

ISO 3405:2019 (E)

Petroleum and related products from natural or synthetic sources — Determination of distillation characteristics at atmospheric pressure

Contents

	Foreword
1	Scope
2	Normative references
3	Terms and definitions
4	Principle
5	Apparatus
5.1	General
5.2	Distillation flasks
5.3	Condenser tube and cooling bath
5.4	Metal shield or enclosure for flask (manual apparatus only)
5.5	Heat source(s)
5.6	Flask-support
5.7	Graduated cylinders
5.8	Temperature measurement system
5.9	Centring device
5.10	Barometer
6	Samples and sampling
6.1	Sample grouping
6.2	Sample maintenance prior to testing
6.2.1	General
6.2.2	Groups 1 and 2
6.2.3	Groups 3 and 4
6.3	Removing water from sample
6.3.1	General
6.3.2	Groups 1 and 2
6.3.3	Groups 3 and 4
7	Preparation of apparatus
8	Apparatus verification
8.1	Level follower
8.2	Electronic temperature-measurement devices
8.3	Electronic pressure measuring device
9	Procedure — Manual apparatus
10	Procedure — Automated apparatus
11	Calculations
12	Expression of results
13	Precision (Manual Apparatus)
13.1	General
13.2	Repeatability
13.3	Reproducibility

- 14 Precision (automated apparatus)**
 - 14.1 General**
 - 14.2 Repeatability**
 - 14.3 Reproducibility**
 - 14.4 Bias**
 - 14.4.1 Bias**
 - 14.4.2 Relative bias**
- 15 Test report**
- Annex A (normative) Thermometer specifications**
 - A.1 General**
- Annex B (normative) Determination of temperature-sensor lag times**
 - B.1 Temperature-sensor lag times**
 - B.1.1 General**
 - B.1.2 Determination**
- Annex C (normative) Determination of specified distillation data**
 - C.1 Specified distillation data**
 - C.1.1 General**
 - C.1.2 Procedure**
 - C.1.3 Calculation**
 - C.1.4 Precision**
 - C.1.5 Reproducibility for certain specified fuels (automated apparatus)**
 - C.1.5.1 General**
 - C.1.5.2 Reproducibility of diesel percent volume recovered at specified temperatures**
 - C.1.5.3 Reproducibility of petrol percent volume evaporated at specified temperatures**
- Annex D (informative) Examples of data calculations**
 - D.1 Example 1**
 - D.1.1 General**
 - D.1.2 Thermometer reading correction**
 - D.1.3 Loss correction**
 - D.1.4 Recovery correction**
 - D.2 Conversion to percentages evaporated**
 - D.3 Determination of percent evaporated at specified temperatures**
 - D.3.1 Determination**
 - D.3.2 Precision**
- Annex E (informative) Emulation of emergent-stem errors**
- Annex F (informative) Examples of a test report**

Page count: 40