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## **Rubber and plastics hoses — Determination of abrasion of lining**

*Tuyaux en caoutchouc et en plastique — Détermination de l'abrasion du tube du tuyau*

Reference number  
ISO 7662:1988 (E)

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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.

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.

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# Rubber and plastics hoses — Determination of abrasion of lining

## 1 Scope

This International Standard specifies a method for determining the abrasion of a hose lining when a certain amount of specified grit is passed through the hose. The method is applicable to rubber and plastics hoses with an internal bore of 20 to 50 mm used for grit blasting, shot blasting and similar operations.

The method may be used for comparison of the abrasion resistance of different types of hose, but not for specification of maximum abrasion in a hose standard. Comparison should be made on the same type and size of hose. Results from tests carried out with different types of grit should not be compared.

## 2 Apparatus

**2.1 Grit blasting cabinet**, constructed according to the basic principles shown in figure 1. The cabinet shall contain 25 kg of grit which is continually circulated during the test. The dimensions of the feed hose and air inlet of the grit container shall allow a grit flow rate of 42 g/s  $\pm$  2 g/s.

**2.2 Ejector**, with a blasting nozzle manufactured from hard metal, having an internal diameter of 10 mm  $\pm$  1 mm, the length of the cylindrical part being between 50 and 100 mm. A typical arrangement is shown in figure 2.

**2.3 Filter**, for drying the compressed air.

**2.4 Pressure regulator**, capable of controlling the air pressure.

**2.5 Fixture**, for mounting the hose in the specified position and for obtaining parallelism between the nozzle and the hose.

## 3 Grit

The grit used shall be a cast iron grit with a particle size of 0,7 to 0,9 mm and a Rockwell hardness of 58 to 60 HRC. Other types of grit may be used if a description is given in the test report.

## 4 Test piece

The test piece shall consist of a piece of hose with a length of 1 000 mm  $\pm$  50 mm.

## 5 Procedure

**5.1** Weigh the test piece (clause 4) to the nearest 0,1 g.

**5.2** Check the flow rate of the grit (clause 3), which shall be 42 g/s  $\pm$  2 g/s at an air pressure of 250 kPa, by collecting and weighing the amount of grit passing in a given period.

**5.3** Mount the test piece in the vertical position in the cabinet (2.1), using the fixture (2.5) to obtain the correct position in accordance with figure 3. The bend radius  $r$  shall be six times the nominal bore size of the hose.

**5.4** Connect the blasting nozzle to the test piece and check that the centreline of the nozzle and that of the test piece do not deviate more than 1°. The nozzle shall be inserted in the test piece for a length of 25 to 50 mm.

**5.5** Fill the grit container in the cabinet with 25 kg of new, not previously used, grit.

**5.6** Set the air pressure at 250 kPa  $\pm$  25 kPa (see 2.4).

**5.7** Start the blasting and continue for 400 min  $\pm$  1 min.

**5.8** Remove the test piece from the cabinet and clear it of residual grit by blowing air through the hose bore and brushing the cover of the hose.

**5.9** Weigh the test piece to the nearest 0,1 g.

## 6 Expression of results

Determine the loss in volume,  $\Delta V$ , in cubic centimetres, using the formula

$$\frac{m_1 - m_2}{\rho}$$

where

$m_1$  is the mass, in grams, of the test piece before testing (5.1);

$m_2$  is the mass, in grams, of the test piece after testing (5.9);

$\rho$  is the density, in grams per cubic centimetre, of the lining material.

