



**Rheology
Solutions**



Applications Laboratory and Contract Testing Capabilities Statement

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POLYMER CONTRACT TESTING KIT

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Company Profile

Rheology Solutions Pty Ltd is a specialist sales and service organisation dedicated to the science of materials characterisation and are the exclusive Australian distributor for the product names HAAKE, NESLAB and Thermo Scientific from Thermo Fisher Scientific, Optical Control Systems, Marimex Industries Corporation and Schleibinger Geräte range of equipment and instruments.



Rheology Solutions recognises the importance of specialisation and dedication to a specific science and, as such, provides full technical support and service throughout Australia. The Company goal is to integrate industry experience and materials characterisation techniques to provide practical solutions for customers.

Rheology Solutions has an established applications laboratory equipped with a comprehensive range of instruments to meet the requirements of material characterisation. Specialist contract testing services are also available and contracts can be tailored to suit discrete tests or protracted testing requirements

involving a series of tests over a period of weeks or months.

A range of seminars and application specific workshops as well as product launches and demonstrations are provided throughout Australia. The seminars and workshops are designed to meet the needs of specific customer and industry applications.

Rheology Solutions has its head office in Victoria and works with a team of specialist sales and factory trained service personnel throughout Australia. The combined experience of this team ensures that Rheology Solutions are able to provide their customers with access to the products to ensure that the right technical support and service is provided.

The product range exclusively available includes:

- **Materials Testing Equipment**
Rotational viscometers, compact viscometers, freeze/thaw units, shrinkage cones and shrinkage/expansion units.
- **Polymer Testing Instruments**
Micro compounders, torque rheometers, mixers and extruders, chill rolls and winding units, film quality scanning systems, pellet scan system, powder testing system, melt analysis and testing system, optical online quality control mini calendar, stretch roll and winder system, measuring extruder, APLAIRS - online control of cast or blown film, film quality testing system, wide web inspection system, sample testing unit, polyester resin online analysis, pellet analyser, pellet shape and size distribution unit.
- **Process Rheometers**
Melt flow indexers, automated melt flow indexer, continuous melt flow indexer.



- **Process Viscometers**
Sensors for low, medium, high, very high viscosities and custom designed sensors.
- **Rheometers**
Controlled rate, dynamic oscillation, controlled stress, modular
- **Temperature Control**
Immersion circulators, bridge circulators, open bath circulators, shaking water bath, heating circulators, refrigerated circulators, cryostats, immersion coolers
- **Twin Screw Extruders**
Twin screw compounding equipment for laboratory through to production applications
- **Viscometers**
Falling ball, battery operated, rotational for QA or QC applications, micro viscometers

We look forward to discussing your requirements.

Focused on providing our **customers** with materials characterisation **solutions** through knowledge, experience and support.

Applications Laboratory

Rheology Solutions has invested in a fully equipped applications laboratory to further increase the level of customer focus and application support.

Specialist contract testing services are available and contracts can be tailored to suit discrete tests or protracted testing requirements involving a series of tests over a period of weeks or months.

The key areas of responsibility for Tim incorporate:

- Technical support for new and existing Rheology Solutions customers.
- Customer method development & validation.
- Customer training covering rheology theory and practice.
- Development and facilitation of rheology seminars and workshops.

Rheology Solutions has invested in a fully equipped applications laboratory to further increase the level of customer focus and application support. The appointment of our technical manager and the laboratory facilities has proved to be a great asset to new and existing customers. These initiatives are providing a valuable resource to the growing customer base within the field of rheology and material characterisation.

Instruments & Equipment in the Applications Laboratory

The Rheology Solutions applications laboratory is equipped with a comprehensive range of equipment and instruments to meet the requirements of material characterisation. The equipment and instruments currently available are:

- Haake RheoStress RS80 – controlled stress rheometer.
- Haake RheoStress RS150 - controlled stress rheometer.



