

Name This Space??? Name This Space??? Name This Space???

## Welcome Aboard

The Temperature Control Business Unit of Thermo Haake has added their support to the International Newsletter from this issue onwards. We trust all our readers will enjoy the added information that will now be provided in every issue.

### Recapping the Year 2000

- The good news is that the Y2000 bug was kept at bay. The RheoWin Software experienced no problems nor did our production facility.
- The new Series 1 Rheometers kept production busy with lead times during 2000 of up to 2 - 3 months. We extend our apologies to our customers for the delays with deliveries during 2000.
- The Asian region not only recovered in its economy and almost compensated for the poor results in 1999. These troubled countries came back with strong investments in quality control and research instruments.

**Our thanks to our customers and distributors for their support during 2000 – jointly we made the year fun, rewarding and a great success.**

**We all look forward to building on our successes and to working with you in 2001. Here's to a great year for all!**

## Top Products in 2000

The best selling products world-wide for Thermo Haake were for:

### Rheology

- The RheoStress 1 surpassed all expectations and was the clear winner. The product has been widely accepted and offers a superior price-performance ratio.  
*More info? Quote no:28*
- The VT6/7 sales were almost doubled and was the clear number 2 product on units sold.  
*More Info? Quote no: 29*

### Temperature Control

- The F6-C25 water bath saw the highest sales for temperature controlling of external systems including use with viscometers and rheometers.  
*More Info? Quote no:30*
- The DC10-K10 sales came in second with key applications for cooling small systems such as electrophoresis chambers, refractometer or falling ball viscometers.  
*More Info? Quote no:31*
- The inexpensive small water baths models C10-P5 and DC10-P5 with the bath vessel made of a rigid polymer was close on the heels of the top 2 products.  
*More Info? Quote no:32*

### Polymer Technology

- The PolyLab System attained the status of number 1 sales across Polymer Technology products. The system offers great flexibility and can cover a wide range of applications from QC through to complex research tasks using the patented range of mixers or extruders.  
*More Info? Quote no:33*

- From the SWO products the Meltflixer MT was the number 1 product sold. The product has been recognised as offering an excellent price to performance ratio with the added versatility to operate as a stand-alone or computerised melt flow indexer (MVR/MFR).  
*More Info? Quote no:34*

### Hot Applications in 2000

The 'hottest' application was characterisation of fluids over a wide temperature range (from temperatures of 150°C to -40°C). The samples tested included a diverse range of products from ice cream, to adhesives, coatings and pastes. The system to cover this range has been developed by Thermo Haake and is now readily available. This traditional 'Thermal Analysis' application seems to have moved into 'Rheology'.  
*More Info? Quote no:35*

## In This ISSUE

### New Products

- The Phoenix Line – a state of the art range of heating and refrigerated circulators
- Carbon Black testing equipment manufactured by HITEC. Now exclusively available through Thermo Haake. The range includes: Individual Pellet Hardness Tester, DBP Absorptometer & Data System

### Application Articles & New Papers covering:

- Emulsion in Pharmaceutical Creams
- New Test Method for Rheological Characterisation of Fluids

### Software Updates

- RheoWin V2.8x – an overview
- New Demo Key Disk for V2.8x

### Special Offers

- RheoWizard & SnapShot free offer now extended

### Tips & Tricks covering...

- Calibrations of Rotational Rheometers
- Standard Liquids for Calibrating Viscometers

### Newsletter Naming Competition ... Name This Space???

We had a difficult task to select only five names from the suggestions we received. The five names are:

- Let's Torque ● Flow Times ● Rheo Bytes ● Circulating Torque ● Haake Focus

**Register your choice for the newsletter name and be eligible for one of five exclusive Mont Blanc ballpoint pens.**

**All votes must be received by May 31, 2001. at [info@rheologysolutions.com](mailto:info@rheologysolutions.com)**

Thanks to all who sent names, we are sorry we could not print every one.

The new name for the newsletter will be launched in Issue No 3.

