ICS 75.060 SLOVENSKÁ TECHNICKÁ NORMA August 2022

STN	**Zemný plyn Výpočet termodynamických vlastností Časť 5: Výpočet viskozity, Joule-Thomsonov koeficient a izoentropický exponent (ISO 20765-5: 2022)**	**STN EN ISO 20765-5** 38 6110

Natural gas - Calculation of thermodynamic properties - Part 5: Calculation of viscosity, Joule-Thomson coefficient, and isentropic exponent (ISO 20765-5:2022)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/22

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 20765-5

May 2022

ICS 75.060

English Version

Natural gas - Calculation of thermodynamic properties - Part 5: Calculation of viscosity, Joule-Thomson coefficient, and isentropic exponent (ISO 20765-5:2022)

Gaz naturel - Calcul des propriétés thermodynamiques - Partie 5: Calcul de la viscosité, du coefficient de Joule-Thomson et de l'exposant isentropique (ISO 20765-5:2022)

Erdgas - Berechnung der thermodynamischen Eigenschaften - Teil 5: Berechnung der Viskosität, Joule-Thomson-Koeffizient und Isentropenexponent (ISO 20765-5:2022)

This European Standard was approved by CEN on 3 April 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Ref. No. EN ISO 20765-5:2022 E

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European foreword

This document (EN ISO 20765-5:2022) has been prepared by Technical Committee ISO/TC 193 "Natural gas" in collaboration with Technical Committee CEN/TC 238 “Test gases, test pressures, appliance categories and gas appliance types” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2022, and conflicting national standards shall be withdrawn at the latest by November 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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INTERNATIONAL STANDARD

ISO 20765-5

First edition
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Natural gas — Calculation of thermodynamic properties —

Part 5: Calculation of viscosity, Joule-Thomson coefficient, and isentropic exponent

Gaz naturel — Calcul des propriétés thermodynamiques —

Partie 5: Calcul de la viscosité, du coefficient de Joule-Thomson et de l'exposant isentropique

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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 documents 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 193, *Natural gas*, Subcommittee SC 1, *Analysis of natural gas*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 238, *Test gases, test pressures and categories of appliances*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 20765 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

This document gives simplified methods for the calculation of (dynamic) viscosity, Joule-Thomson coefficient, and isentropic exponent for use in natural gas calculations in the temperature range –20 °C to 40 °C, with absolute pressures up to 10 MPa, and only within the gas phase. For the Joule-Thomson coefficient and isentropic exponent, the uncertainty of the formulae provided is greater than that obtained from a complete equation of state such as GERG-2008[1] (see ISO 20765-2) but is considered to be fit for purpose. The formulae given here are very simple.

INTERNATIONAL STANDARD ISO 20765-5:2022(E)

Natural gas — Calculation of thermodynamic properties —

Part 5: Calculation of viscosity, Joule-Thomson coefficient, and isentropic exponent

1 Scope

This document specifies methods to calculate (dynamic) viscosity, Joule-Thomson coefficient, isentropic exponent, and speed of sound, excluding density, for use in the metering of natural gas flow.

2 Normative references

There are no normative references in this document.