

# Examine Asphaltene Precipitation

with the

## Flocculation Tester FT5



### Characteristics

- Test asphaltene stability
- Test wax and scale formation
- Measures in very dark, undiluted crudes accurate and reproducible
- For live oil up to 700 bar (10,000 psi)
- Temperature -20 .. +300 °C

The Flocculation Tester is a lab instrument, which enables fast and easy measurements to test either the efficiency of asphaltene inhibitors or the compatibility of condensates and asphaltic crudes.

It is particularly suited for samples with a very low translucency and can be used for measurements comparable with ASTM D6703 Automated Heithaus Titrimetry.

### Measure very dark, undiluted crudes

To measure the partial translucency of a sample and thereby determine flocculation points, PSL has developed a probe with a high light sensitivity of 0.005 lux. The light sensor can be automatically adjusted to the translucency of the sample. Thus, even measurements with very dark, undiluted crudes and oil products provide accurate and reproducible results.

### In-line measuring of asphaltenes, wax and scale up to 700 bar (10,000 psi)

For in-line solid detection PSL developed special probes - that can be screwed directly into a pipeline - for example: in the side stream or at shipping. The probes are available for three pressure ranges: up to 10 bar (145 psi), up to 200 bar (2,900 psi) and up to 700 bar (10,000 psi).

### Live oil testing - up to 700 bar (10,000 psi)

To measure live oils under pressure - for example simulating deepwater conditions the Flocculation Tester is available with a high-pressure vessel for up to 700 bar (10,000 psi) and an integrated stirrer.

### Stand-alone or fully automated

The Flocculation Tester FT5 is available as a stand-alone device as well as an automated



measuring station. The measuring station has an additional dosing pump for titrating the sample as well as a thermostat. The latter enables measurements at high temperatures to distinguish paraffin and asphaltene precipitation.

### Real-time charts with software

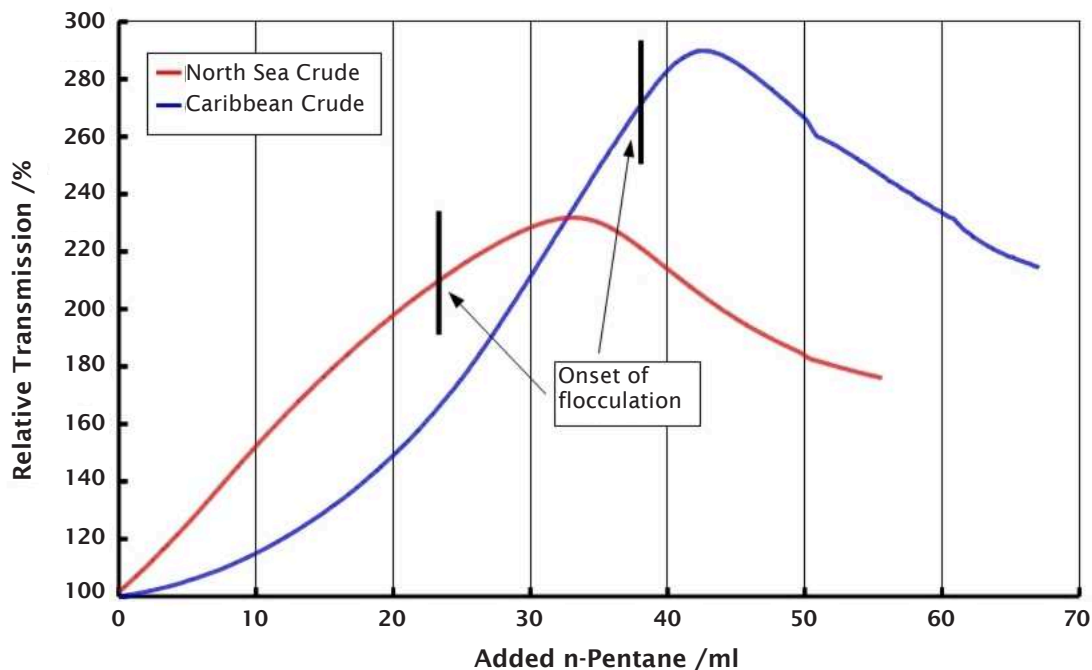
The Flocculation Tester System can be controlled via PSL's *WinFT* software. This software enables the easy scheduling and execution of experiments. Temperature and pressure gradients are displayed as real-time charts. The measuring results are displayed

in a user-friendly format and can be exported to spreadsheet programs for further data evaluation.

We provide three models of the Flocculation Tester FT5 for pressures up to 700 bar (10,000 psi) and temperatures from -25 to 200 °C (-13 to 392 °F).

In combination it is possible to measure pressures up to 650 bar (9,400 psi) at temperatures up to 150 °C (302 °F).

The Flocculation Tester can be adapted to your requirements.



Measurement example for asphaltene flocculation

### Specifications:

Model:	Ambient Pressure	Mid Pressure	High Pressure	High Temperature
Pressure range:	No pressure / ambient	200 bar (2,900 psi)	700 bar (10,000 psi)	200 bar (2,900 psi)
Temperature range:	-10 .. +80 °C (14..176 °F)	-10 .. +120 °C (14..248°F)	-20 .. +180 °C (-4..356 °F)	RT .. +300 °C (RT..572 °F)
Stirrer speed:	For all models: 130 ... 1,000 rpm			
Titration speed:	0.01 .. 150 ml/min	0.001 .. 10 ml/min	0.001 .. 5 ml/min	0.001 .. 10 ml/min
Power consumption:	FT5: 300 W / thermostat, PC, pump: depending type			
Power supply:	FT5, PC: 110 - 240 V~ wide-range / thermostat: 230 V~ or 115 V~			
Weight:	FT5: 4 kg / other components depending type			
Dimensions (WxDxH):	FT5: 26 x 38 x 16 cm, Basic system: 110 x 50 x 40 cm (with PC)			