

# RHEOTEK™ RPV-1 Polymer Viscometer

For determination of flow time of polymer solutions

Model Name: 4 Position RPV-1



**FULLY AUTOMATED POLYMER VISCOMETER to determine...**

- Relative Viscosity
- Inherent Viscosity
- Specific Viscosity
- Reduced Viscosity
- Kinematic Viscosity
- Dynamic Viscosity
- Intrinsic Viscosity
- Limiting Viscosity Number
- Molecular Weight
- K Value
- Degree of Polymerisation
- .....and others

## Test Methods

ASTM D 789, ISO 307, ASTM D 4603, ASTM D 2857, ASTM D 1795, SCAN CM15:99, TAPPI T230-OM94, ASTM D 1243, USP<911> Viscosity, ISO 1628

The software is updated regularly – taking into account new methods or customer specific requests. Therefore if your method is not mentioned in the above list then please contact us.

## Main Features

- 4 independent automated viscometers allows simultaneous measurement of 4 samples*
- Accurate measurement of flow times to 0.001 using sensors*
- Automatic calculation of results*
- Automatic cleaning of viscometers and filling stations*
- Pre-programmed with ASTM/ISO Test Methods*

## Advantages

- Simple & Safe to use*
- Improves accuracy*
- Saves operator time*
- Reduces exposure to hazardous chemicals*
- Compliance with test methods*



For more information contact  
[www.rheotek.com](http://www.rheotek.com)  
[info@rheotek.com](mailto:info@rheotek.com)

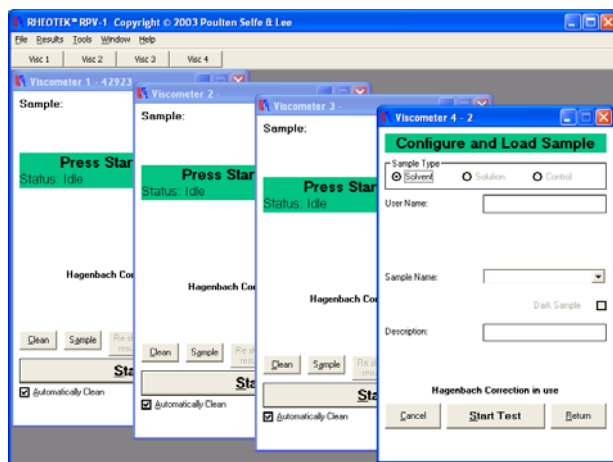
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## Description

### Typical Measurement Routine

Samples are poured into the viscometer through the unique RPV Funnel Filling Station. Sample data is entered and the Start Test button pressed. After a short thermal equilibrium period, the flow time is measured automatically. Repeat flow times are automatically measured if required.



### Automatic Calculations, Results Database & LIMS

Following a successful flow time measurement the RPV software performs many automatic calculations. Results are printed and/or stored in the “user configurable” results database for review at a later date. Results can also be exported automatically for use by a LIMS system.

### Automatic “Safe-Vac” Cleaning

Viscometer tubes are cleaned out automatically after the measurement process has been completed. The RPV uses a “safe-vac” closed loop solvent and vacuum system. A cleaning routine can be set up using two or three solvents. The first solvent is always miscible with the polymer, followed by a second cleaning solvent (if required) and then a drying solvent.

The RPV-1 software optimises cleaning and drying cycles. This ensures that each viscometer tube is properly cleaned and dried, eliminating the risks of sample or solvent contamination.

### Materials of construction & design

The RPV-1 modules are assembled using components, which are highly chemically resistant – all wetted parts are manufactured out of PTFE or glass.

The RPV-1 case is covered in a tough chemical resistant coating, which is splash resistant to acetone and formic acid.



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## Thermostatic Stirred Liquid Bath

The RPV-1 utilises a highly stable and uniform stirred liquid bath in order to control temperature of the sample to within  $\pm 0.005^{\circ}\text{C}$  of the required temperature set point. This degree of temperature control is essential in order to obtain accurate flow time measurements.