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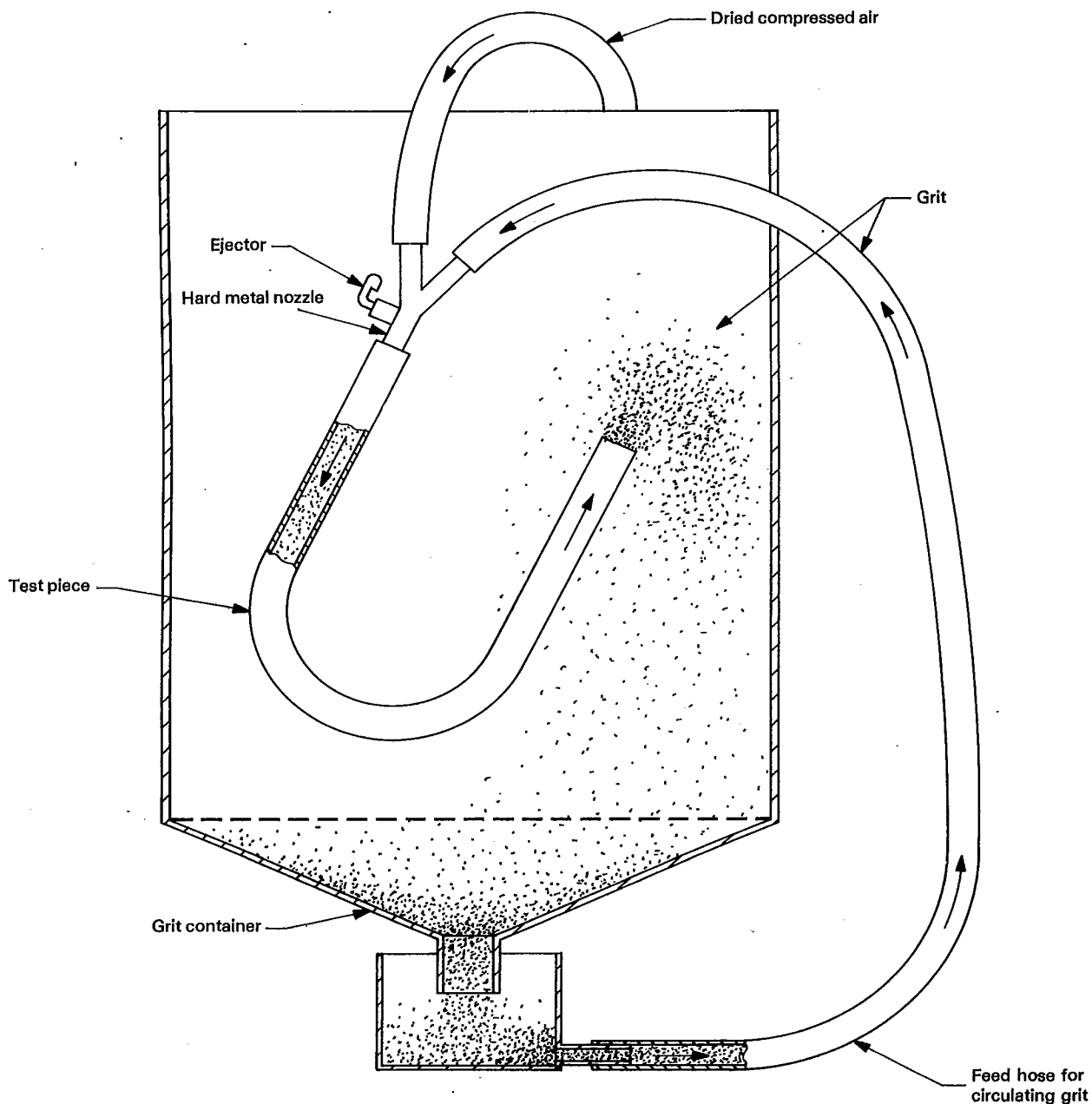
## 7 Test report

The test report shall include the following information:

- a full description of the hose tested, including the density of the lining material;
- a reference to this International Standard;
- details of test conditions:

- type of grit,
- flow rate of grit,
- test time;

- the loss of volume, given in cubic centimetres;
- any other observation made during the test;
- the date of the test.



**Figure 1 — Basic principle of blasting cabinet with test piece inserted**  
(A suitable cabinet can measure about 1 m × 1 m × 1 m.)

