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**Agricultural irrigation equipment —  
Thermoplastic collapsible hoses for  
irrigation — Specifications and test  
methods**

*Matériel agricole d'irrigation — Tuyaux écrasables en matières  
thermoplastiques pour l'irrigation — Spécifications et méthodes d'essai*



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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.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard 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 16438 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

## Introduction

Thermoplastic collapsible hoses have been introduced to agricultural irrigation projects in recent years, e.g. as headers supplying drip tape systems or as replacement for gated pipes.

Thermoplastic collapsible hoses for *irrigation* are a special “breed” of hoses. They have a unique combination of attributes and requirements, that are not covered by any other existing ISO International Standard, thus justifying the preparation of a separate, dedicated standard. These aspects include:

- equal and accurate spacing of multiple outlet connections;
- very low elongation and amount of twist under pressure;
- resistance to most fertilizers and other chemicals employed in irrigation;
- protection against degradation by UV radiation;
- impermeability to incident light;
- defined pressure loss data.

This International Standard is intended to cover all these aspects by specifying the requirements and the applicable test methods.



# Agricultural irrigation equipment — Thermoplastic collapsible hoses for irrigation — Specifications and test methods

## 1 Scope

This International Standard specifies requirements and test methods for reinforced and non-reinforced thermoplastic collapsible hoses, which are intended to be used as main and sub-main supply lines for the conveyance and distribution of water for irrigation at water temperatures up to 50 °C.

It is applicable to irrigation hoses with nominal diameters between 40 mm and 500 mm and working pressures between 0,3 bar (0,03 MPa) and 6 bar (0,6 MPa).

This International Standard is applicable to two types of hose configurations: distributor hose (with outlet connections) and plain hose (without outlet connections).

## 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 1402:2009, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 4671:2007, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 4892-3:2006, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 7686:2005, *Plastics pipes and fittings — Determination of opacity*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **hose**

flexible tube used for conveying water under pressure

### 3.2

#### **collapsible hose**

hose which, when not under internal pressure, collapses to such an extent that the inner faces of the bore almost touch or make contact and the hose cross-section appears flat

NOTE Adapted from ISO 8330:2007, definition 2.1.74.

### 3.3

#### **reinforced hose**

hose which has a layer of a material or other component incorporated in its wall which serves to increase its strength

### 3.4

#### **non-reinforced hose**

hose which has no reinforcing layer or component incorporated