### A "New Web" Face

We are constantly adding and updating our website with new technical information, new products, announcements and news. This is to ensure that we have the most relevant information on line for you. Now, we are pleased to advise that we have put a new front page to our website and our goal is to add enhancements regularly. The new web address entry is: [www.thermohaake.com](http://www.thermohaake.com)

## Temperature Control · Update & News

### New Phoenix Circulator Range... Now Available

The Phoenix circulators were presented at AICHEM 2000. This exciting new range of circulators offers:

- simple operation
- perfect design
- innovative materials
- automatic pump adjustment
- neuronal adaptation
- flexible interface concept
- two versions available

A new catalogue on the Phoenix Circulators is available.  
Quote No: 36

Or visit the website at [www.thermohaake.com](http://www.thermohaake.com)

#### The Phoenix Line

Innovative materials combined with the latest state-of-the-art technology and advanced design form the basis for the new Phoenix circulators.

The simple operation of the units is guaranteed due to the large graphic display incorporating plain text dialog and a simple user interface. The Phoenix circulators come equipped with a powerful pressure and suction pump, feature a heating capacity of up to 3000 W and a maximum bath temperature of +280°C. They are ideally suited to the higher technical specifications that many applications require.

#### The Phoenix circulators are available in two versions:

- Basic version Phoenix 1 (P1) with a 2 kW heating capacity, up to 250°C
- Full version Phoenix 2 (P2) with a 3 kW heating capacity, up to 280°C and with additional functional features

#### The Highlights

- Very powerful combined pressure and suction pump with automatic speed recognition for the precise temperature control of external objects
- Display resolution of 0.01°C
- FuzzyStar control with neuronal adaptation
- Flexible interface concept: RS232C (standard), multifunctional output (standard), RS485 (only P2), Profibus (optional for P2)

#### Looking for Application Information?

Thermo Haake provides application support world-wide. If you would like to discuss your particular application and find out where Thermo Haake can offer technical product support contact your local distributor or Email [info@rheologysolutions.com](mailto:info@rheologysolutions.com)



*The New Phoenix Circulator – technology for the 21<sup>st</sup> Century*

- Direct value setting at the display with numeric input
- Up to 10 ramp programs with a maximum of 30 segments (only P2)
- 4 savable fixed temperatures
- Real Temperature Adjustment (RTA) for integration in QS-System
- Large monitor with plain text display and Fault Identification System (FIS)
- External Temperature Control (ETC) with connection for an external Pt100 sensor as standard
- User can choose from 6 different dialog languages
- Permanent display of date and time
- 3-point calibration function (only P2)

#### Customer Training?

The Thermo Haake Customer Training Program for 2001 is now scheduled. For more information on the times and available spaces visit [www.thermohaake.com>About Us](http://www.thermohaake.com>About Us)

#### Where will Thermo Haake be seen in 2001?

What trade shows will you be able to see Thermo Haake during 2001?  
Visit [www.thermohaake.com>News&Events](http://www.thermohaake.com>News&Events)

### The Combinations



*Phoenix Circulator with B5 Bath*

#### Heating Circulators with Baths B5, B7 and B12

##### Compact heating circulators

- ideal for temperature controlling open or closed external systems
- short heating up times which provide quick reaction times
- high temperature accuracy due to the Fuzzy-Logic control

#### Heating Circulators with Baths W26 and W45

##### Combined open-bath and heating circulator

- Large bath opening for direct temperature control of objects
- Simultaneous temperature control of external systems
- W45 with extra deep bath (300 mm) for large objects

#### Refrigerated Circulators with baths C25P, C30P, C35P, C40P, C41P and C50P

Compact refrigerated circulators from -28°C (C25P) to -50°C (C50P), cooling capacity from 300 W (C25P) up to 1000 W (C41P) at 20°C.

- Ideal for the simultaneous temperature control internally and externally
- Slim-line unit with small base area (C25P)
- Reliable cooling down to -30°C even at high ambient temperatures (C30P)
- Wide temperature range from -35°C to +200°C (C35P)
- High cooling capacity for applications under zero degrees (C41P)
- Inexpensive cooling in the extreme low temperature range (C50P)

## Rheology Update & News

### Application Articles & Papers

#### Influence of Droplet Size on Rheological Properties of Emulsions

Typical oil-in-water (O/W) and water-in-oil (W/O) emulsions show plastic flow behaviour, a yield stress and thixotropy.

