



**International
Standard**

ISO 8573-5

**Compressed air — Contaminant
measurement —**

**Part 5:
Oil vapour content**

*Air comprimé — Mesurage des polluants —
Partie 5: Teneur en vapeurs d'huile*

**Second edition
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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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 118, *Compressors and pneumatic tools*, machines and equipment, Subcommittee SC4, *Compressed air treatment technology*.

This second edition cancels and replaces the first edition (ISO 8573-5:2001), which has been technically revised.

The main changes are as follows:

- a thermal desorption technique has been introduced to prevent the use of environmentally hazardous solvents;
- a re-useable standardized adsorption agent has been introduced.

A list of all parts of the ISO 8573 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Oil vapour is a common contaminant in compressed air and this document details the correct sampling methodology and assists the user in selecting equipment and instrumentation and the determination of the oil vapour concentration in compressed air.

Oil vapour is the sum of all gaseous hydrocarbons or organic compounds starting from n-hexane, consisting of the subgroups:

- VOC's: Volatile Organic Compounds C_6 (n-hexane C_6H_{14}) to C_{16} (n-hexadecane $C_{16}H_{34}$)
- SVOC's: Semi Volatile Organic Compounds C_{16} (> n-hexadecane $C_{16}H_{34}$) to C_{22} (n-docosane $C_{22}H_{46}$)

In addition, it is intended to be used to assess compressed air purity such that the purity class can be stated in accordance with ISO 8573-1 for a total oil content of class 0, 1, 2, 3, 4, and X, and can be used only by agreement between consenting parties when measurements to purity class 0 are to be performed.

As stated in ISO 8573-1:2010, 5.4: "*Measurements for liquid oil and aerosols of oil shall be made in accordance with ISO 8573-2. It is considered that, for classes 3, 4 and X, the oil vapour content is not expected to significantly affect the total concentration; therefore, the measurement of vapour is optional. Where it is deemed necessary to measure the oil vapour, then ISO 8573-5 shall be used.*"

Compressed air — Contaminant measurement —

Part 5: Oil vapour content

1 Scope

This document specifies the test method for determining the content of oil vapour in compressed air using pressurized sampling and gas chromatography.

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

For organic vapours and other gaseous contaminants, the same sampling procedure can be used, however the analysis method will be different depending on the target component. As guidance, ISO 8573-6 and ISO 16000-6 can be used.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3857-4, *Compressors, pneumatic tools and machines — Vocabulary — Part 4: Air treatment*

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

ISO 16000-6:2021, *Indoor air — Part 6: Determination of organic compounds (VVOC, VOC, SVOC) in indoor and test chamber air by active sampling on sorbent tubes, thermal desorption and gas chromatography using MS or MS FID*

ISO 16017-1, *Indoor, ambient and workplace air — Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography — Part 1: Pumped sampling*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3857-4 and ISO 8573-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Units

General use of SI units as given throughout this document is recommended, see ISO 80000-1. However, in agreement with accepted practice in the pneumatic field, some non-preferred SI units, accepted by ISO, are also used.

1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm².

NOTE bar (e) is used to indicate effective pressure above atmospheric pressure.