Tim Kealy *setting the zero point on the RheoScope*

- Haake RheoStress RS6000 - modular, high temperature controlled stress rheometer.
- Haake CaBER 1 - Capillary Breakup Extensional Rheometer.
- Haake Melt Flow Indexer.

This combination of instruments and equipment allows the testing and definition of the material properties of most solids and liquids. In this way Rheology Solutions can provide unparalleled expertise and customer advice for sensible instrument and sensor selection as well as consultation and test procedure development.

This range of on-site instrumentation also permits Rheology Solutions to undertake comprehensive contract consulting and sample testing across most applications.

The precision and reliability of all data collected during testing is examined through multiple tests and comparison and dissemination of all data collected is passed to the relevant parties.



The continued reliability of our instruments is ensured through a schedule of regular maintenance and calibration checks, using calibration oils and weights for the fluid and solid testing instruments respectively.

Contract Testing Services

Specialist contract testing services are also available and contracts can be tailored to suit discrete tests or protracted testing requirements involving a series of tests over a period of weeks or months.

Contract testing services specifically for industrial applications is available. A range of comprehensive data can be provided for:

- Liquid properties.
- Creep & recovery tests.

- Viscoelastic moduli.
- Flow curves.
- Yield stress.
- Viscosity curves.
- Extensional properties including:
 - Apparent extensional viscosity.
 - Time to break-up of strands.
 - Extensional constants.
- Concentration and temperature profiles.
- Effects of particle size distribution.
- Effects of additives and viscosity modifiers.
- QA/QC for optimal processing.

These tests will provide valuable information for process design, modification and control. Test results can be provided simply as data files or supplied with complete interpretation and recommendations.

Additionally, Rheology Solutions can facilitate testing at the overseas suppliers laboratories when required.

Focused on providing our **customers** with materials characterisation **solutions** through knowledge, experience and support.

Materials testing for polymer processing industries



T.Kealy,
Technical Manager
Rheology Solutions Pty Ltd

Polymer processing includes unit operations such as compression, injection and blow moulding and extrusion through a variety of dies. Specifically for the polymer industries, materials characterisation is of critical importance (including fluid related issues like sedimentation, time related structural decay or build-up and post-cure issues like strength of compression or extension) for prediction and management of sharkskin, melt fracture, calendaring, die swell, melt homogeneity and short- and long-term dimensional stability of extrudates or moulded parts. These processes depend on fluid rheological parameters such as viscosity, visco-elasticity, creep and recovery, and solid material properties such as behaviour under various compressive and extensional loading conditions. Extensional flow properties dominate processes where stranding occurs and influences time, quality and energy requirements.

The Rheology Solutions applications laboratory has state of the art equipment, capable of measuring all of the above parameters, and of providing interpretation of the results where necessary. Laboratory equipment includes highly sensitive, specialised, modern instrumentation and sensor systems, for measuring complex or difficult fluids such as those with very low viscosity, or those with a highly settling solid phase, or liquids with significant extensional or visco-elastic properties. Solid material

properties according to various international standards can also be monitored.

Information such as shear viscosity curves, thixotropic behaviour and flow curves may be obtained for interested clients. Additionally, of importance to the industry, when scientifically assessing changes in flow behaviour due to temporal or ingredient issues, viscoelastic moduli as a function of temperature (up to 250°C) shear rate or strain can be assessed. Structural changes under very low shear (like in the case of storage, gravity settling, compression moulding etc) or very high shear (pumping, extrusion, mixing, injection moulding etc) are possible using the advanced equipment and sensors available at the laboratory of Rheology Solutions. These measurements may be obtained as a function of temperature, solids density, or to monitor the effects of changes in additive/ingredient species or concentration.

With this information the scientist or engineer may change the process, or design new unit operations or products to maximise the potential benefits to be obtained from the physical properties of the processed fluid.

