



# RheoTalk

NEWS AND INFORMATION FROM RHEOLOGY SOLUTIONS

Update on People, Products, and Plans

October 2002

## The whole world of characterising plastics and rubber from QA, QC, R&D through to production

This statement is a reinforcement of the depth of products through our international partners and extent of the capabilities that Rheology Solutions provide within the field of polymers. A range of products for the plastics and rubber industry will be on display and operational on Stand no 119 at:

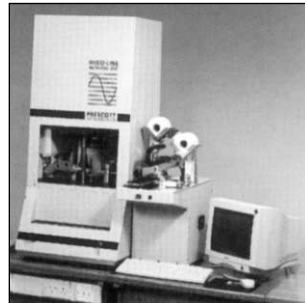
**Expoplas 2002**  
**15 - 18 October**  
**Melbourne Exhibition Centre**

The products on display include:

- Optical Control Systems - ALFA - Film Test System
- Prescott Instruments - Moving Die Rheometer
- Prescott Instruments - Sample Cutter
- Thermo Haake - MiniLab - Micro Compounder



Left:  
Prescott  
Instruments  
Volumetric  
Sample  
Cutter



Left:  
Prescott  
Instruments  
Moving  
Die  
Rheometer

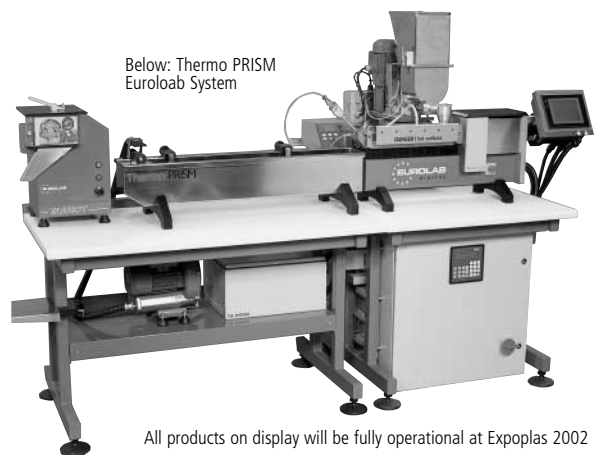
- Thermo Haake - RheoScope - Optical Rheometer
- Thermo Haake - Meltflixer MT - Melt Flow Indexer
- Thermo PRISM - EuroLab - Compounder and Masterbatch Twin Screw Extruder
- Shimadzu - EZTest - Texture Analyser
- Shimadzu - AGS-J - Table Top Universal Tester

Our international partners from, Optical Control Systems, Prescott Instruments, Thermo PRISM, and Shimadzu, will join us on the stand to demonstrate the operations and features of their equipment.

If you are involved in any polymer or Elastomer application across QA, QC, R&D and or production, then you can't afford to miss visiting our stand at Expoplas.

We will be testing rubber samples using the Moving Die Rheometer, extruding LPDE as film, visually inspecting it plus running many other instruments and equipment.

We look forward to welcoming you to the Rheology Solutions stand at Expoplas - so drop by and visit us on Stand no 119 and see the equipment fully operational and meet our international partners.



Below: Thermo PRISM  
EuroLab System

All products on display will be fully operational at Expoplas 2002

**expoplas**  
2002

**Visit us at stand number 119**  
15-18 October Melbourne Exhibition Centre

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# Queensland Seminar & Workshop

## Mineral Slurries in November

Rheology Solutions in conjunction with Scientific Solutions will be running a half day seminar and workshop on mineral slurries, which will be aimed at an intermediate rheology level.

Dr Tim Kealy, Technical Manager, Rheology Solutions will conduct the seminar and workshop.

### Dates

Final dates have not been set, but it is planned to run the seminar & workshop between 13 - 21 November 2002.

The dates have been organised to coincide with the exhibition in Brisbane called Science Queensland and final dates for the seminar & workshop will be set by the end October.

### Program

Preliminary details on the program for the seminar & workshop are:

- General introduction to rheology
- Introduction of the rheological concepts of mineral slurries
- Applications within the mineral slurries industry such as
  - How to estimate yield stress
  - How to construct a flow curve, and
  - How to interpret the data

There will be demonstrations carried out on practical data collection methodologies using a mineral slurry sample and a Thermo Haake VT550 rotational viscometer.

