

TEMPERATURE GRADIENT PLATE MFFT 10 / MFFT 20

VF9700 / VF9600

DATASHEET

PRODUCT DESCRIPTION

The new designed temperature gradient plate for measuring the **Minimum Film Forming Temperature, MFFT**

BUSINESS

Laboratories, Development of Coatings- Polymers or Additives

STANDARDS

DIN ISO 2115 – DIN 53 366 – ASTM D 2354 – ASTM D 1465 –
ISO 2115 – ISO/DIS 4622. Look up the appropriate standard for a correct execution of the test.

FEATURES

The minimum film forming temperature (MFFT) is the minimum temperature at which synthetic latex, emulsions, polymers or adhesives will coalesce when laid on a substrate as a thin film. The ideal way to determine MFFT is to simultaneously dry the emulsion under test over a range of temperatures to see which is the lowest at which film-forming has occurred. This is best achieved in practice by using the MFFT gradient plate.

Three steps of the film-forming



1. Evaporation of water



2. Packing and deformation of particles



3. Diffusion of water out of film and coalescence of particles

A film of the latex under test is cast along the stage and left to dry. A visual inspection of the dry film is then made to determine the position along the length of the film where it changes from the coalesced to the non-coalesced state. A non-coalesced film shows whitening and/or cracking. The lowest temperature at which the film is coalesced is reported as the MFFT.



SPECIFICATIONS

The high precision chromium measuring plate is equipped with equispaced temperature sensors beneath the surface.

Microprocessor electronic temperature controller with digital temperature display and temperature preselection as well as excess temperature protection.

- Accuracy: 0,1°C
- Display of nominal value and actual value of the temperature of the hot and cold side
- Scroll function to request the temperature measuring stations (MFFT 10 – 10 stations / MFFT 20 – 20 stations)
- Manual selection of the single temperature measuring stations
- Integrated membrane drying unit with flowmeter
- Open table hood made of PMMA - Poly Methylmethacrylaat, max. working temperature 80°C

The flat hinged PMMA cover provides thermal and atmospheric insulation whilst allowing constant visual inspection of an experiment.



Purge gas is dried with an integrated membrane dryer and flows over the platen.

A constant flow acc. to the standards can be set with a built in flow meter (only on MFFT 20)



MFFT 20 with digital flow meter



MFFT 10 with analog flow meter

ORDERING INFORMATION

VF9600: MFFT 10 - Temperature range: -5...+80°C with a maximum gradient on the surface of 20°C

VF9700: MFFT 20 - Temperature range: -30...+250°C with a maximum gradient on the surface of 100°C.

Note: For both versions temperature depends on the external cryostat

COOLING DEVICES

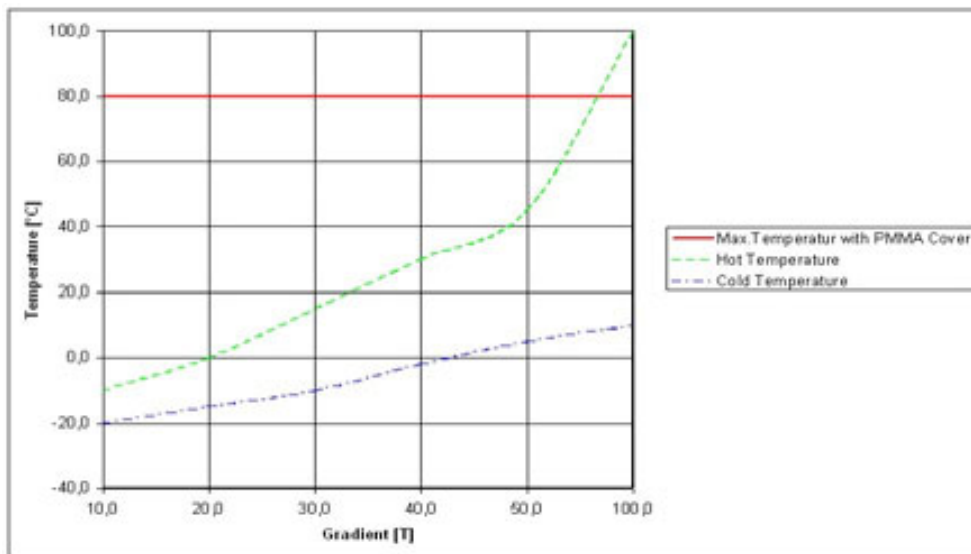
The necessary cooling unit for operating **does not** belong to the scope of delivery.