Rheology Solutions is pleased to provide this information to interested parties, and to make our rheological expertise available to the polymer processing community. Our range of testing and interpretation services is further supported by customised workshops, training and seminars to cover the needs of individuals, businesses or industry sectors, covering introductory, intermediate or advanced theory and practice of rheology. This can be supplemented by application specific workshops.

Technical Literature Available for Polymer Applications

Rheology Solutions Pty Ltd has a variety of literature and documentation available for the polymer industries. This information comes from a variety of sources including the manufacturers and also Rheology Solutions

Ref No.	Title	Ref No.	Title
HA010	Improvements On Laboratory Scaled Mixers For Rubber Compound Qualification	HL-019E	Modern Test Methods For Characterising The Modern Behaviour Of Polymers
HA014	Influence Of Droplet Size On Rheological Properties Of Emulsions	HL-022E	The Rheological Testing Of Polymers Using A Modern Computerized Torque Rheometer.
HA019	New Experimental Possibilities For The Investigation Of The Melting Of Polymer Blends	HL-025E	Comparison Of Several Rheometers Using 3PE Polymers To Link Their Results To Molecular Structure And Processibility.
HA024	Elongational Viscosity Of Polymer Melts. A New Method For Labwork And On-Line Monitoring.	HL-026E	Computerized Extruder Capillary Rheometer Tests And Their Evaluation
HA025	Viscosity Measurement Of Novel Polymers And Additives Using A Conical Micro Twin-Screw Compounder	HL-027E	Rheological Interpretation Of Torque Rheometer Mixer Test Data.
HA026	Thermo Unveils Pharma-Focused Extruder	HL-040E	Blending & Rheological Measurement Combined
HA029	Thermo Unveils Pharma-Focused Extruder	LR-05E	Investigation Of The Influence Of Two Types Of Carbon Black On The Flow Behaviour Of San
HA030	A Practical Approach to Scale-Up From Bench Top Twin-Screw Extruders	LR-06E	Investigation Of The Flow Characteristics Of PEPT At Different Temperatures
HA-047	New Measuring cell for UV assisted thermal curing at elevated temperatures	LR-08E	Differentiating Rubber Compounds With The Same Mooney Viscosity
HL-011E	Dies For Rheomex Extruders: Horizontal Sheet And Ribbon Die	LR-09E	Investigation Of PVC Dry Blends With Different Stabilizers
HL-013E	Parallel Twin Screw Extruder – Rheomex PtW25	LR-10E	Differentiating PVC Dry Blend Batches With An Extruder Sensor
HL-014E	The Haake Optical Testing System – Oqt512	LR11E	Flow And Cross-Linking Behaviour Of Cross-Linking Polyethylene's (XLPE)
HL-015E	Technical Paper 1 – The Processibility Testing Of Pour Able Thermoset Compounds	LR-12E	The Curing Behaviour Of Reaction Resin Compounds
HL-016E	Technical Paper 2 – The Testing Of The Flow And Cure Properties Of Pourable Thermoset Compounds.	LR-13E	Characterizing Masterbatches Using The Screen Life Test Method
HL-017E	How To Relate Test Results To Problem In Fire Production	LR-14E	Pigment Differentiation In Masterbatches
		LR-15E	Testing The Flow Characteristics Of Glass Fibre Reinforced TPU

These articles may be requested direct from our website: <http://www.rheologysolutions.com/articlerequest.html>