## Registration

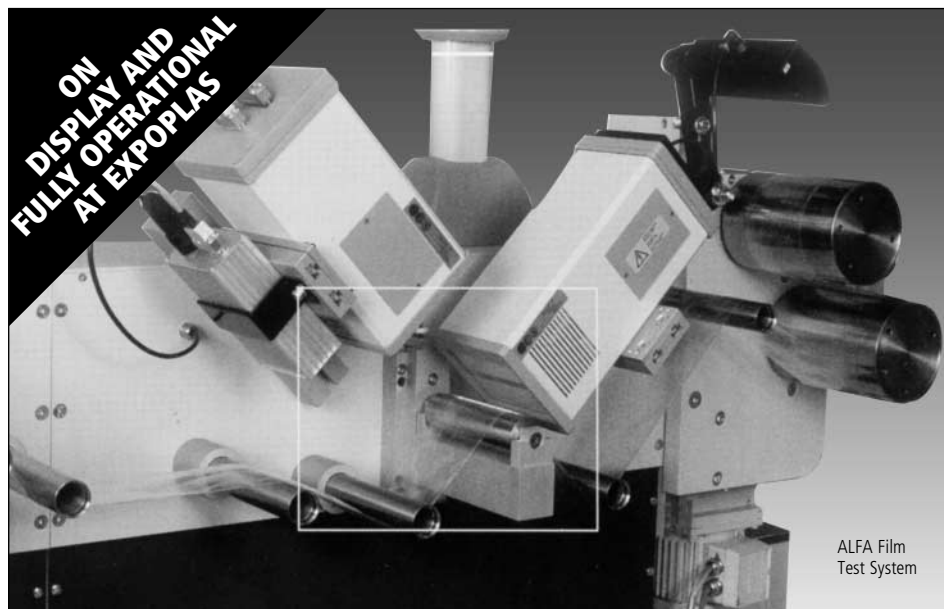
To register to receive an invitation and program for the Mineral Slurries Seminar & Workshop in Brisbane contact:

**Phil Harrip**

**Scientific Solutions**

**Email:** [pharrip@scisol.com.au](mailto:pharrip@scisol.com.au)

**Phone:** 07 5477 0589.



# New Agencies

Our product range is expanding to further service the areas of material characterisation with the addition of the following new agencies and products. The exclusive distribution of these products in Australia is effective immediately.



### Optical Control Systems (OCS) range of quality control products for the polymer industry.

OCS supplies customised and complete solutions in the fields of digital image processing, optical measurement and automation. The systems ensure maximum product quality control. With the aid of precision cameras in conjunction with high performance online image processing, the smallest defects in polymer products are detected, located and analysed in detail.

The applications for OCS systems range from laboratory use to complete integration into the production process.

The product range is extensive and covers the following areas:

- Detection of gels and black specks in:
  - Pellets
  - Powder
  - Films (reflection / transmission mode)
  - Molten polymer
- Extrusion systems
- Chill-Rolls and winding units
- FTIR Spectroscopy
- Pellet size and shape distribution
- On-Line haze measurement
- Fluorescent detection
- Colour measurement
- Physical properties

The inclusion of the OCS product range into the Rheology Solutions portfolio supplements their current range specifically for the polymer industry and ensures that they can assist with the supply and service of polymer equipment and instruments for QA, QC, R&D through to production applications.

**For further information on any of these items  
or the product range or services now available,  
complete the information request form  
or contact our state distributor.**

## EZ Test Texture Analyser from Shimadzu Scientific Instruments

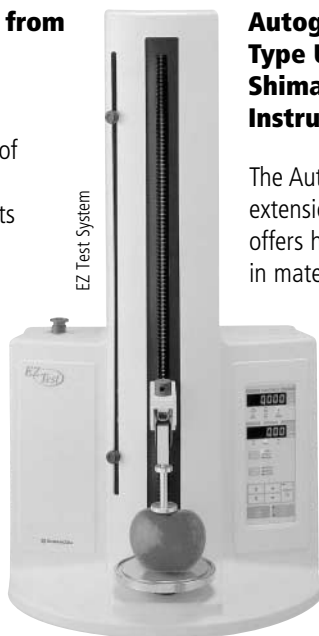
In recent years the application of numeric values to the sense of touch for materials and products has become very important. In particular, in the food industry, various evaluations are made for product quality assurance and the development of new products from raw materials through to the product packaging materials.

The EZ Test texture analyser has two types of software (rheometer software and Win AGS Lite 2000) and a wide selection of jigs open up a variety of applications such as product quality assurance evaluations by measuring hardness alterations and strength evaluation for product packaging and numerically expressing food product texture characteristics like masticability, smoothness, and palatability.

The EZ Test measure such properties as:

- Hardness
- Crispness
- Elasticity
- Staleness
- Crustiness
- Strength
- Brittleness

The EZTest texture analyser is exclusively available from Rheology Solutions. The inclusion of the EZTest into the Rheology Solutions portfolio further supplements their current range of rheology and material characterisation products across QA, QC, R&D and pilot plants for a variety of food and packaging applications.



