ISO 17179:2016-07 (E)

Stationary source emissions - Determination of the mass concentration of ammonia in flue gas - Performance characteristics of automated measuring systems

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 Symbols and abbreviated terms 5

5 Principle 6

6 Description of the automated measuring systems 6
6.1 Sampling and sample gas conditioning systems 6
6.2 Analyser equipment 6

7 Performance characteristics 6
7.1 Performance criteria 6
7.2 Determination of the performance characteristics 7
7.2.1 Performance test 7
7.2.2 Ongoing quality control 8

8 Measurement procedure 8
8.1 General 8
8.2 Choice of the measuring system 8
8.3 Sampling 9
8.3.1 Sampling location 9
8.3.2 Sampling point(s) 9
8.4 Data collection 9
8.5 Calculation 9

9 Quality assurance and quality control procedures 10
9.1 General 10
9.2 Frequency of checks 10
9.3 Calibration, validation and measurement uncertainty 11

10 Test report 11

Annex A (informative) Extractive differential NOx measurement technique 13

Annex B (informative) Extractive direct NH3 measurement technique 17

Annex C (informative) In situ and direct NH3 measurement with TLS analyser 20

Annex D (normative) Operational gases 24

Annex E (normative) Procedures for determination of the performance characteristics during the general performance test 26

Annex F (informative) Examples of the results for the assessment of ammonia AMS 34

Annex G (informative) Calculation of uncertainty of measurement of NH3 36

Bibliography 40