Ref No.	Title	Ref No.	Title
LR-16E	Extruding Polymers: Viscosity And Die Swell Depending On The Extrusion / Shear Rate	LR-35E	Characterisation Of PVC-Compounds
LR-17E	Examining The Plastifying And Degradation Behaviour Of PVC	LR-36E	In-Process Measurement At-Line Testing Of 3 HDPE For Determining Film Quality And Simultaneous On-Line MFR/MVR Monitoring
LR-18E	Examining The Influence Of Stabilizers On The Flow Characteristics Of Polyamide	LR-37E	Use Of Modern PolyLab Torque Rheometer System For Material Characterisation
LR-19E	Differentiating Pp Samples From Different Suppliers With The Same MFI Value	LR-38E	Production Of A Blend Of Two Different Concentrations By A Parallel Double Screw Extruder And A Further Processing Through A Melt Pump And Following Measurement Of The Rheological Characteristics In Slot And Rod Capillary Dies.
LR-20E	Testing The Flow Properties Of Acrylnitril-Butadiene-Styrol-Terpolymer (ABS)	LR-40E	Rubber Testing. Kinetic Quality Control Of Rubber Carbon Black
LR-21E	Testing The Flow Behaviour Of Two Batches Of A Ceramic Injection Moulding Compound	LR-44E	Test Methods For Characterisation And Optimisation Of Recycling Polymers
LR-22E	Application Of The Speed Program For The Differentiation Of Two Natural Rubber Samples	LR-45E	Determining Formulation And Predicting Processibility Of "PIM" Feedstock
LR-23E	Application Of The Temperature Program For The Investigation Of The Gelling Behaviour Of Plastics	LR-46E	Conductivity Measurement For Rubber Compound Qualification
LR-24E	Influence Of The Incorporation Sequence Of Different Components Of The Same Recipe On The Energy Consumption If The Mixing Process	LR-48E	Influence Of The Sample Weight On PVC Fusion Test
LR-26E	Testing The Behaviour Of Thermosetting Compounds With Respect To Flow And Rate Of Cure Making Use Of A Torque Rheometer	LR49	Filter Test Value (FTV) Test – A New Standard To Examine Master Batches, White And Carbon Black Colourants Using A Single Screw Extruder
LR-27E	Innovative Solutions For Polymer Processing & Characterisation	LR50	Use Of Bench-Top Twin-Screw Extruders For Development Of Powder Coatings
LR-28E	Compounding – Processing – Rheological Testing: All In One Test Run	LR52	Degradation Tests – A New Test Procedure To Examine Polymers And Antioxidants With The Haake MiniLab Pharma MiniLab – A Small Scale Compounder For Pharmaceuticals
LR-29E	How To Relate The Results Of A Torque Rheometer To Problems In Elastomer Processing	LR-55	Residence Time Measurements in Bench Top Twin-Screw Extruders
LR-30E	The Residual Current Operated Device & PolyLab	LR-56	Ceramics – Compounding of Feed Stock with PTW16XL and Sample Production with HAAKE MiniJet
LR-31E	OQT512 – Applications When Used With The Blown-Film & Sheet, Tape And Ribbon Take-Off	LR-58	Small Scale Catheter Productions
LR-33E	Viscosity Measurement Of LDPE Samples With The Same MFI Value	LR-62	Nanocomposites – Examples on Compounding of Nanoclay



Ref No. Title

- MX003** Gas Phase Control Of A Polymer Slurry Process For Solvent Acrylic And Water Borne Polymers
- PRISM001** Rapid Evaluation Of Pigment Dispersion Using A Bench Top Twin Screw Compounder
- PRISM002** Recent Developments In Bench Top Twin Screw Compounders
- PRISM003** Small Scale Twin-Screw Extruders for Polyolefins Compounding
- RF-060902-BR-01**
Viscoelastic Properties Of Sterculia Striate Gum In The Presence Of Sodium Chloride
- RF-110902-BR-01**
Rheology As A Tool For Immiscible Polymer Blends Characterisation: Interfacial Tension And Compatibilisation
- RF-110902-CA-01**
Linear Viscoelastic Characterisation Of High-Melt-Strength Polypropylenes Over A Broad Range Of Frequencies
- RF-120902-DE-03**
Carboxymethyl Starch Gels For Ultrasonic Examinations
- RF-120902-FR-01**
Rheological Study Of The Sol-Gel Transition In Silica Alkoxides.
- RF-130802-SE-01**
Phase Morphology Development In Reactively Compatibilised Polyethylene Terephthalate/Elastomer Blends
- RF-130902-BR-01**
Estimating Interfacial Tension Between Molten Polymers Using Fiber Instabilities
- RF-160702-FR-01**
Optimization Of The Rheological Characterisation For A Biodegradable, Cheap And Multipurpose Thermoplastic Made Of Corn Flour.
- RF-190702-KR-01**
Effect Of Surface Modification On The Interfacial Tension Between The Melts Of High-Density Polyethylene And Nylon 66: Correlation Between Rheology And Morphology

