Capillary viscometry
FAQ – Frequently Asked Questions

- **Systematic measurement error: flow time too large with short flow times**
- **Systematic measurement error: flow time too small with short flow times**
- **Systematic measurement error: flow time too small (with Ostwald, CANNON-FENSKE or BS/IPRF U-Tube Reverse Flow Viscometer)**
- **Systematic measurement error: flow time too large (Ostwald, CANNON-FENSKE or BS/IP/RF-U-Tube Reverse Flow Viscometer)**
- **Systematic measurement error: flow time too small with short flow times (UBBELOHDE Viscometer)**
- **Systematic measurement error: flow time too small**
- **Systematic measurement error: flow time too large**
- **Drift of the flow times**
- **Increased stochastic scattering of the measurement values**
- **Excessive stochastic scattering occurring during automatic measurements using optoelectric barriers (possibility of total malfunction)**
- **Excessive stochastic scattering occurring during automatic measurements using TC Viscometers (possibility of total malfunction)**
- **Increased stochastic scattering in the case of short flow times (UBBELOHDE Viscometers)**
- **Periodically fluctuating flow times**
- **Malfunction caused by air bubbles during the sucking-in process of the liquid into the delivery vessel**

**Systematic measurement error: flow time too large with short flow times**

**Error causes:**

- after-flow error, Hagenbach correction too small

**Possible error elimination:**

- experimental determination of the Hagenbach correction using substances having a similar viscosity and a surface tension as the measurement product

**Systematic measurement error: flow time too small with short flow times**

**Error causes:**

- after-flow error, Hagenbach correction too large

**Possible error elimination:**

- experimental determination of the Hagenbach correction using substances having a similar viscosity and a surface tension as the measurement product; better: Viscometer with a smaller capillary diameter
Systematic measurement error: flow time too small (with Ostwald, CANNON-FENSKE or BS/IPRF U-Tube Reverse Flow Viscometer)

**Error causes:**
substance quantity filled in was too small

**Possible error elimination:**
empty, clean and refill viscometer

Systematic measurement error: flow time too small (with Ostwald, CANNON-FENSKE or BS/IPRF U-Tube Reverse Flow Viscometer)

**Error causes:**
substance quantity filled in was too small

**Possible error elimination:**
empty, clean and refill viscometer

Systematic measurement error: flow time too small with short flow times (UBBELOHDE Viscometer)

**Error causes:**
disturbance of the suspended level

**Possible error elimination:**
select viscometer with a smaller capillary diameter

Systematic measurement error: flow time too small

**Error causes:**
temperature of the bath liquid too high

**Possible error elimination:**
check temperature; if necessary, readjust thermostat
**Systematic measurement error: flow time too large**

**Error causes:**
- contamination in the capillaries

**Possible error elimination:**
- empty and clean viscometer, repeat measurement

**Error causes:**
- temperature of the bath liquid too low

**Possible error elimination:**
- check temperature, if necessary, readjust thermostat

**Drift of the flow times**

**Error causes:**
- drift of the bath temperature

**Possible error elimination:**
- protect the thermostat from direct radiation exposure, if necessary, replace thermostat

**Error causes:**
- temperature-adjustment of the measurement substance not completed

**Possible error elimination:**
- continue temperature adjustment until the time values are stable

**Error causes:**
- evaporation of a highly volatile component; reaction of the product being analysed with the air

**Possible error elimination:**
- apply pressing operating mode
**Increased stochastic scattering of the measurement values**

**Error causes:**
contamination in the viscometer

**Possible error elimination:**
empty and clean viscometer; repeat measurement

**Error causes:**
contamination in the product being analysed

**Possible error elimination:**
empty and clean viscometer; repeat the measurement with a filtered sample; if necessary, use a filter with a smaller pore width

**Error causes:**
air bubbles in the viscometer

**Possible error elimination:**
in the case of pure matters with chemical and physical heat resistance, drive out bubbles by a shorter time increase of temperature clean and empty viscometer; during refilling, ensure absence of bubbles

**Excessive stochastic scattering occurring during automatic measurements using optoelectric barriers (possibility of total malfunction)**

**Error causes:**
contamination of the optical sensors

**Possible error elimination:**
remove the viscometer tripod from the thermostat bath; clean optical system using non-denatured alcohol on a soft cloth

**Error causes:**
errors triggered by the optoelectric barriers as a result of the formation of bubbles, foam, or liquid lamellae

**Possible error elimination:**
use a TC-UBBELOHDE, OSTWALD, or CANNON-FENSKE Routine Viscometer
Excessive stochastic scattering occurring during automatic measurements using TC Viscometer (possibility of total malfunction)

Error causes:
Incrustation of the sensors (in the case of thermally instable media)

Possible error elimination:
transient media: use optical flow-time measurement opaque media: use Reverse Flow Viscometer

Error causes:
wear and tear of the sensors

Possible error elimination:
replace viscometer

Increased stochastic scattering in the case of short flow times (UBBELOHDE Viscometers)

Error causes:
beginning deformation of the suspended level

Possible error elimination:
select a viscometer with a smaller capillary diameter

Periodically fluctuating flow times

Error causes:
heating-up or cooling-down phases of the thermostats too long

Possible error elimination:
set the heating and cooling of the thermostat in such a manner that at least two complete temperature cycles are completed during one viscosity measurement cycle

Error causes:
no timely stability of the bath-liquid temperature (defective thermostat)

Possible error elimination:
replace the thermostat
Malfunction caused by air bubbles during the sucking-in process of the liquid into the delivery vessel

Error causes:

substance quantity filled in was too small

Possible error elimination:

UBBELOHDE Viscometer: fill up the measurement substance; others: empty and clean viscometer; repeat measurement