## Autograph AGS-J - Table Top Type Universal Tester from Shimadzu Scientific Instruments

The Autograph AGS-J is a column extension type universal tester, which offers high precision and high reliability in material testing. All operations of the unit are made using the operation panel with a digital LED display showing the actual force or stress and either elongation or strain.

A large variety of convenient functions for high productivity of tests are provided and the system conforms to CE requirements.

Force-displacement curves can be recorded on any user-selected scale and a variety of jigs are available including

- spring-characteristic evaluation jig
- 45° peel test jig for printed-circuit boards
- cycle bending test jig
- bending test jig

Various applied test attachments are available to further extend the performance of the AGS-J. These include attachments for:

- Studies of physical properties including strength
- Tests in desired environments
- Displacement measurement
- Automating tests

The system operates using Windows and has a comprehensive dedicated software package for every application.

**Both products on display and fully operational at Expoplas 2002**



# RheoScope Launch

## ...A Great Success

During August we conducted five RheoScope launches around Australia and demonstrated this unique optical rheometer to over 80 customers all within a span of eight working days. The feedback from our customers who attended the launch was extremely positive and the general consensus was that the novel area of application for the RheoScope was within the rheological characterisation of starches, gels, emulsions, and foams to measure the dynamic changes in rheology and structure.



South Australian Launch - Dr T Kealy - Rheology Solutions, Dr F Soergel - Thermo Haake demonstrate a sample to staff from Ian Wark Research Institute.

## Free CD Available

A CD of the entire RheoScope presentation was produced including the videos and pictures of the samples (shaving cream, scouring milk, and salad dressing) that were run at the launch. A limited number of these are available so if you would like to see the CD of the RheoScope launch let us know so we can send you a copy.

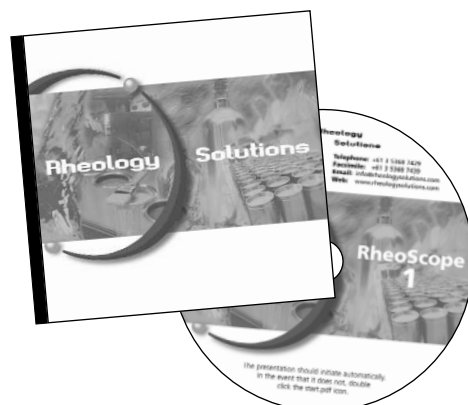
Either complete the details on the fax back form or send an email request to: [info@rheologysolutions.com](mailto:info@rheologysolutions.com)

## Free Sample Testing

If you would like to have your product samples tested using the RheoScope we would be happy to run them for you free of charge. All that is required is the completion of a sample testing form and the samples - we will conduct the tests and provide you with complete files.

If you would like to see the RheoScope in operation, you are welcome to visit our laboratory or drop by to Expoplas in Melbourne to see the RheoScope in action.

**Visit us at stand number 119**  
Expoplas 15-18 October 2002



# Technical Notes by Tim Kealy

We now have added to our series of Technical Notes with the inclusion of an article

## Overview Of Rheology-Based Process Challenges For The Surface Coatings Industry

In general, surface coatings are multi-phase fluids, usually one or more liquid phase, which may or may not be water based, in which particulate matter is suspended. The effectiveness of the coating depends on many things, including the properties of both phases and their interaction, the nature of the substrate, the method of application of the coating to the substrate, and diverse processing conditions including temperature, mixing, time, etc.

The performance of a coating fluid has traditionally been assessed using either full-scale process equipment, leading to down time and production loss, or (often expensive) purpose built pilot plant. The terms usually referred to when coating performance is assessed are diverse, for example, tack, surface tension, opacity, brushability, leveling, sagging, flop, length and so on. It is widely accepted that rheological parameters including high- and low-shear viscosity, thixotropy, visco-elasticity and yield point are reliable pointers for coating performance. Their influence, and the influence of environmental and process conditions upon them is a critical factor for processability and product quality.

Shear viscosity and yield stress influence processing through power consumption during pumping, mixing etc. Viscosity is usually shear dependent and is important for

flowability during application (moderate shear for brushing, high shear for spraying) and even cover after application. Yield stress dominates the mechanical properties governing sag. Thixotropy is important for management of post application spread (in inks for example). Visco-elastic effects are prominent during application and define the length of a coating fluid, low elasticity can lead to early breakup of strands, high elasticity results in reduced flow-rates after the gap in rolls, or higher than expected power consumption whilst pumping or mixing. These properties are manipulated to obtain optimal performance for particular surface coating applications.