Ref No. Title

- RF-190902-ES-02**
Rheological Study Of The Compatibilisation Of PVC/PE Blends With Chlorinated Polyethylene
- RF-190902-ES-03**
Enhanced Rheological Properties Of Polyethylene/EPDM Modified Bituminous Binders
- RF-190902-US-01**
Alignment Mechanical Characterisation Of Vapor Growth Carbon Nanofibers In Polyethylene.
- RF-190902-US-02**
Controlling Gel Formation In Clay Dispersions Via Water-Soluble Polymer: Viscoelasticity And Kinetics Of Gel Formation
- RF-200902-ES-02**
Rheological And Electrical Characterisation Of Highly Conducting Polyaniline Gels
- RF-230802-SE-01**
Morphology Development By Reactive Compatibilisation And Dynamic Vulcanization Of Nylon 6 / EPDM Blends With A High Rubber Fraction
- RF-260302-CZ-01**
Investigation Of Wave Interfacial Instabilities In Coextrusion Flows
- RF-260802-CH-01**
Gelling Of Ceramic Suspensions Using An Algae-Derived Polymer
- Rheo009-TP**
The Cambridge Polymer Group Silly Putty "Egg"
- Rheo023-TP**
Quality Control In The Polymer Industry. Introduction To Cutting Edge Technologies And Their Application In The Polymer Industry
- Rheo024-TP**
Rheology For The Rubber And Elastomer Industries – Introduction To The Influences Of Rheological And Process Parameters And Methods For Their Measurement



Ref No.	Title	Ref No.	Title
Rheo034	Nano-Dispersion Of Clay Makes Better, Cleaner Plastics	V091E	Characterization Of A Polyethylene Melt
Rheo041	New Die Design For The Characterization Of The Extensional And Shear Properties Of Polymers For Laboratory And On-Line Use	V102E	Properties Of A Drag Reduction Micelle System
Rheo045	Through The Looking Glass Part 1: An Alice In Wonderland View Of Polymer Science (Part 1 & Part 2)	V103E	Molecular Weight Distribution Obtained From Rheological Experiments Using A New Analytical Inversion Schema
Rheo051	QC Measurements for Liquid Food Products and Packaging	V104E	Molecular Weight Distribution Obtained From Rheology, Different Methods And Common Problems
Rheo109	Materials Testing for Polymer Processing Industries	V125E	Polymer Package For HAAKE Rheometers
Rheo177	Instrument Application Note: Quality Control in the Polymer Industry	V128E	Measurement Of The Viscoelastic Properties Of Resins
Rheo178	Instrument Application Note: Current Possibilities for Extrusion and Mixing	V131E	Determination Of Molecular Weight Distribution From Rheological Experiments
Rheo289	Tim's Top Tips - Explanation And Evaluation Of Compounding	V139E	Rheological Characterization Of Polymers
Rheo290	Tim's Top Tips - Explanation And Evaluation Of Processability	V150E	Rheological Methods For Determining Molecular Weight And Molecular Weight Distribution
Rheo291	Tim's Top Tips - Explanation And Evaluation Of Shark Skin	V160E	Quality Control Based On Rheological Molecular Weight Distribution Fingerprints
Rheo292	Tim's Top Tips - Explanation And Evaluation Of Die Swell	V166e	How To Select The Most Adequate Sensor For Your Application
Rheo364	Tim's Top Tips – How to Measure Flow & Viscosity	V169E	Rheological Investigation Of Three Rubbers With Different Shore Factors With Respect To Their Shape Stability Before Curing
Rheo366	Tim's Top Tips – How to Measure Thixotropy	V185E	Viscosity - Temperature Dependence Of Different Glasses
Rheo368	Tim's Top Tips – How to Measure Yield Stress	V186E	Rheological Investigation Of Three Rubbers With Different Shore Factors With Respect To Their Shape Stability Before Curing
V040E	Elasticity And Effect Upon Mold-Filling	V191E	Rheological Tests On Thermoplastic Elastomers
V058E	Estimating The Yield Stress From A Stress Ramp	V196E	Measurement Of Elongational Viscosity Of Polymer Melts Under Processing
V059E	The Measurement Of Cure With Forced-Oscillation	V198E	Additional Information From Rheological Experiments : The Melt Flow Index Equivalent
V076E	Rheological Test of PVC Samples With Ferrite Filler	V212	HAAKE CaBER 1 – Molecular Weight Distribution – Polystyrene, Blends Of Standards, Same Mw, Different Mwd
V082E	Measuring Fast Curing Melts		
V086E	Importance Of Temperature Control During Curing Reactions		
V087E	Measurement Of The Viscoelastic Properties Of Polymer Melts		
V089E	Rheological Characterisation Of A Polystyrene Melt		

