SWEDISH STANDARDS INSTITUTE

SVENSK STANDARD
SS-ISO 8573-9:2004

Fastställd 2004-02-20
Utgåva 1

Tryckluft –
Del 9: Metod att bestämma vattenhalten
(ISO 8573-9:2004, IDT)

Compressed air –
Part 9: Test methods for liquid water content
(ISO 8573-9:2004, IDT)

ICS 71.100.20
Språk: engelska
Publicerad: april 2004

Den internationella standarden ISO 8573-9:2004 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 8573-9:2004.

The International Standard ISO 8573-9:2004 has the status of a Swedish Standard. This document contains the official English version of ISO 8573-9:2004.

Upplysningar om **sakinnehållet** i standarden lämnas av SIS, Swedish Standards Institute,
telefon 08 - 555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar **allmänna upplysningar** om svensk och utländsk standard.
Postadress: SIS Förlag AB, 118 80 STOCKHOLM
Telefon: 08 - 555 523 10. *Telefax*: 08 - 555 523 11
E-post: sis.sales@sis.se. *Internet*: www.sis.se

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 8573-9 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 microbiological contaminant content*

— *Part 8: Test methods for solid particle content by mass concentration*

— *Part 9: Test methods for liquid water content*

Part 2 is under revision.

Introduction

Water can be present in compressed air systems in two states: liquid and vapour. Liquid water usually consists of liquid aerosol and wall flow.

This part of ISO 8573 deals with liquid water content. Water vapour content is dealt with in ISO 8573-3.

Compressed air —

Part 9:
Test methods for liquid water content

1 Scope

This part of ISO 8573 specifies test methods for determining the liquid water content in compressed air, expressed as the liquid water mass concentration. The limitations of the methods are also given. One of a series of standards aimed at harmonizing air contamination measurements, it identifies sampling techniques and also gives requirements for evaluation, uncertainty considerations and reporting for the air purity parameter liquid water. The test methods are suitable for determining the purity classes in accordance with ISO 8573-1.

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 1219-1, *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols*

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

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

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3857-1, ISO 5598, ISO 8573-1, ISO 8573-2 and the following apply.

3.1
water aerosol
liquid water particles in compressed air that have negligible fall velocity/settling velocity

3.2
liquid water
water aerosol and wall flow in compressed air

4 Units and symbols

For the purposes of this part of ISO 8573, the following, including non-SI-preferred, units are used:

— 1 bar = 100 000 Pa;

— 1 l (litre) = 0,001 m^3;

— bar(a) is used for expressing absolute pressure;

— bar(e) is used for expressing effective pressure.

For the graphic symbols used in Figure 1, diagrams are in accordance with ISO 1219-1.

5 Selection of methods

The method to be selected is dependent on the mass concentration range of liquid water in compressed air. The most suitable method for the range of liquid water content estimated to be present in the sample may be selected from Table 1.

Table 1 — Liquid water mass concentration measurement methods

Type of method	**Liquid water concentration** (c_w) g/m^3
Gravimetric method	$c_w \geqslant 0{,}1$
Vapourization method	$c_w \leqslant 5$

6 Sampling techniques

The sampling shall be made at or near actual pressure and at a constant compressed air flow rate.

The choice of sampling method will depend upon the actual level of contamination and the compressed air flow in the compressed air system. For sampling methods, see ISO 8573-2.

Compressed air samples may be routed back into main pipe or vent to the atmosphere after measurement. The value of air sample parameters (pressure, temperature, air velocity, etc.) shall be within the ranges specified by the test equipment manufacturer.

7 Measurement methods

7.1 General

The test equipment and instruments shall be in good working order. Consideration shall be given to the calibration requirements of the measurement equipment used as given in the applicable instructions.

Pressure and temperature may also affect liquid water content measurement results. Therefore, the temperature and the pressure at the measuring point should be maintained at steady state conditions.

Reference should be made to the measurement equipment manufacturer as to applicability of the equipment.