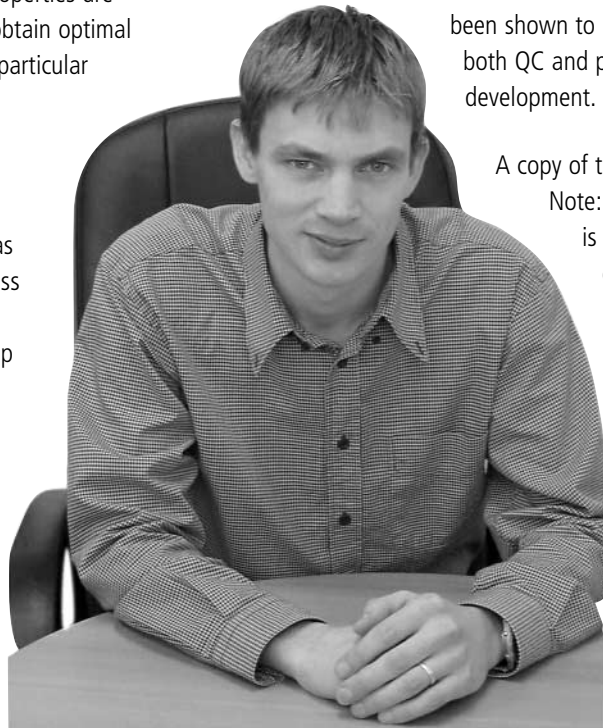
Processing conditions such as ambient or process temperature and roller/mixer/ pump speed severely effect the rheological properties of fluids. It is of inestimable importance to quantify their effect in order to fully

control processing and application issues, and to predict the effects of environmental changes.

Sensitive, high precision versatile equipment is available for repeatable and reliable measurement of all flow properties in the laboratory. These rheometers measure shear viscosity, yield stress, thixotropic hysteresis loops and visco-elastic properties of surface coatings. Recently, extensional rheometers have become commercially available, for the first time, which are ideal for length measurement. These units have been shown to be of value for both QC and product development.

A copy of the Technical Note: Surface Coatings is available electronically.

Either complete the details on the fax back form or send an email request to: [info@rheology.com](mailto:info@rheology.com)

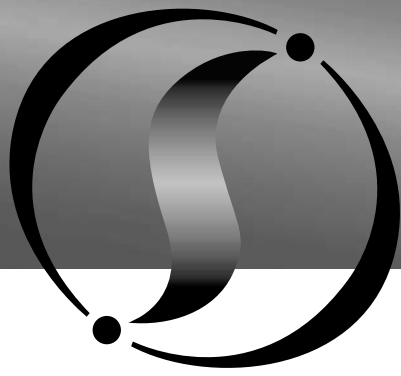


View our full range of Technical Notes and Application Articles by visiting [www.rheologysolutions.com](http://www.rheologysolutions.com)

For further information on any of these items or the product range or services now available, complete the information request form or contact our state appointed distributor.



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SA:	<b>Gerard Scientific</b>	<b>Phone:</b> 08 8260 8101	<b>Fax:</b> 08 8260 8104
WA:	<b>Walker Scientific</b>	<b>Phone:</b> 08 9240 5255	<b>Fax:</b> 08 9240 5266



# RheoTalk

NEWS AND INFORMATION FROM RHEOLOGY SOLUTIONS

## Information Request Form

Name: .....

Title: .....

Company: .....

Department: .....

Street: .....

Suburb: ..... State: ..... Postcode: .....

Telephone: ..... Fax: .....

Email: .....  please send future issues by email

Please include me in your email distribution of Haake Focus

**From the October issue of RheoTalk, I am interest in receiving the following information:**

- Optical Control Systems - ALFA - Film Test System
- Prescott Instruments - Moving Die Rheometer
- Prescott Instruments - Sample Cutter
- Thermo Haake - MiniLab - Micro Compounder
- Thermo Haake - RheoScope - Optical Rheometer
- Thermo Haake - Meltflixxer MT - Melt Flow Indexer
- Thermo PRISM - EuroLab - Compounder and Masterbatch Twin Screw Extruder
- Shimadzu - EZTest - Texture Analyser
- Shimadzu - AGS-J - Table Top Universal Tester
- Queensland Seminar & Workshop Invitation & Program on Mineral Slurries

**Please send me details on:**

- The RheoScope CD presentation
- Free Sample Testing using the RheoScope
- Arranging to visit to see the RheoScope in operation

**Technical Notes** - please send me a copy of:

- Overview Of Rheology-Based Process Challenges For The Surface Coatings Industry

**Product Information** - Please send me product information on:

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Please remove me from future newsletter mailings

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