Investigations into different emulsion samples to characterise the product properties have been carried out and are detailed in this paper. The pharmaceutical emulsions were tested using rotational shear and dynamic oscillatory tests on a controlled stress rheometer.

The paper looks at various tests, the information that is obtained, and how that relates to the products storage stability, impact of temperature on aging, optimisation of skin feel, cream consistency, and network strength.

*For a copy of this paper quote: no 37*

#### New & Improved Rheological Test Methods – Rheological Characterisation of Fluids

The annual meeting of the Japanese Society of Rheology (held September 2000 at the Kochi University) was the platform for launching the new LT motor used in the new RheoWave 1 rheometer from ThermoHaake.

Numerous papers were presented and covered The Haake model ViscoTester 550 (Study of the effect of shear rate on the electro-rheology), the model RheoStress 150 (creep behaviour of magnetic paints containing acicular Fe Fine Particles).

For details on the presenters of these papers and an overview of the Japanese Society of Rheology Meeting visit [www.haake.de/jsr.htm](http://www.haake.de/jsr.htm)

The paper titled 'Special Motor Technology Allows for New & Improved Rheological Tests Methods', presents a review of motor technology for rheometers and a new motor concept is presented.

The technical requirements for a drive and measuring head are discussed and an innovative solution is presented which has been commercialised as a dynamic rheometer RheoWave 1. The performance is demonstrated and selected test results are presented.

The test results presented in the paper confirm that a rheometer using this new motor and measuring technology allows the user to carry out rheological characterisations of very thin fluids using a dedicated rheometer which is specialised in their measuring methods and the design geared to these requirements at an affordable price.

*For a copy of this paper quote: no38*

*For details on the RheoWave 1 quote: no 31 or visit [www.haake.de/rw1.htm](http://www.haake.de/rw1.htm)*

### Software Updates

#### What's New in RheoWin V2.8x

Since the introduction of RheoWin V2.7, many extra features have been added. Some of the software enhancements include:

##### Job Manager

Execute Dialog – now includes a right mouse-key pop-up menu so the user can select some default positions  
Job Editor – a new item Shortcut on the desktop is shown when the right mouse button is pressed – when clicked a shortcut to the current job is saved on the desktop

Protocol/Info Window – the user can define the amount of information displayed during a job run

##### Data Manager

File Loading – now by drop & drag  
Many other updates and enhancements have been incorporated. They cover graph & table layout, saving

tables in ASCII, lift element, reset element, OSC-Multiwave elements, rheometer drivers, and much more.

*For a complete copy of "What's New in V 2.8x" quote no 39*

#### New Demo Key Disk – RheoWin V2.8x

The new Demo Key opens all functions as the full RheoWin software but is time limited for 30 days.

The new demo key disk of RheoWin Version 2.8x can be requested by sending an Email with the subject "Key Disk" to Email: [info@rheologysolutions.com](mailto:info@rheologysolutions.com)

If you are using RheoWin and do not have RheoWizard or SnapShot, then you can download it free from [www.haake.de/soft/rheowin.htm](http://www.haake.de/soft/rheowin.htm).

The offer has now been extended and is valid until 1 June 2001.

Unsure of what SnapShot or RheoWizard are? Or how they will help you characterise unknown or new samples and assist in establishing new applications. Visit [www.haake.de/rehoffice.htm](http://www.haake.de/rehoffice.htm)

### Tips & Tricks

#### Calibrations & Standard Oils

Two separate articles are available covering how a calibration is performed and the use of standard liquids for calibrating viscometers. They will contain all the tips and tricks needed for calibrating and accessing the results according to ISO 9000 requirements. The papers are titled:

'Calibration of Rotational Rheometers'

*For a copy quote no: 40*

'Standard Liquids for the Calibration of Viscometers'

*For a copy quote no: 41*

**'Mineral Oils which are older than 1 year can at the very most be useful to lubricate a bike, but no longer for the inspection of viscometers'**

*For information on the range of test fluids and standards liquids available quote no: 42*

#### RS1 – the No. 1 product sold in 2000



#### More Information

Further information on all items in this newsletter is available either as a link to the ThermoHaake website and or by sending an eMail to [info@rheologysolutions.com](mailto:info@rheologysolutions.com) and quote the item number/s listed or provide the article/item name

## Polymer Technology Update & News

### NEW & Exclusive ... Carbon Black Equipment

ThermoHaake have taken on the worldwide sales and support for the HITEC range of carbon black equipment. The official announcement & launch of these new products within ThermoHaake was at the Tire Technology Congress in Cannes, France in January, 2001.

