International Standard 4226

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Air quality — General aspects — Units of measurement

Qualité de l'air — Aspects généraux — Unités de mesure

First edition — 1980-02-15

UDC 614.71 : 53.081 **Ref. No. ISO 4226-1980 (E)**

Descriptors : air, quality, units of measurement, quantities, symbols.

Price based on 2 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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.

International Standard ISO 4226 was developed by Technical Committee ISO/TC 146, *Air quality*, and was circulated to the member bodies in August 1977.

It has been approved by the member bodies of the following countries :

Australia	Germany, F. R.	Mexico
Austria	Greece	Netherlands
Bulgaria	Hungary	Norway
Canada	India	Poland
Czechoslovakia	Iran	Spain
Egypt, Arab Rep. of	Ireland	Switzerland
Finland	Italy	Turkey
France	Japan	United Kingdom

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Belgium
Sweden
USA

Printed in Switzerland

Air quality — General aspects — Units of measurement

0 Introduction

The series of International Standards on air quality includes the standardization of methods for the measurement of gases, vapours and particles. In order to enable results to be compared either within or between countries, it is essential to use agreed units of measurement to report the results and other relevant information so that sound conclusions may be drawn. It is also desirable to keep the number of units of measurement to a minimum.

Special consideration was given to proposals to include the unit "parts per million" (ppm) in view of its importance in previous records and its independence of changes in temperature and pressure. However, in view of the increasing preference shown for the unit "milligram per cubic metre" by other organizations, including the WHO, it was agreed not to add the unit "ppm".

1 Scope and field of application

This International Standard lays down the units and symbols to be used when reporting results of measurements of air quality. For general guidance on the International System of Units, reference should be made to ISO 1000.

2 Units

No.	Quantity	Unit	Symbol
2.1 Units for substances			
2.1.1 Gases and vapours			
2.1.1.1	Volume fraction of main constituents of air (for example nitrogen, oxygen, carbon dioxide)	per cent (by volume)	%
2.1.1.2	Mass concentration of gaseous pollutants[1]	milligram per cubic metre microgram per cubic metre	mg/m^3 $\mu g/m^3$
2.1.2 Particles			
2.1.2.1	Mass concentration of suspended matter	milligram per cubic metre microgram per cubic metre nanogram per cubic metre	mg/m^3 $\mu g/m^3$ ng/m^3
2.1.2.2	Size of particles	micrometre	µm
2.1.2.3	Atmospheric dustfall[2] (deposit gauges)	gram per square metre thirty days milligram per square metre thirty days	$g/(m^2.30\ d)$ $mg/(m^2.30\ d)$
2.1.2.4	Biological, microbiological and other suspended matter (for example pollen, spores, micro-organisms)	reciprocal cubic metre reciprocal cubic decimetre	m^{-3} dm^{-3}
2.2 Units for specifying the state of a gas			
2.2.1	Celsius temperature	degree Celsius	°C
2.2.2	Pressure	pascal kilopascal	Pa kPa
2.2.3	Relative humidity	per cent	%
2.3 Meteorological quantities			
2.3.1	Wind speed	metre per second	m/s
2.3.2	Wind direction[3]	degree	°
2.3.3	Precipitation intensity	millimetre per day	mm/d
2.3.4	Irradiance	watt per square metre	W/m^2
2.4 *Time*			
	Time	second minute hour day	s min h d
2.5 Miscellaneous			
2.5.1	Geographical location [Nothern (N) or southern (S) latitude] [Eastern (E) or western (W) longitude]	degree	°
2.5.2	Altitude	metre	m

1) The units milligram per cubic metre and microgram per cubic metre express concentrations in mass per volume and because the mass of a volume of gas depends on temperature and pressure, the cubic metre can only be transformed to mass accurately, if ambient temperature and pressure are known.

Gaseous pollutants have often been expressed on a milligram per litre (mg/l) basis.

2) When deposit gauges are used, no account is taken of the volume of air from which the atmospheric dustfall is deposited; the duration of collection of the atmospheric dustfall should also be reported.

3) Wind direction is conventionally reported as degrees measured clockwise from North as 0° to the North as 360°.