

Stress Test of Oilfield Chemicals

with the

Dynamic Stability Loop



Characteristics

- Tests long time stability of oilfield chemicals
- Up to 6 pressurized test loops for parallel testing
- Hot and cold bath for stress test
- Computer controlled, automated data acquisition, easy handling
- Open and closed loop testing
- Small sample amount

Filter blocking tests

The Dynamic Stability Loop (DySL) is designed for testing oilfield chemicals on long term stability under most stringent conditions. The DySL combines multi-loop testing of viscosity and filter blocking tests for low and high temperature under pressurized conditions.

Stress-test for oilfield chemicals

The test facility consists of up to 6 high pressure pumps, circulating the product sample through a hot and a cold bath under pressurized condition. Each flow cycle is providing extreme stress on the product by continuous changes of flow and non-flow, high and low pressure and hot and cold environment conditions and simulates umbilical line conditions. Two capillaries per line are integrated to check for viscosity changes, e.g. by limited product stability or by emulsification or resp. demulsification processes. Furthermore two filters per line allow to execute filter blocking tests. If required, the filter frits can be replaced or cleaned externally, fast and easily.

An increase in differential pressure between the inlet and the outlet of the test capillary indicates a risk of umbilical plugging due to viscosity changes or wall deposition effects.

Viscosity and the filter blocking tendency

In both conditions, in the hot bath as well as in the cold bath, the viscosity and the filter blocking tendency is continuously measured by monitoring differential pressure and checking for any long-term pressure changes. User defined settings of absolute pressure, back pressure and temperatures allows simulating a wide range of umbilical conditions, starting from on-shore up long tie back deepwater applications.

Parallel testing

In respect to extensive testing demands, the Dynamic Stability Loop is specially designed for multiple loop test runs. It comprises up to 6 test loops for parallel testing of different alternative oilfield chemicals or different product types. Each loop is operated separately. Cleaning and refill is possible while other loops are still running. Measurement capillary and filter plates can be replaced by user. If required, tests can be performed for up to 30 days and more.

 **PSL Systemtechnik**
Germany

PSL Systemtechnik GmbH
Baumhofstrasse 116
D-37520 Osterode am Harz
Germany

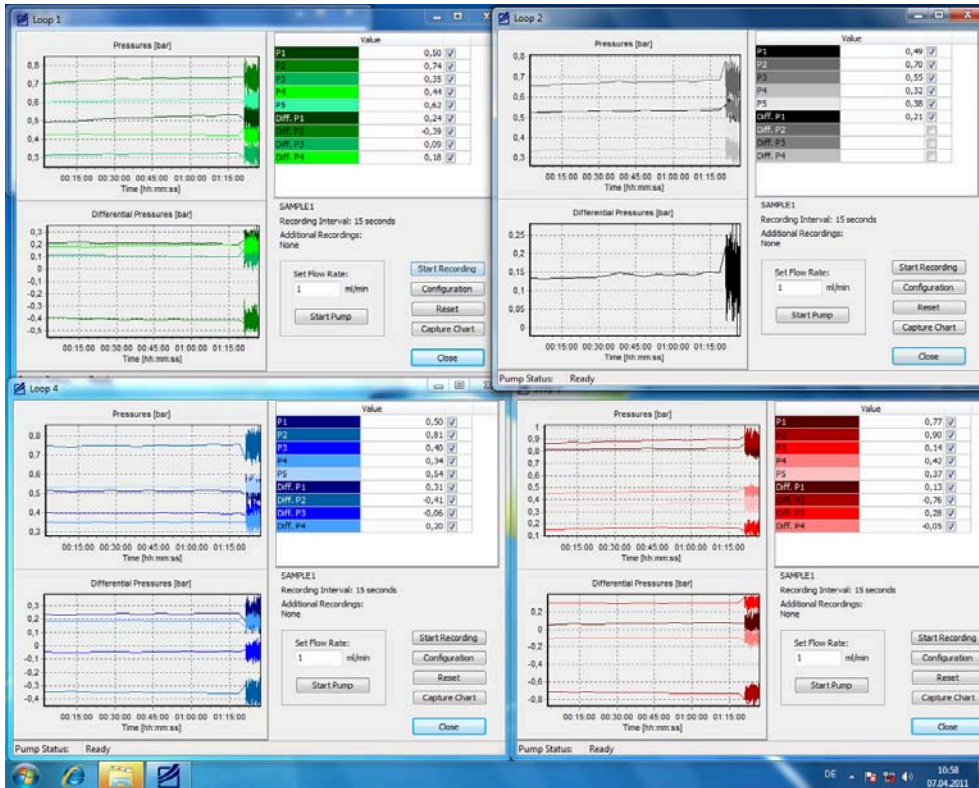
Tel +49 5522 31250-0 · Fax +49 5522 31250-99 · info@psl-systemtechnik.com · www.psl-systemtechnik.com

Open and closed loop

Only a small sample amount is needed (< 20 ml) to fill a test loop. The sample media can be pumped in a closed loop or an open loop. In an open loop the sample is always pumped back to the reservoir. This allows the reservoir fluid to be pumped. Thus, the sample amount can be increased up to a maximum of 500 ml. In a closed loop only the amount of sample in the loop (~10 ml) is pumped.

Data examination with software

The software *WinDySL* enables a comfortable control of the instrument and simple data-acquisition. Different additional recording options are selectable to analyze various aspects of an experiment. The software also provides an integrated tool to execute a quick calibration of the pressure sensors to balance long-term shift of sensor readings.



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:	Cooling bath: -10 ... +150 °C (14 ... 302 °F) Heated bath: +30 ... +150 °C (86 ... 302 °F)
Pressure range:	Up to 150 bar (2,175 psi) / 400 bar (5,800 psi) / 700 bar (10,000 psi)
Number of test loops:	Up to 6 loops
Flow range:	0.1 ... 9.99 ml/min, up to 6 pumps
Power supply:	230 V~ (115 V~ on request)
Weight:	approx. 130 kg (DySL with four loops)
Dimensions:	100 x 55 x 105 cm (W x D x H)

Custom designs available on request.



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