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Ref No.	Title
V213	HAAKE CaBER 1 – Polymer Solutions Polystyrene, $M_w=1.8$ Mio G/Mol In Styrene Oligomers At Very Low Concentrations
V214	HAAKE CaBER 1 – Binary Polymer Mixtures Polystyrene Blends Of Standards $M_w=1.8$ Mio G/Mol + $M_w = 13$ Mio G/Mol
V219	Cellulosic Derivatives in Capillary Break- up – Influence Of The MWD and Gel Particles
V229	Cellulosic Derivatives in Capillary Break- up – Influence Of The MWD and Gel Particles
V230	Cellulosic Derivatives in Capillary Break- up – Influence Of The MWD and Gel Particles----



Applications Laboratory Instruments, Liquid Testing

(as at July 2010)

Instrument:	CaBER1	RS6000	RS150	RS80	VT550	VT6/7
Measurement Technique:						
Controlled Rate (CR) measurement	NO	YES	YES	YES	YES	YES
Controlled Stress (CS) measurement	NO	YES	YES	YES	NO	NO
Step Strain (Extensional) measurement	YES	NO	NO	NO	NO	NO

Commentary

The CaBER1 is a capillary break-up extensional rheometer. CS measurements allow a variety of tests to be performed, which are not possible on CR units, these include measurement of G' and G'' , and complex viscosity, but also the most precise yield stress measurements can be made using CS measurements only.

Measuring Geometries:

Plate & Plate*	YES	YES	YES	YES	YES*	NO
Cone & Plate*	NO	YES	YES	YES	YES*	NO
Cup & Bob	NO	YES	YES	YES	YES	NO
Vane	NO	YES	YES	YES	YES	NO
ASTM D4287-88	NO	NO	NO	NO	NO	YES
Capillary	NO	NO	NO	NO	NO	YES

Commentary

(*) VT550: Extra fixtures are required, and computer controlled closing of the geometry is not possible.

Test Types:

Oscillatory Tests	NO	YES	YES	YES	NO	NO
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Commentary

Oscillatory tests allow a range of amplitudes and/or frequencies of oscillation, for both destructive and non-destructive testing.

Rotational Tests	NO	YES	YES	YES	YES	YES
Creep/Recovery*	NO	YES	YES	YES	NO	NO
Extensional Tests	YES	NO	NO	NO	NO	NO

Commentary

* This measures the extent of, and time taken for, structural recovery to be measured.

