FLASHPOINT TESTING

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1 Purpose and Scope

The determination of the flashpoint is required for correct classification of substances according to chemical regulations (limits: 21°C or 55°C) and transport regulations (limits: 23°C and 61°C). This method applies to liquid and solid samples (powders, granulated materials and crystallines).

2 Principle

The MINIFLASH Touch instrument measures the spontaneous pressure increase inside a completely closed cup at flashpoint temperature. The measuring chamber is heated from above to avoid condensation of highly volatile components. The instrument uses an electronic arc for sample ignition.

3 Terminology, Definitions and Abbreviations

The flashpoint (according to DIN-ISO 2592) is the lowest temperature at 1013hPa, at which enough vapors are emerging from a liquid inside a closed cup, to build a flammable mixture with the air above the cup, which can be ignited by an external ignition source.

4 Precautions

Typical precautions for laboratory work have to be observed.

5 Instruments, Reagents, Standards and auxiliary materials

- Miniflash Touch: Flashpoint Tester (Grabner Instruments)
- Pipette
- For cleaning the cup: Ethanol (96 Vol%)
- 2 mL of sample are required for testing (D7094)

6 Procedure, Instrument Parameters

6.1 Sample Preparation

With the pipette, 2ml sample are introduced into the sample cup. Insert the magnetic stirrer (for liquid samples). Prior to the measurement, the sample cup with the sample has to be put into the refrigerator for 2 minutes, to allow sample cooling (at -20°C).

6.2 Procedure

Turn on the instrument and activate the responsible user.

Select measuring method (see 6.4): „**Flavors**“.

Insert sample number under “Sample”.

The filled sample cup is placed in the flashpoint analyzer, until the cup clicks into place. Exact positioning of the cup inside the lift is critical, to prevent bending of the temperature sensor during lifting of the cup.

If samples containing Ethanol are tested, the instrument has to cool below the initial temperature (about +8℃). By deactivating the heater (press the **“heater”** button), the instrument starts to cool. Once +8℃ is reached, activate the heater again (press the **“heater on”** button and start the measurement by pressing **START**).

If samples containing Propylenglycol are tested, a measurement can be started immediately by pressing the **START** button.

6.3 Measurement

The measurement is started and the sample cup is automatically pressed onto the oven plate by the sample lift. After oven and sample temperatures are regulated, the first ignition is started and the pressure inside the sample cup is monitored. Once a flashpoint is detected, the measurement is stopped and the result is displayed on the instrument. Then the oven automatically regulates to the start temperature and the lift lowers the sample cup.

Clean the sample cup with a tissue and with Ethanol (96%).

Carefully clean the electrodes, the temperature sensor and the oven surface with a tissue.

If the instruments shows „**no flash“** after the measurement, the flash pressure increase is above the programmed treshhold and a flashpoint of >80°C has to be reported.
If a flashpoint is detected immediately after the first ignition, the starting temperature for a new measurement has to be reduced to ensure correct flashpoint determination.

6.4 Measuring methods

Take care that the sample is NOT heated above a maximum temperature of 80°C, to avoid that the sample cup and the temperature sensor get sticky as a result of flavor ingredients. With the **“Flavors”** method a temperature range of 10 – 80°C is being tested.

7 Reporting

The result is noted down from the instrument display.

8 Measuring range, Accuracy

Temperature Range:	10-80 ℃
Temperature Accuracy:	+/- 0.2℃

9 Literature

Miniflash Touch Manual, ASTM D7094 standard

Table 1: Reporting Sheet

Date	Number	Product	**Flashpoint [℃]**	Tester