 1, which features at present as sub-clause 4.2.8, and which was circulated to the member bodies in July 1977. This draft addendum was approved by the member bodies of the following countries :

Australia	India	South Africa, Rep. of
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Brazil	Japan	Turkey
Canada	Kenya	United Kingdom
Czechoslovakia	Korea, Rep. of	U.S.A.
Finland	Mexico	U.S.S.R.
France	Netherlands	Yugoslavia
Germany, F.R.	Peru	
Hungary	Poland	

No member body expressed disapproval of the document.

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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 and cabled yarns, strands, slivers and rovings) based on their linear density expressed in the Tex System.

To these glass textile products, it applies the rules of the first method given in ISO 1139, i.e. the "single to fold" notation.

2 REFERENCES

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

ISO 472, *Plastics — Vocabulary.*

ISO 1139, *Textiles — Designation of yarns.*

3 DEFINITIONS

The terms used in this International Standard are defined in ISO 472 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 *A first letter* to specify the glass used by the manufacturer;

NOTE — The following types of glass are in general use :

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

4.1.2 *A second letter* describing the type of fibre used :

- C (continuous) for continuous filaments;
- D (discontinuous) for staple fibres.

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 and staple fibres; their use renders superfluous the notation for the number of filaments, preceded by the symbol f suggested in ISO 1139.

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

4.1.4 *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 to use the tex 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;[1)]

c) the amount of twist in turns per metre for each direction;

d) the number of components in folding 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 which does not appear among the previous elements, as for example the total linear density. If it is mentioned, the manufacturer's code must be placed either before or after the designation defined below and never between components (for example, in the case of folded yarns having dissimilar components).

4.2 Designation of types of textile glass yarns

The following paragraphs give the elements which must appear in the designation of glass yarns.

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 must always signify the absence of any twisting operation.*

4.2.1 *Single strand*

a) type of glass used;

b) the letter C for continuous filament;

c) the nominal diameter, in micrometres, 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 fibres;

c) the nominal diameter, in micrometres, 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;

c) nominal diameter, in micrometres, followed by a space;

d) linear density, in tex, followed by a space;

e) direction of twist, followed by a space;

f) amount of twist, in turns per metre.

Example : EC9 34 Z 40

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

Example : Starting with 4 strands of EC9 34 and twisting these together, one can describe the resulting yarn as : EC 9 136 Z 40.

4.2.3.2 SINGLE STAPLE FIBRE YARNS

a) type of glass used;

b) the letter D (discontinuous) for staple fibres;

c) nominal diameter, in micrometres, followed by a space;

d) linear density, in tex, followed by a space;

e) direction of twist, followed by a space;

f) amount of twist, in turns per metre.

Example : ED7 190 Z 160

4.2.4 *Multiple wound yarns*[1)]

4.2.4.1 MULTIPLE WOUND YARNS HAVING IDENTICAL COMPONENTS

a) description of the single yarns as in 4.2.3.1, followed by a space;

b) the multiplication sign X, followed by a space;

c) the number of single yarns wound together.

Example : EC5 11 Z 90 X 10

4.2.4.2 MULTIPLE WOUND YARNS HAVING DISSIMILAR COMPONENTS

Designation as in 4.2.3.1 describing the various single elements 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)

4.2.5 *Folded (doubled) yarns*[1)]

4.2.5.1 FOLDED YARNS HAVING IDENTICAL COMPONENTS

a) designation of the single yarns according to 4.2.3.1, without indication of the amount of twist (the twist of folded yarns is generally balanced), followed by a space;

b) the multiplication sign X, followed by a space;

c) the number of single yarns being folded, followed by a space;

d) direction of folding twist, followed by a space;

e) amount of folding twist, in turns per metre.

Example : EC9 34 Z X 2 S 150

4.2.5.2 FOLDED YARNS HAVING DISSIMILAR COMPONENTS

a) designation of the single yarns used according to 4.2.3.1, joined by the sign + preceded and followed by a space, the whole being placed in parentheses and followed by a space;

b) direction of folding twist, followed by a space;

c) amount of folding twist, in turns per metre.

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

4.2.6 *Cabled yarns*

4.2.6.1 FULL IDENTIFICATION

Designation of the yarn used, with indications of direction and amount of twist for each stage, the indications for

1) This term is defined in ISO 1139.

each stage being separated by the multiplication sign X proceded and followed by a space.

Example : EC9 34 Z 150 X 2 S 100 X 3 Z 80

4.2.6.2 SIMPLIFIED IDENTIFICATION

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

It will consist of the following elements :

a) designation of the single yarns according to 4.2.3.1 without indication of the amount of twist, followed by a space;

b) the multiplication sign X, followed by a space;

c) the number of yarns involved, followed by a space;

d) the direction of twist, followed by a space;

(b), (c), (d) : for each intermediate stage

e) the multiplication sign X, followed by a space;

f) the number of yarns involved, followed by a space;

g) the direction of twist, followed by a space;

h) the amount of twist, in turns per metre.

(e), (f), (g), (h) : for the final stage

Example : EC9 34 Z X 2 S X 3 Z 80

4.2.7 *Rovings*

4.2.7.1 In general, a so-called "summary" description is used, the description being composed of the following elements :

a) type of glass;

b) the letter C for continuous filament;

c) nominal diameter, in micrometres, followed by a space;

d) total linear density, in tex.

Example : EC10 2400

4.2.7.2 Where necessary, in particular with chopping rovings, the complete designation is given as follows :

a) designation of the strand (see 4.2.1), followed by a space;

b) the multiplication sign X, followed by a space;

c) number of strands assembled without twist.

Example : EC10 40 X 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 hyphen, followed by a space;

c) the nominal length of the chopped strands, in millimetres, 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.