Information:

Yield Stress	NO	YES	YES	YES	YES	NO
Thixotropy	YES	YES	YES	YES	YES	NO
Flow Curve*	NO	YES	YES	YES	YES	NO
Viscosity Curve*	YES	YES	YES	YES	YES	NO
Elastic Modulus, G' #	NO	YES	YES	YES	NO	NO
Viscous Modulus, G'' #	NO	YES	YES	YES	NO	NO



Commentary

- (*) VT6 and VT7 are ASTM D4287-88 units, they can only measure 'true' viscosity or flow curves for Newtonian fluids. Non-Newtonian fluids give comparative data only. The CaBER 1 measures apparent extensional viscosity, not shear viscosity as measured by rotational instruments.
- (#) G' & G'' are critical for measuring structural changes over time, eg gelation/decomposition, without disturbing the internal structure of the sample.

Instrument:	CaBER1	RS6000	RS150	RS80	VT550	VT6/7
Useful for:						
QA/QC	YES	YES	YES	YES	YES	YES
R&D	YES	YES	YES	YES	NO	NO

Commentary

The rotational instruments are documented in order of decreasing sensitivity and operating window size. The RS6000 is the most sensitive of these instruments with the largest operating window. The VT6/7 is the least sensitive of these instruments with the smallest operating window.

Portable	NO	NO	NO	NO	YES	YES
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Commentary

RS6000 and RS150 weigh 40kg, VT550 and VT6/7 are portable on their own, but refrigerated circulator & laptop are recommended for all units.

Other:

Precision*	HIGH	VERY HIGH	VERY HIGH	HIGH/MODERATE	MODERATE	LOW
Temperature Control necessary	YES	YES	YES	YES	YES	YES
Clean & Dry air necessary	NO	YES	YES	YES	NO	NO
Controlled closure of geometry#	YES	YES	YES	YES	NO	NO

Commentary

- (*) The RS6000, RS150 and RS80 have air bearings, allowing higher sensitivity for all measurements.
- (*) The VT550 has a mechanical bearing (low friction), but not essentially frictionless like RS units.
- (*) The VT6/7 have mechanical bearings (higher friction than the VT550).
- (#) This feature is critical to reduce the disturbance to the sample, and to help repeatability since manual closure of the gap for thixotropic fluids results in variable initial strain on the sample.

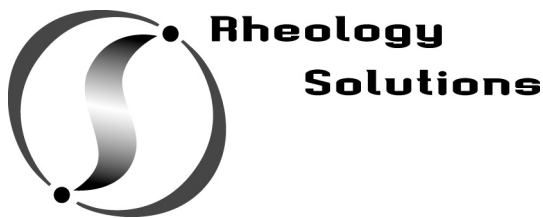
KEY:

The equipment in the applications laboratory is a combination of last and current generation viscometers and rheometers. These instruments are widely in use for R & D through to QA & QC applications.

The CaBER 1 Capillary Break-Up Extensional Rheometer measures extensional properties which govern filling, spatter, misting, fibre spinning and other processes, which have an elongational or extensional component.

The RheoStress (RS) 80, 150 and 6000 controlled stress rotational rheometers measure shear and dynamic properties which govern pumping, stirring and other processes where the acting forces are shearing the fluid.

The ViscoTester (VT) 550 and 6/7 viscometers measure shear properties only, which govern the viscous part of pumping, stirring and other processes where shearing forces act on the fluid.



Contract Testing Request Form

Date: Confidentiality Agreement Required Yes No
Name:
Company:
Phone Number: Area Code: State:
Email Address:

REASONS FOR TESTING

Sample Characterisation
 Process Development / Problems
 Other:

INFORMATION WILL BE USED BY

QA
 R&D
 Productions

PROCESS INFORMATION

If there is a problem, how does it manifest itself?

(Please provide basic process details before, during and after point of detection)

SAMPLE INFORMATION

Samples Name / ID:
No. of Samples:
Corrosive: Yes No Toxic: Yes No
pH:
Particle Size Distribution:
Concentration *(solids / polymer / ionic etc.)*:

Other:
Is an MSDS Sheet included for each different sample? Yes No
Special Disposal Requirements? Yes No
If Yes, Details:

Samples Name / ID:

Sample Handling / Storage: (eg. refrigeration, temperature, mixing, shelf life, air tight etc.)

