INTERNATIONAL STANDARD

**ISO 5771**

Third edition
2008-09-15

# Rubber hoses and hose assemblies for transferring anhydrous ammonia — Specification

*Tuyaux et flexibles en caoutchouc pour le transfert d'ammoniac anhydre — Spécifications*



Reference number
ISO 5771:2008(E)



ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

 

# Contents

Page

## 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 5771 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

This third edition cancels and replaces the second edition (ISO 5771:1994), which has been technically revised. The main changes are the addition of a concentricity requirement (see 6.3), increases in the lining and cover adhesion requirements (see Table 4) and more detailed cover pin-pricking requirements (see 5.3). It also incorporates the Technical Corrigendum ISO 5771:1994/Cor.1:1995.

# Rubber hoses and hose assemblies for transferring anhydrous ammonia — Specification

**WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.**

**CAUTION — All personnel working with anhydrous ammonia and its delivery systems should be familiar with and utilize the necessary safety precautions to minimize the potential for personal injury and property damage. Do not use anhydrous-ammonia hose assemblies at temperatures or pressures above those recommended by the hose manufacturer. Never recouple an anhydrous-ammonia hose. Hoses manufactured to this specification are suitable for use with anhydrous ammonia only.**

## 1 Scope

This International Standard specifies the minimum requirements for rubber hoses used for transferring ammonia, in liquid or in gaseous form, at ambient temperatures from −40 °C up to and including +55 °C. It does not include specifications for end fittings, but is limited to the performance of the hoses and hose assemblies.



## 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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 188:2007, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1307, *Rubber and plastics hoses — Hose sizes, minimum and maximum inside diameters, and tolerances on cut-to-length hoses*

ISO 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

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

ISO 4672:1997, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests*

ISO 7326, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8033, *Rubber and plastics hoses — Determination of adhesion between components*

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.

## 4 Pressure rating

The pressure rating shall comply with the requirements of Table 1.

**Table 1 — Pressure requirements**

| Parameter | Pressure requirements | |
|---|---|---|
| | bar | MPa |
| Maximum working pressure | 25 | 2,5 |
| Proof pressure | 63 | 6,3 |
| Minimum burst pressure | 125 | 12,5 |

## 5 Materials and construction

### 5.1 Lining

The lining shall be of uniform thickness of at least 1,5 mm, measured in accordance with ISO 4671, and free from holes, porosity and other defects. The finished hose lining shall comply with the performance requirements specified in Table 3. The material used shall be resistant to hardening or other deterioration due to the action of ammonia.



### 5.2 Reinforcement

The reinforcement shall consist of a material not adversely affected by permeating ammonia. It shall be applied evenly and uniformly, and in such a way that the finished hose complies with the relevant performance requirements specified in Table 4.

A suitable material is corrosion-resistant stainless steel.

### 5.3 Cover

The rubber cover, when used, shall be uniform in quality and thickness and shall be free from injurious defects. It shall comply with the relevant performance requirements specified in Table 3. It shall also be resistant to deterioration due to exposure to ammonia and exposure to the external environment. A gas-tight rubber cover shall be pin-pricked during manufacture to permit the release of any permeating gas during service. The pinholes shall not penetrate the lining and there shall be at least 40 effective pinholes per metre of hose.

### 5.4 Hose assemblies

Hose assemblies shall be made only from hoses complying with the performance requirements specified in Table 4. Only permanently attached ferrous-metal fittings shall be used. Specific information can be obtained from the hose manufacturer. In addition, guidance can be found in ISO/TR 17784.