DIN EN ISO 20765-5:2022-08 (E)

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

Contents

Page

European foreword ... **3**

Foreword ... **4**

Introduction ... **5**

1 Scope ... **6**

2 Normative references ... **6**

3 Terms and definitions ... **6**

4 Background ... **6**

5 Viscosity, η ... **8**
5.1 Viscosity as a function of temperature, pressure, and composition ... 8
5.2 Viscosity as a function of temperature and mass density ... 11

6 Other properties ... **11**
6.1 Preamble ... 11
6.2 Joule-Thomson coefficient, μ ... 13
6.3 Isentropic exponent, κ ... 14
6.4 Speed of sound, W ... 15

7 Example calculations ... **15**

8 Conclusions ... **16**

9 Reporting of results ... **16**

Annex A (informative) **Symbols and units** ... **17**

Annex B (informative) **Example LBC viscosity function** ... **18**

Annex C (informative) **Example routine to convert *CV*, *RD*, and CO_2 mole fraction to an equivalent C_1-C_3-N_2-CO_2 mixture** ... **20**

Annex D (informative) **Viscosity of methane** ... **21**

Bibliography ... **22**