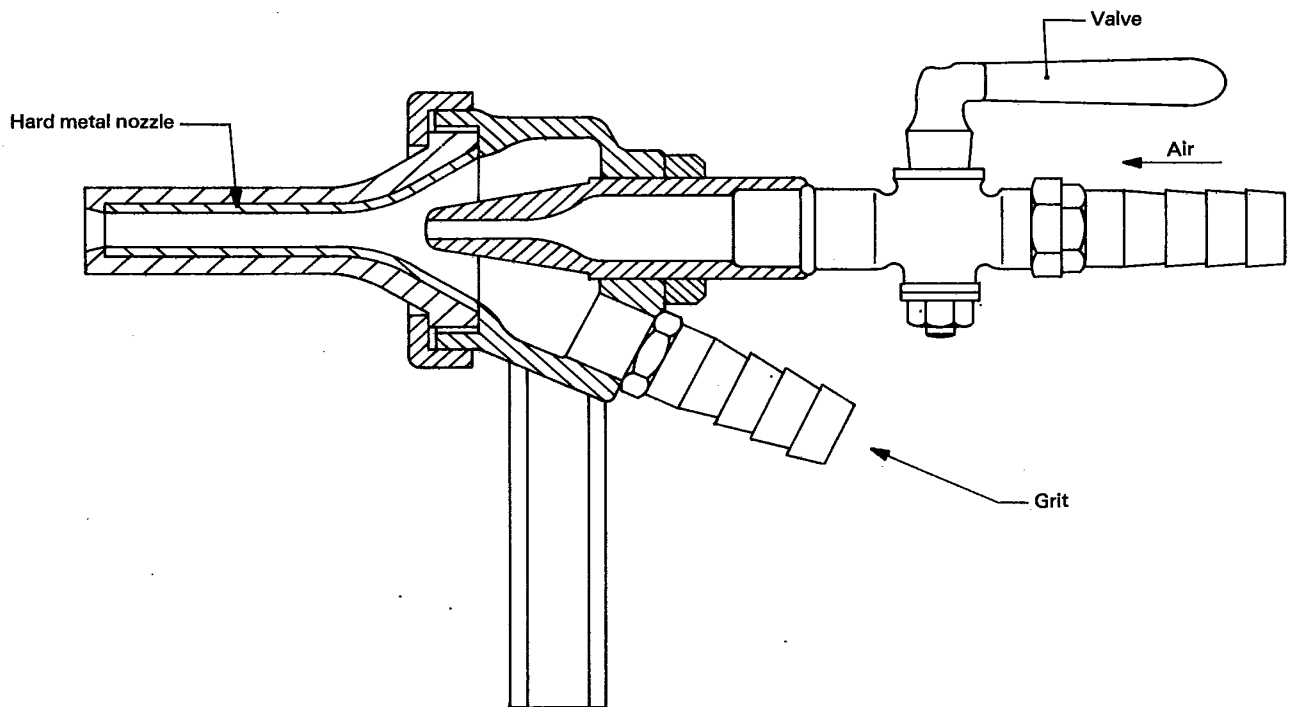


Figure 2 — Typical ejector system

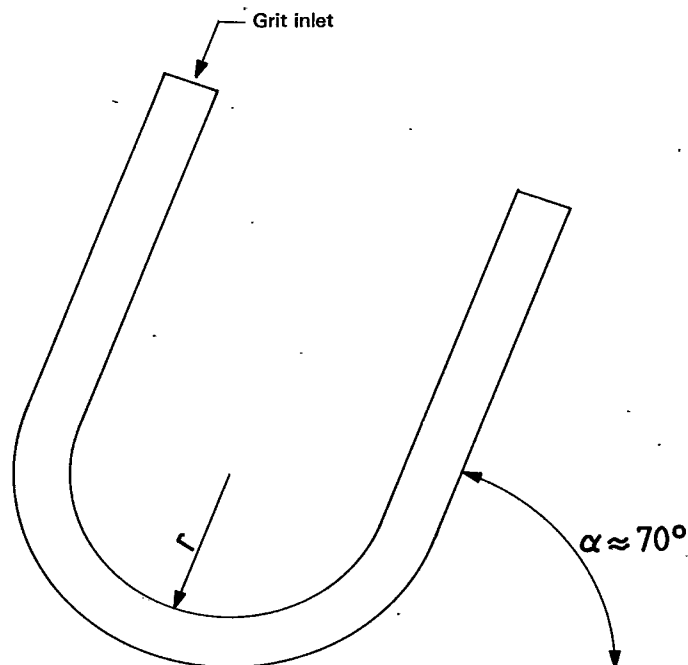


Figure 3 — Position of the test piece during the test  
(The two shanks of the hose shall have the same length.)



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