Rules and procedures for use of the instrument MULTISCAN MS20 purchased under the MUR Department of Excellence Project 2023–2027

ACADEMIC CONTACT
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Approved by the Department of Excellence Steering Committee on 03/09/2026

Approved by the Council of the Department of Food and Drug on 09/09/2026

Description of the technique

The MultiScan MS-20 uses multiple static light scattering to assess the physical stability and evolution over time of dispersed systems.
Once placed in its dedicated holder, the sample is scanned along its entire height at defined time intervals, using illumination from an LED at a wavelength of 870 nm.
For each scan, the instrument reports the intensity of transmitted and backscattered light.
Spatial and temporal changes in the optical signals allow identification of instability phenomena such as sedimentation, creaming, flocculation and coalescence.
The analysis is non-destructive and can be performed at a controlled temperature.

Instrument description

The MultiScan MS-20 consists of a ScanTower into which the sample holder is inserted.
The sample holders are transparent glass cylinders with dedicated caps to ensure isolation and reproducible positioning in the support. The ideal sample volume is approximately 15–20 mL.
MultiScan Control (MSC) software manages scan scheduling, data acquisition over time and optical profile processing, enabling the generation of time–height maps for analysis of instability phenomena.

Results obtained with the technique

Time–height maps enable identification and monitoring over time of the main physical instability phenomena, detected through changes in transmission and backscattering signals.
Data processing allows calculation of the MultiScan Stability Index (TSI), a global index that quantifies the degree of system instability over time and is useful for comparing formulations.
The maps also identify the migration front of particles or droplets, allowing their position and migration velocity within the sample to be determined. Similarly, the thickness of separated layers, such as a sedimented or creamed phase, can be assessed and monitored over time.

Authorised permanent staff and trainers

Surname	First name	Dept./Centre	Contact
Buttini	Francesca	Food and Drug	francesca.buttini@unipr.it
Varacca	Giada	Food and Drug	giada.varacca@unipr.it

The list of authorised staff is kept up to date and is available in **Annex 2** to these Rules.

Instrument access and use

1) ALIFAR Department research groups with authorised users may access the instrument through their own staff, subject to prior booking on the dedicated Teams platform managed by the Technical Contact. Groups without a designated contact may contact the relevant staff. Access remains subject to booking on the Teams platform. Use of the instrument without a booking will result in a charge for a full working day of eight hours. Use is restricted to staff who have completed the initial training (authorised staff and trainers) or have subsequently been trained by the trainers.
2) Users from other University departments and external users may contact the Scientific Supervisor by completing the analysis request form (**Annex 1**).

Fees

Three user categories apply to instrument usage fees:

1) ALIFAR users: academic and research staff of the University of Parma affiliated with the ALIFAR Department;
2) Internal users: academic and research staff of the University of Parma;
3) External users: researchers and operators from universities, research bodies and public or private institutions.

Type of analysis	**ALIFAR USER €/hour**	**INTERNAL USER €/hour**	**EXTERNAL USER €/sample***
Analysis of the physical stability and evolution over time of dispersed systems using MultiScan MS20 – up to 1 hour of continuous analysis	3	14	100
Analysis of the physical stability and evolution over time of dispersed systems using MultiScan MS20 – more than 1 hour and up to 4 hours of continuous analysis	3	14	200
Analysis of the physical stability and evolution over time of dispersed systems using MultiScan MS20 – more than 4 hours and up to a maximum of 8 hours of continuous analysis	3	14	350
Cost per scan, applicable only to analyses performed at intervals of 24 hours or longer	3	14	50

ALIFAR users who use their research funds to contribute to annual preventive maintenance and/or insurance contracts (*all risks*) or to pay for repairs will not be charged until their contribution has been offset in full.

Annex 1. MULTISCAN MS20 – ANALYSIS REQUEST FORM

to be emailed to authorised staff

Applicant details

INTERNAL USER AT THE UNIVERSITY OF PARMA
Dept./Centre:
Applicant:
Instrument user:
E-mail:
Telephone:

EXTERNAL USER
Organisation name:
VAT no./Tax code
Address:
Applicant:
Instrument user:
E-mail:
Telephone:

Information on samples and type of analysis

Number of samples to analyse (including blanks and replicates)	*e.g. "3 samples + 1 blank, all in triplicate = 12 samples in total"*
Sample type	
Total experiment duration	☐ A few minutes to one hour (rapid processes) ☐ 1–4 h (intermediate stability) ☐ 4–8 h (slow processes) ☐ Every 24 h (long-term studies)
Sample volume ***(15–20 mL recommended)***	
Risk factors	☐ flammable ☐ irritant ☐ acute toxicity ☐ harmful ☐ corrosive ☐ oxidising ☐ carcinogenic/mutagenic ☐ hazardous to the environment

Bookings may be cancelled up to the third working day before the requested date.

If the booking is not cancelled in time, the service will be charged even if it is not used.

Date …….

Applicant's signature (fund holder)

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Annex 2. MULTISCAN MS20 – ANALYSIS REQUEST FORM

Staff authorised to use the instrument

Permanent staff and trainers			
Surname	**First name**	**Dept./Centre**	**Contact**
Buttini	Francesca	Food and Drug	francesca.buttini@unipr.it
Varacca	Giada	Food and Drug	giada.varacca@unipr.it
Authorised permanent staff			
Surname	**First name**	**Dept./Centre**	**Contact**
Bianchera	Annalisa	Food and Drug	annalisa.bianchera@unipr.it
Bot	Francesca	Food and Drug	francesca.bot@unipr.it
Quarta	Eride	Food and Drug	eride.quarta@unir.it
Authorised non-permanent staff			
Bazzoli	Gianluca	Food and Drug	gianluca.bazzoli@unipr.it
Climani	Giulia	Food and Drug	giulia.climani@unipr.it