Stress Test of Oilfield Chemicals

with the

Dynamic Stability Loop

Characteristics

- Test long term stability of oilfield chemicals
- Up to 4 loops for parallel testing
- Hot and cold bath for thermal stress
- Open and closed loop testing
- Small sample amount
- All loops independant

Long term stability testing
The Dynamic Stability Loop (DySL) is designed to test oilfield chemicals for their long-term stability under the most stringent conditions. The DySL combines thermal stress testing of chemicals and pressurized conditions in a multi-loop system with up to four parallel loops.

Measurement principle
The sample is circulated in a closed loop for a longer period and in this process. It is permanently subjected to thermal stress in a hot and a cold measurement section. Each section consists of a shorter preheating capillary, a long measurement capillary and a filter unit. Over the measurement capillary and the filter, the differential pressure is measured and observed over time as indicator for changes in physical properties due to instability of the sample.
With a backpressure valve the line pressure can be adjusted in a range of up to 344 bar (5,000 psi) to simulate your application's conditions.

Viscosity changes
If the tested chemical is not stable it can decompose, this change in its composition causes a change of the sample's viscosity. The high precision sensors allow to detect even small changes in viscosity over time.

Filter blocking tests
Decomposition and recombination or other reactions can cause a formation of particles, which can then accumulate in the filter, causing an increase in differential pressure over this filter. Different filter mesh sizes allow to adapt the test setup to your task.

Deposition
Particles and other components can also form depositions on the capillary wall, these reduce the diameter, this process can be detected by an increase of the differential pressure.

Absolute or differential pressure sensors
You can choose between to different types of sensors for each loop:
With the absolute pressure sensors the dead volume and required sample volume is minimized. Filling and cleaning afterwards are kept simple. The sensors are very durable yet allow a high precision in measuring the differential pressure over each section.
With the differential pressure sensors you get the highest possible precision in measuring the pressure drop over each section. The handling is more complex and more sample amount is required, but due to the exact measurement the DySL can additionally be used as pressurized capillary viscometer with this setup.

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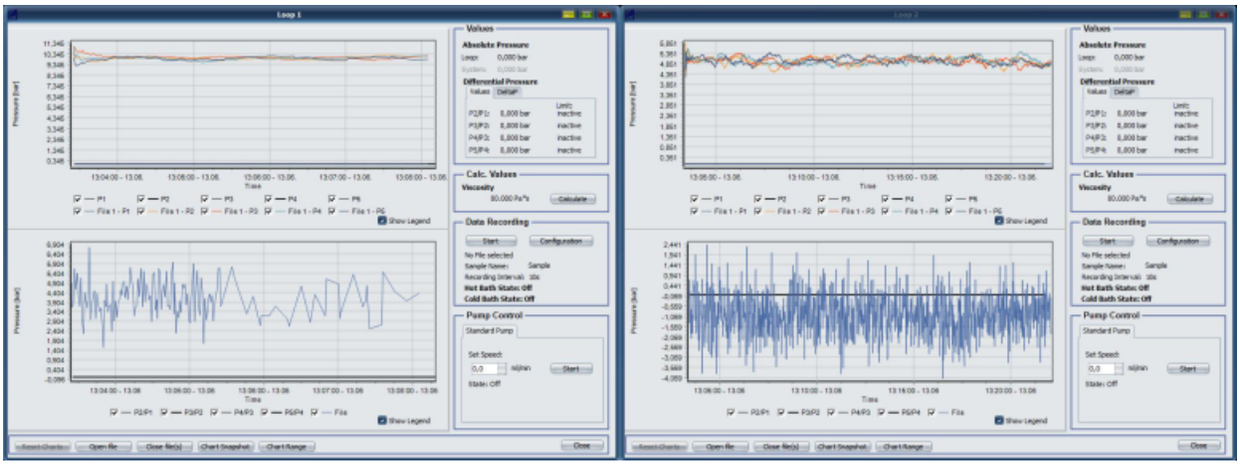
Multi-loop testing
The Dynamic Stability Loop can be equipped with up to four parallel loops, each loop can be configured individually according to your requirements. Later upgrades are possible.

Reservoir
Each loop has its sample reservoir, you can choose between an ambient pressure reservoir or a pressurized container.
With the ambient pressure reservoir, the sample is subjected to maximum pressure stress due to complete depressurization in with every cycle. The handling and cleaning process is very easy.

The container keeps the sample at pressurized conditions during the complete test run. This allows to test also with outgassing components or with emulsions which require an elevated pressure all the time.

Software control
Our software WinDySL allows a comfortable control of the instrument and a simple data acquisition. Each line can be handled individually with e.g. different flow rates and setups.



At a glance - Realtime display for each loop (pressure and differential pressure chart)

Specifications:

Application:	Long-term stability test for oilfield chemicals, Filter blocking test
	Stress-test for umbilical line chemicals, Emulsion stability tests
Temperature range:	Cold bath: -10 .. +90 °C (14 .. 194 °F)
	Hot bath: +30 .. +150 °C (86 .. 302 °F)
Pressure range:	Loop: 344 bar (5,000 psi) / Reservoir: Ambient or 300 bar (4,350 psi)
Number of test loops:	Up to 4 loops
Flow range:	0.1 .. 10 ml/min (each loop set individually)
Power supply:	230 V~ or 115 V~
Weight:	250 kg (main unit with one loop)
Dimensions (WxDxH):	120 x 90 x 120 cm + PC
Other requirements:	Pressurized air supply (4 .. 10 bar)

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