

# INTERNATIONAL STANDARD

**ISO**  
**8573-5**

First edition  
2001-12-15

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## Compressed air —

### Part 5: Test methods for oil vapour and organic solvent content

*Air comprimé —*

*Partie 5: Méthodes d'essai pour la teneur en vapeurs d'huile et en solvants organiques*



Reference number  
ISO 8573-5:2001(E)

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## ISO 8573-5:2001(E)

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Printed in Switzerland

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## ISO 8573-5:2001(E)

### 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 3.

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 part of ISO 8573 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8573-5 was prepared by Technical Committee ISO/TC 118, *Compressors, pneumatic tools and pneumatic machines*, Subcommittee SC 4, *Quality of compressed air*.

ISO 8573 consists of the following parts, under the general title *Compressed air*:

- *Part 1: Contaminants and purity classes*
- *Part 2: Test methods for aerosol oil content*
- *Part 3: Test methods for measurement of humidity*
- *Part 4: Test methods for solid particle content*
- *Part 5: Test methods for oil vapour and organic solvent content*
- *Part 6: Test methods for gaseous contaminant content*
- *Part 7: Test methods for viable micro biological contaminant content*

The following parts are under preparation:

- *Part 8: Test methods for solid particle content by mass concentration*
- *Part 9: Test methods for liquid water content*

Annex A forms a normative part of this part of ISO 8573. Annex B is for information only.

## Compressed air —

### Part 5:

## Test methods for oil vapour and organic solvent content

### 1 Scope

This part of ISO 8573 specifies the gas chromatography test method for determining the content of oil vapour (hydrocarbons of six or more carbon atoms) in compressed air, regardless of the source of the compressed air, as well as of any organic solvents in the vapour, difficult to separate from the other hydrocarbons. It also gives guidelines on the use of chemical indicator tubes as an initial indication of the presence of oil vapour.

This part of ISO 8573 elaborates sampling, measurement, evaluation, uncertainty considerations and reporting in respect of the compressed air purity class parameter, oil vapour, in accordance with ISO 8573-1.

NOTE Lighter hydrocarbons composed of five or less carbon atoms are dealt with as gaseous contaminants in 8573-6.

### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8573. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8573 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 3857-1, *Compressors, pneumatic tools and machines — Vocabulary — Part 1: General*

ISO 5598, *Fluid power systems and components — Vocabulary*

ISO 8573-1:2001, *Compressed air — Part 1: Contaminants and purity classes*

ISO 8573-2:1996, *Compressed air for general use — Part 2: Test methods for aerosol oil content*

ISO 8573-3, *Compressed air — Part 3: Test methods for measurement of humidity*

ISO 9486, *Workplace air — Determination of vaporous chlorinated hydrocarbons — Charcoal tube/solvent desorption/gas chromatographic method*

ISO 9487, *Workplace air — Determination of vaporous aromatic hydrocarbons — Charcoal tube/solvent desorption/gas chromatographic method*

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### 3 Terms and definitions

For the purposes of this part of ISO 8573, the terms and definitions given in ISO 3857-1, ISO 5598 and ISO 8573-1, and the following apply.

**3.1 mesh**  
indication of particle size resulting from the grading of solids by the use of sieves with defined hole sizes

**3.2 oil**  
mixture of hydrocarbons composed of six or more carbon atoms (C<sub>6</sub>)

**3.3 organic solvent**  
mixture of one or a combination of the following identified groups: alcohols, halogenic hydrocarbons, esters, esters/etheralcohols, ketones, aromatic/alfatic hydrocarbons

NOTE These compounds are characterized by a considerable vapour pressure under given conditions, when air samples are analysed.

### 4 Oil vapour classes

Oil vapour is included in the total oil concentration figure used for classification in Table 4 of ISO 8573-1:2001.

### 5 Test methods

Selection of the available test methods depends on the range of oil vapour content in the compressed air.

- Gas chromatography (see clause A.1) is applicable for oil vapour content in the range 0,001 mg/m<sup>3</sup> to 10 mg/m<sup>3</sup>.
- Chemical indicator tubes (see clause A.2) are to be used as a preliminary method only, for checking purposes and as an initial investigation, after which the gas chromatography method shall be employed.

### 6 Sampling

#### 6.1 General

The quantification of the oil vapour content in a compressed air system shall be carried out within the following constraints.

The sample shall be free from interfering contaminants, for example, water vapour, oil aerosol.

The sampling and analysis of the oil vapour shall be performed using a constant flow rate.

Air flow is normally diverted through the test equipment via suitable in-line valves. These shall have been checked to ensure they do not contribute to the level of contamination already present. Particular attention shall be given to the cleanliness of the test equipment, and other precautions shall be taken, for example, valve purging and stabilization to constant test conditions. Good analytical techniques help improve the confidence level of the measurements.

Flow measurement is required to determine the volume of air used during the test, regardless of the method.