## ASTM Ubbelohde, Low Volume viscometers (or optional Cannon Fenske Routine)

ASTM Ubbelohde viscometers are the most accurate viscometers available for automation purposes. The RPV-1 uses a standard ASTM specification tube with the option of a small sample volume. Viscometers are supplied with ISO 17025 certificates of calibration, issued by the PSL Calibration Laboratory, accredited by UKAS.



CALIBRATION No. 0247

## Flow time measurement & nIR detection system

Viscometers are held in a measuring stand, which has sophisticated near Infra Red sensors nIR. Flow times are measured accurately within 0.001 seconds. The use of nIR sensors also allows the determination of opaque and coloured samples, such as those containing Titanium Dioxide ( $\text{TiO}_2$ ).

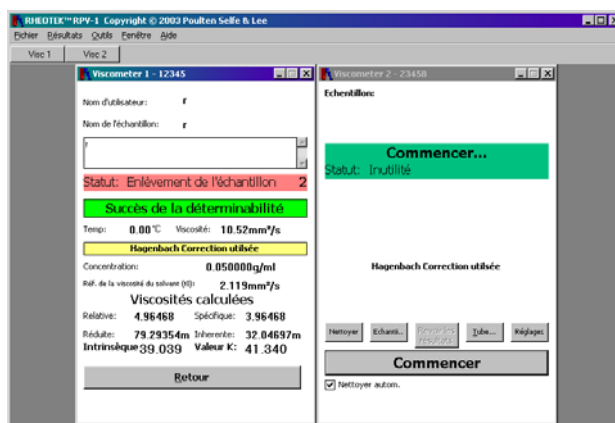
## Software

### Calculator Tool

The RPV-1 software has a calculator tool, which enables the operator to make calculations on data. This enables the operator to “validate” calculations and recalculate “old” data.

### Windows 98 & Windows XP Pro compatible

The RPV-1 software is compatible with all versions of windows from Windows 98 to Windows XP Professional.



### RPV-1 Foreign Language Option

The RPV-1 software can be supplied in different language options including French & Finnish as well as any others on request.

## Service

### Service & Manuals

The RPV modules have been designed with service in mind. The modular configuration of modules allow for easy replacement or upgrading. Software diagnostic screens assist in identifying system or component faults. An “engineer” mode, allows a trained person, to control and activate valves and cleaning routines manually.



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## Specification

- Temperature range (°C): 15 to 135
- Temperature stability – typical (°C): +/-0.01
- Flow time determinability.: <0.1%
- 10 measurements, mother liquor test,  $RV_{Nylon, ASTM D789}$ , 50.0, standard deviation is less than 0.1%
- 10 measurements, separate samples,  $IV_{PET, ASTM D4603}$ , 0.820, standard deviation is less than 0.4%
- 16 measurements per hour, typical.

## Typical Applications

- Pulp, Paper & Microcrystalline Cellulose, according to ASTM D1795 and SCAN CM15:98, TAPPI T230-OM94
- Nylon according to ASTM D789 [HIGH CONCENTRATION]
- Nylon according to ISO307[LOW CONCENTRATION]
- PET according to ASTM D4603
- PET in OCP [Orthochlorophenol]
- PET in Phenol/Dichlorobenzene

## Models Available

2 Position

4 Position

2 Position with Autosampler

*Basic*

## PSL Testing Laboratory

Take advantage of Poulten Selfe & Lee's Testing Laboratory. Send us a sample for correlation with your own laboratory. The cost of analysis is very competitive and we can offer a wide range of different test methods. Full method details are supplied if required.

Please contact us for more information...[info@rheotek.com](mailto:info@rheotek.com)



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## **Related Products**

### **Non-toxic Mercury Free Thermometers**

The PerformaTherm thermometers meet the requirements of ASTM E 2251, which means they can be used for ASTM methods in place of their mercury equivalent. Save time and money, improve safety and help the environment by changing to PerformaTherm.



## **Contact Details**

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