For each of the MFFT 10 or MFFT 20 it must be ordered separately.

The working temperature range and the maximum temperature gradient depend on the effective cooling power of the connected cryostat.

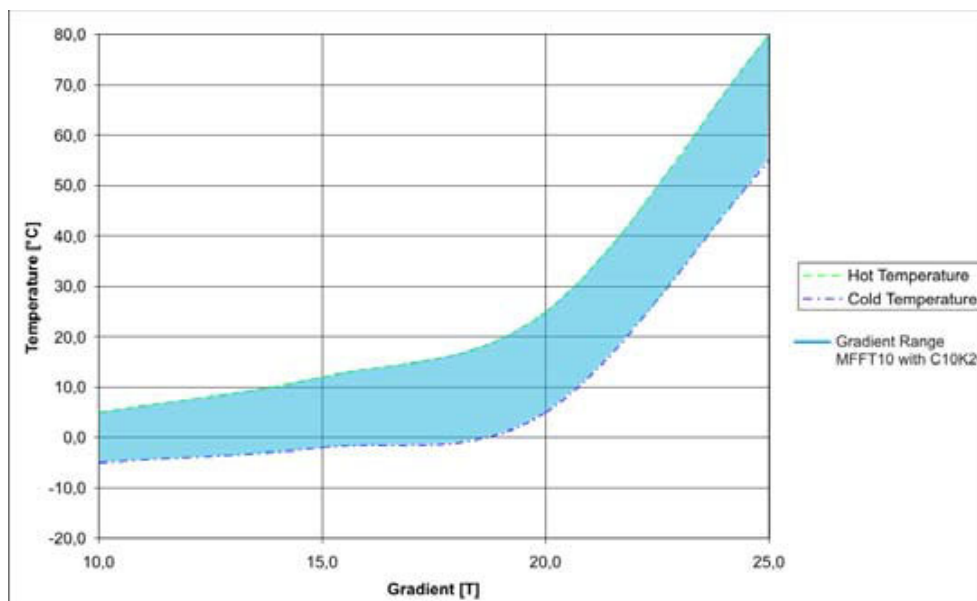
VF9700: We recommend the standard cryostat type KWK 10.

Working temperature range and temperature gradient **MFFT 20** with connected cryostat KWK 10:



VF9600: We recommend the standard cryostat type C10K20.

Working temperature range and temperature gradient **MFFT 10** with connected cryostat C10K20:



Cryostats for other working temperature ranges and gradients upon request

ACCESSORIES

Different kinds of film casters are available upon request



TECHNICAL DATA

Overall dimensions (L x W x H):
800 x 350 x 320 mm (with closed cover)

Plate dimensions (L x W)
Measuring length: 500 mm
Measuring width: 180 mm

Power supply: 230 V, 50 Hz, 1,5 kW
Weight: 50 kg

SPECIAL CARE

- Though robust in design, this instrument is precision-machined. Never drop it or knock it over
- Always clean the instrument after use.
- Clean the instrument using a soft dry cloth. Never clean the instrument by any mechanical means such as a wire brush or abrasive paper. This may cause, just like the use of aggressive cleaning agents, permanent damage.
- Do not use compressed air to clean the instrument.
- We recommend annual calibration

SAFETY PRECAUTIONS

- Always make sure the instrument is connected to an earthed electric socket.
- Always make sure the instrument's power is turned off while adjusting any electric component

DISCLAIMER

The right of technical modifications is reserved.

The information given in this sheet is not intended to be exhaustive and any person using the product for any purpose other than that specifically recommended in this sheet without first obtaining written confirmation

from us as to the suitability of the product for the intended purpose does so at his own risk. Whilst we endeavour to ensure that all advice we give about the product (whether in this sheet or otherwise) is correct we have no control over either the quality or condition of the product or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability whatsoever or howsoever arising for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of the use of the product. The information contained in this sheet is liable to modification from time to time in the light of experience and our policy of continuous product development.