

ISO 3104:2020 (E)

Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Principle
5	Reagents and materials
6	Apparatus design and requirements
7	Verification
7.1	Viscometer
7.2	Liquid-in-glass thermometer
7.3	Digital contact thermometer
7.4	Timer
8	Re-calibration
9	Quality control
10	Sample preparation
10.1	Pre-analysis sample conditioning
10.2	Visual inspection and filtering
11	Procedure A — Manual equipment
12	Procedure B — Automated equipment
13	Cleaning of the viscometer tube
14	Calculation
14.1	Procedure A — Manual viscometers
14.2	Procedure B — Automated viscometers
15	Expression of results
16	Precision of procedure A
16.1	Determinability, d
16.2	Repeatability, r
16.3	Reproducibility, R
17	Precision of Procedure B
17.1	Determinability, d
17.2	Repeatability, r
17.3	Reproducibility, R
18	Test report

Annex A (normative) Viscometer types, calibration and verification

Annex B (normative) Thermometers for kinematic viscosity test

B.1 Thermometer design and specification

B.2 Thermometer calibration and verification

B.2.1 Report of temperature calibration

B.2.2 Ice point verifications

B.2.3 Liquid-in-glass thermometer checks

B.2.4 Records of calibration

B.2.5 Procedure for ice-point verification of liquid-in-glass thermometers

Annex C (normative) Conditioning of samples prior to manual or automated analysis

Annex D (normative) Calculation of acceptable tolerance zone (band) to determine conformance with a certified reference material

Page count: 24