Carbon black is widely known for its use in rubber tyres and seals. It not only colours the rubber black, but also it will improve & enhance the rubber properties. When carbon black is manufactured, is usually exists as a very fine powder which are formed into pellets. The hardness of these pellets can determine whether or not processing is successful. If the pellets

are too soft, carbon black pockets will form due to coalescence, which provides an inhomogeneous product. If on the other hand, the pellets are too hard, they will not break properly during processing. The resulting effect of this is seen in poor surface qualities of the rubber product.

Carbon black microstructure is an important property as the aggregates vary in shape from individual spheroidal particles to clustered fibres. The more complex the shapes, the greater the amount of internal voids in a given bulk sampling of carbon black. These voids can result in problems both in processing and packaging.

The new product line consists of three main pieces of equipment which specially address the problems associated with pellet hardness and measuring the microstructure of carbon black. They are the:

Individual Pellet Hardness Tester (IPHT) – for crush strength of carbon black pellets.

DBP Absorptometer (DABS) – for determination of carbon black microstructure using oil absorption tests. (DBP – di-butyl phthalate.)

DBP Absorption Data System (DADS) – for measurement and storage of all data generated by an absorptometer.



#### Individual Pellet Hardness Tester (IPHT)

- Complies with ASTM
- Stepper motor allows for finding the elusive hard pellet at high resolution
- Automatic calibration before each test
- Variable speed lift system allows for greater number of tests in less time
- Easy to use – operates on Windows 95/98/NT & one PC can operate 4 testers
- Provides 'true' compression of pellet – as the load cell deflection is subtracted from calculation
- Rugged construction
- Interchangeable sample tips – allows pellets of 0.8 – 3.0 mm diameter tested

For further information on the IPHT quote no: 43

#### Distribution Network.

- All ThermoHaake distributors are listed on their website. Visit [www.thermohaake.com](http://www.thermohaake.com) >About Us >Our Representatives
- You can Email direct or call your local supplier to discuss your application needs.

#### DBP Absorptometer (DABS)

An absorptometer consists of a small batch mixer with special rotors, and a burette. The carbon black is placed in the mixing chamber and the rotors are set to turn at a predefined speed. While the carbon black is mixing, the burette dispenses (DBP) at a set rate into the chamber. At low concentrations of DBP, the torque curve shows no significant increase. The carbon black microstructure absorbs the DBP and still remains powdery. At a critical concentration of DBP however, the torque signal jumps up dramatically, and the carbon black mixture in the chamber turns a gluey consistency. The point at which this occurs will provide a lot of information about the internal structure.

- Full burette control, including variable speed debit allows for test optimisation
- Frequency inverter driven asynchronous motor – allows for variable speed and a smooth start to the test



- Safety cage opens fully – providing easy access for cleaning and filling, while still providing user safety in total while the test is running
- Needs only 20" (508 mm) of table space

For further information on the DABS quote no: 44

#### DBP Absorption Data System (DADS)

The DADS system consists of a small box that connects to the absorptometer, and software to measure and store the relevant data from the tests. The system will automatically capture the critical absorption ensuring total accuracy and data integrity.

- Connects to all absorptometers with a simple connector kit
- Fully complies with ASTM standards
- Window based software – simple and easy to use
- Fully dust proof – DBP resistant the system
- Can pre-define up to 50 tests – providing less down time and more testing time
- Additional output can take control of burette – adding automatic handling capabilities
- One PC can handle 4 units

For further information on the DABS quote no: 44

#### More Info?

Send an Email to [info@rheologysolutions.com](mailto:info@rheologysolutions.com) and quote the Item no for the section of interest.

Contributions to this newsletter are welcomed. Please send an Email to [info@rheologysolutions.com](mailto:info@rheologysolutions.com)

**Editors Note:** There is no guarantee that comments or feedback received will be published. However, we will answer all communications direct.