Sample Preparation for Testing: (eg. pH, mixing, other additives, ingredients, temperature etc.)

Cleaning Requirements: (eg. solvent, detergent, water etc.)

CURRENT TESTING PROCEDURES:

Is there an existing test procedure available? Yes No

Is a copy of the test procedure attached? Yes No

Are test results for this product attached? Yes No

TESTING / RESULTS REQUIRED:

.....
.....
.....
.....
.....

DISSEMINATION OF RESULTS:

- | | |
|--|---|
| <input type="checkbox"/> Data Only | <input type="checkbox"/> Interpretation & Recommendations |
| <input type="checkbox"/> Data & Interpretation | <input type="checkbox"/> Other eg: Presentation |

COMMENTS:

.....
.....
.....
.....
.....

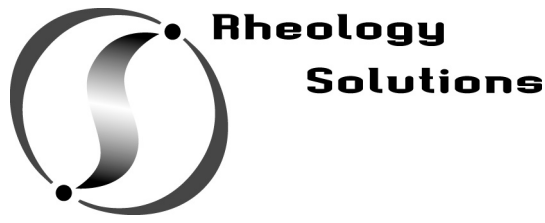
NOTE:

We will advise within 48 hours of receipt of this form if further information is required. Additionally, we will provide an overview of the work we would carry out including an estimate of the projected time scale and associated fee. Any costs associated with special sample disposal requirements will be paid and arranged by the client.

Customer Signature:

Request Submitted by:

We suggest you submit this form by fax 03 5367 6477



Sample Testing Request Form

Date: Confidentiality Agreement Required Yes No
Name:
Company:
Phone Number: Area Code: State:
Email Address:

DATE REQUIRED BY

Urgent - 1 Week Low Priority - 3 Weeks
 High Priority - 2 Weeks Other:

REASONS FOR TESTING

Instrument Evaluation / Recommendation
 Other:

INFORMATION WILL BE USED BY

QA
 R&D
 Productions

PROCESS INFORMATION

If there is a problem, how does it manifest itself?
(Please provide basic process details before, during and after point of detection)

SAMPLE INFORMATION

Samples Name / ID:
No. of Samples:
Corrosive: Yes No Toxic: Yes No
pH:
Particle Size Distribution:
Concentration (*solids / polymer / ionic etc.*):

Samples Name / ID:

Other:

Is an MSDS Sheet included for each different sample? Yes No

Special Disposal Requirements? Yes No

If Yes, Details:

Sample Handling / Storage: *(eg. refrigeration, temperature, mixing, shelf life, air tight etc.)*

Sample Preparation for Testing: *(eg. pH, mixing, other additives, ingredients, temperature etc.)*

Cleaning Requirements: *(eg: solvent, detergent, water etc.)*

CURRENT TESTING PROCEDURES:

Is there an existing test procedure available? Yes No

Is a copy of the test procedure attached? Yes No

Are test results for this product attached? Yes No

DISSEMINATION OF RESULTS:

- | | |
|---|---|
| <input type="checkbox"/> Data Only | <input type="checkbox"/> Interpretation & Recommendations |
| <input type="checkbox"/> Data & Interpretation | <input type="checkbox"/> Other eg: Presentation |
| <input type="checkbox"/> Report to Customer | <input type="checkbox"/> PDF of Report |
| <input type="checkbox"/> Report to State Distributor/Office | <input type="checkbox"/> Hard Copy of Report |

COMMENTS:

NOTE:

We will advise within 48 hours of receipt of this form if further information is required. Additionally, we will provide an overview of the work we would carry out including an estimate of the projected time scale and associated fee. Any costs associated with special sample disposal requirements will be paid and arranged by the client.

Customer Signature:

Request Submitted by:

We suggest you submit this form by fax 03 5367 6477