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**Rubber and plastics hoses and  
tubing — Determination of  
transmission of liquids through hose  
and tubing walls**

*Tuyaux et tubes en caoutchouc et en plastique — Détermination de la  
transmission des liquides à travers les parois des tuyaux et des tubes*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

This fourth edition cancels and replaces the third edition (ISO 8308:2006), which has been technically revised with changes in [Clause 1](#), [5.2](#), [5.4](#), [5.7 b\)](#) and [6.6 b\)](#).

# Rubber and plastics hoses and tubing — Determination of transmission of liquids through hose and tubing walls

## 1 Scope

This International Standard specifies two methods for the determination of transmission of liquids through hose and tubing walls. Both methods are applicable to rubber and plastics hose and tubing, and comprise:

- method A, for all hose and tubing sizes and constructions: a practical comparative test, simulating working conditions;
- method B, for hose and tubing up to 16 mm inside diameter.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

## 3 Principle

### 3.1 Method A

This method is carried out on an assembly mounted in a test apparatus fitted with equipment to fill and measure a charged volume of a volatile liquid. The system is put under pressure, and the change in volume measured at 24 h intervals until the change has become constant with time, i.e. an equilibrium state has been reached. The test result is this steady-state evaporation rate, expressed as the volume of liquid lost per hour per unit inside surface area of the hose or tubing.

### 3.2 Method B

This method uses a pressureless reservoir. A length of hose or tubing is attached to the reservoir, the other end of the hose or tubing being plugged. The reservoir is partially filled with test liquid and sealed. The assembly is weighed at the start of the test, and once every 24 h for eight days. The test result is the maximum mass of liquid lost in any one 24 h period per unit inside surface area of the hose or tubing.

NOTE The method accounts for loss by permeation and evaporation and helps to minimize selective permeation of components in a fuel mixture since the liquid is agitated daily.

## 4 Test liquid

The test liquid shall be that specified in the appropriate product standard.