

Full ASTM D445 compliance with the RHEOTEK BioVis
Suitable for measuring bio diesel fuels and diesel, as specified in EN 590, EN 14214, DIN 51606, ASTM D 6751 & ASTM D 975.

The RHEOTEK BioVis is a fully automated viscometer system suitable for measuring kinematic viscosity in full compliance with ASTM D445, IP71 & ISO 3104.



ANALYZER FEATURES:

- Viscometer bath - up to 4 positions with cooling coil
- Viscometer controller module(s) - for automatic flow time measurement and in-situ solvent cleaning & drying
- ASTM Ubbelohde Viscometer tubes, calibrated by ISO 17025 accredited laboratory
- User friendly PC control system

FULL COMPLIANCE WITH METHODOLOGY

Biodiesel fuels and diesels are required to be certified to international standards EN 590, DIN 51606 and EN 14214 as well as ASTM specifications (e.g. D 975 and D 6751). These specifications require kinematic viscosity to be measured in accordance with ASTM D 445/ISO3104. The RHEOTEK BioVis strictly adheres to these methods, complying in every respect.

Compliance to ASTM D 445 is achieved by using a glass capillary viscometer tube (ASTM Ubbelohde design), in an automated assembly with each step of the method pre-programmed. This removes the possibility to deviate from the method, as well as ensuring the most precise results.

The powerful BioVis software package records all flow time measurements and states the precision obtained for each result. Full traceability of measurements is provided.



Head office, manufacturer (UK):

POULTEN, SELFE & LEE Ltd Russell House, Burnham-on-Crouch,
Essex CM0 8TE. United Kingdom. www.rheotek.com +44 (0)1621 787100

PRINCIPLE OF OPERATION

The RHEOTEK BioVis uses ASTM Ubbelohde viscometer tubes to make precise flow time measurements. Each tube is calibrated with a certified constant, using calibration data produced by the PSL ISO 17025 accredited laboratory. Samples are loaded into the viscometer, via the unique RHEOTEK filling station (no syringe required). An internal pump pushes the sample up into the capillary tube to position it for measurement.

The sample is released and the flow time is automatically measured by the timing sensors. On completion of the first run, the sample is once again pushed up into the capillary tube, and a second consecutive flow time is measured. The BioVis software will then calculate the kinematic viscosity result.

SAFE VACUUM (IN-SITU) CLEANING AND DRYING

On completion of the measurement process, the BioVis will automatically use a “safe vac” system to clean and dry the Ubbelohde viscometer tube using suitable solvents. The waste sample and solvent is taken to a waste container, and the system is air dried, leaving it ready for the next sample.

SYSTEM CONFIGURATIONS:

BioVis- ordering information	
RHEOTEK BioVis-(1)	RHEOTEK BioVis -1 automated kinematic viscosity system. Complete with visibility bath, 1 measuring position, BioVis-1 control module, ASTM Ubbelohde viscometer, BioVis software & PC control card. Automated viscosity measurement, solvent cleaning, air drying & reporting of results. Kinematic viscosity is measured in accordance with IP 71, ASTM D 445, ISO 3104.
RHEOTEK BioVis-(2)	RHEOTEK BioVis -2 automated kinematic viscosity system. Complete with visibility bath, 2 measuring positions, BioVis -2 control module, ASTM Ubbelohde viscometers, BioVis software & PC control card. Automated viscosity measurement, solvent cleaning, air drying & reporting of results. Kinematic viscosity is measured in accordance with IP 71, ASTM D 445, ISO 3104.
RHEOTEK BioVis-(RSS/2)	RHEOTEK BioVis - 2 automated kinematic viscosity system with RHEOTEK Smart Sampler. Complete with visibility bath, 2 measuring positions, BioVis -2 control module, ASTM Ubbelohde viscometers, BioVis software & PC control card. Automated viscosity measurement, solvent cleaning, air drying & reporting of results. Kinematic viscosity is measured in accordance with IP 71, ASTM D 445, ISO 3104
RHEOTEK BioVis-(4)	RHEOTEK BioVis - 4 Automated kinematic viscosity system. Complete with visibility bath, 4 measuring positions, BioVis - 4 control module, ASTM Ubbelohde viscometers, BioVis software & PC control card. Automated viscosity measurement, solvent cleaning, air drying & reporting of results. Kinematic viscosity is measured in accordance with IP 71, ASTM D 445, ISO 3104.

Note: all systems will require optional PC system, bath oil and vacuum



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BioVis Specifications

Operating Temperature °C	40.00°C
Kinematic viscosity test methods	IP 71, ASTM D 445, ASTM D 446, ISO 3104, ISO 3105
Viscometer tube	ASTM Ubbelohde. Options also for Cannon-Fenske Routine and DIN Ubbelohde. All Viscometers supplied with ISO 17025 Certificate of Calibration
Sample volume	18 ml
Sample induction	Sample is poured into a filling station above the viscometer - no syringe required
Sample analysis time	Typically 15 minutes
Cleaning	In-situ automatic cleaning. Cleaning solvent miscible with sample followed by drying solvent. Optimized cleaning parameters to minimize solvent usage whilst providing a thorough cleaning
LIMS	Compatible
Electrical	110V or 220-240VAC, 50/60Hz
Manufacturer	Poulten, Selfe & Lee Ltd - UK

BioVis - ASTM Ubbelohde Tube Sizes

Tube Ref	Tube Size	Recommended Viscosity Range*
AKV-0B	0.005	Viscosity range 1.2 to 3 mm ² /s, cSt
AKV-1	0.010	Viscosity range 1.8 to 6 mm ² /s, cSt
AKV-1C	0.030	Viscosity range 3.1 to 18 mm ² /s, cSt

* Permitting use of ASTM D 445 kinetic energy correction for automated flow times <200s

BioVis Accessories

20412	PC system – complete with WINDOWS XP operating system
Oil-MIN	Mineral bath oil
Oil-SIL	Silicone bath oil
PVP-1	PAIB vacuum pump complete with vacuum & exhaust manifolds (requires compressed air supply)
DVP-1	Laboratory vacuum pump - single stage
DVP-2	Laboratory vacuum pump - dual stage
ASTM Viscosity Reference oils	ASTM Viscosity Reference Standards, S3 to S20 recommended. Calibrated by the PSL Calibration Laboratory. Supplied in 500 ml bottles. Complete with ISO 17025 Certificate of Calibration



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