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**Natural gas — Calculation of compression  
factor —**

**Part 2:  
Calculation using molar-composition analysis**

*Gaz naturel — Calcul du facteur de compression —*

*Partie 2: Calcul par analyse de la composition molaire*



## Contents

Page

1	Scope .....	1
2	Normative references .....	1
3	Definitions .....	1
4	Method of calculation .....	2
4.1	Principle .....	2
4.2	The AGA8-92DC equation .....	2
4.3	Input variables .....	3
4.4	Ranges of application .....	3
4.5	Uncertainty .....	4
5	Suppliers of computer programmes .....	6

## Annexes

A	Symbols and units .....	7
B	Description of the AGA8-92DC method .....	9
C	Example calculations .....	15
D	Pressure and temperature conversion factors .....	16
E	Performance over wider ranges of application .....	17
F	Subroutines in Fortran for the AGA8-92DC method .....	21
G	Bibliography .....	28

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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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 12213-2 was prepared by Technical Committee ISO/TC 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*.

ISO 12213 consists of the following parts, under the general title *Natural gas — Calculation of compression factor*.

- *Part 1: Introduction and guidelines*
- *Part 2: Calculation using molar-composition analysis*
- *Part 3: Calculation using physical properties*

Annexes A to D form an integral part of this part of ISO 12213. Annexes E to G are for information only.



# Natural gas — Calculation of compression factor —

## Part 2:

## Calculation using molar-composition analysis

### 1 Scope

This International Standard specifies methods for the calculation of compression factors of natural gases, natural gases containing a synthetic admixture and similar mixtures at conditions under which the mixture can exist only as a gas.

This part of ISO 12213 specifies a method for the calculation of compression factors when the detailed composition of the gas by mole fractions is known, together with the relevant pressures and temperatures.

The method is applicable to pipeline quality gases within the ranges of pressure  $p$  and temperature  $T$  at which transmission and distribution operations normally take place, with an uncertainty of about  $\pm 0,1$  %. It can be applied, with greater uncertainty, to wider ranges of gas composition, pressure and temperature (see annex E).

More detail concerning the scope and field of application of the method is given in part 1 of this International Standard.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 12213. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 12213 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 31-3:1992, *Quantities and units — Part 3: Mechanics*.

ISO 31-4:1992, *Quantities and units — Part 4: Heat*.

ISO 6976:1995, *Natural gas — Calculation of calorific values, density, relative density and Wobbe index from composition*.

ISO 12213-1:1997, *Natural gas — Calculation of compression factor — Part 1: Introduction and guidelines*.

### 3 Definitions

All definitions relevant to the use of this part of ISO 12213 are given in part 1.