



S-value of Crude Oils, Residues, Heavy & Marine Fuel Oils  
ASTM D7157

# SV10 – Automated S-value Intrinsic Stability of Asphaltenes in Oil

## Methods:

ASTM D7157

ISO PAS 23263

CIMAC guidelines

- ▶ **Automated:**
  - ▶ **dilution (up to 100°C)**
  - ▶ **titration**
  - ▶ **cleaning**
- ▶ **No contact with solvents**
- ▶ **Measures at controlled temperature**
- ▶ **Low level of asphaltenes capability <0.4%**
- ▶ **3 positions, standalone compact design**
- ▶ **User friendly, fast test time (typical: 20 mn)**



The SV10 revolutionizes the S-value testing, by introducing the first **fully automated** instrument complying with ASTM D7157, which includes a **unique temperature controlled high precision measuring cell** (License TOTAL RC\*). The SV10 brings a **major improvement in handling, accuracy and test duration**. Straightforward and user friendly, the SV10 does not need any operator action during the test or application expert, it comes with all programs ready for the different sample types described in ASTM D7157. In addition, **the SV10 eliminates all safety risks** linked to the manipulation of hazardous solvents.

## **Applications**

In oils, asphaltenes in suspension are subject to flocculate depending on stress, long heated storage or when the oils are blended. The S-value of an oil containing asphaltenes (crude oils, residual refinery streams, heavy fuel oils, marine fuels) refers to its intrinsic stability.

A low S-value oil is likely to generate asphaltenes flocculation when stressed or blended with other oils. On the other hand, the blend of two oils having a high S-value is likely to maintain asphaltenes in suspension and not flocculate.

**Compatible with a wide range of samples** (crudes, heavy fuels, residues, bitumens, emulsions, marine VLSFO, ULSFO,...), **the SV10 is the ideal instrument for refineries, blenders and traders.**

- S-value and Sa results will allow to monitor and optimize efficiently the distillation, cracking (thermal, hydrocracking) and visbreaking units in a refinery.
- Sa and So results will allow to predict and optimize efficiently the oils blending.



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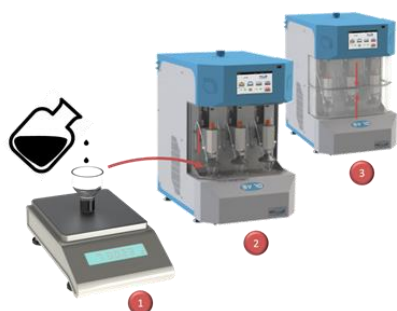
## Principle

3 different quantities of sample are automatically diluted with toluene. Then, by titrating those 3 mixes with heptane, the asphaltenes flocculate. The SV10 uses a high precision measuring cell (License TOTAL RC\*) to detect the flocculation. Finally, the stability results are automatically computed.

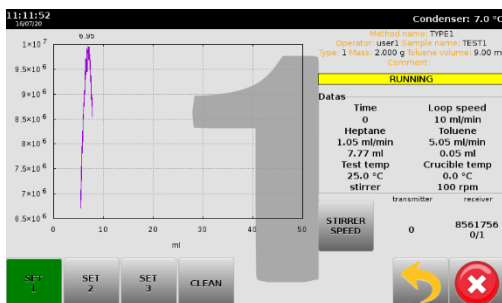
## Operation

Running a test with the SV10 is straightforward and very easy. The operator just has to:

- (1) weight the sample(s)
- (2) position up to 3 samples in parallel on the SV10
- (3) close the door and initiate the test(s)



Then the all procedure is automated: toluene dilution, heptane titration, measure of the flocculation point and cleaning. Detection curves are displayed in real time, and the SV10 computes the stability results according to the selected titration tests.



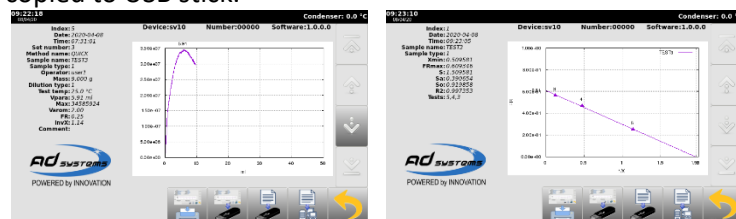
## Benefits

The SV10 is a standalone fully automated instrument. Thanks to its **temperature controlled high precision measuring cell** (License TOTAL RC\*) combined with its simplified weighting procedure and automated toluene dilution, the **SV10 is significantly improving the test precision**. The test preparation is simplified and the test is run unattended, simultaneously, on the 3 positions allowing a **major test & operator time reduction**. In addition, the **SV10 eliminates all safety risks** linked to the handling of hazardous solvents. Every test is **fully documented and traceable**.

The reduced test time and enhanced precision allow **huge financial benefits** while **reducing the risk of filter plugging, loss of pipes efficiency or engine damage**.

## Reporting

A detailed report of the titrations and S-value determinations are displayed and saved in the built-in database. They can be printed, transmitted to LIMS or copied to USB stick.



The final report includes:

- ✓ Date & time, sample name
- ✓ Xmin: minimum heptane consumption of undiluted oil to reach the flocculation (ml/g)
- ✓ FRmax: maximum flocculation ratio
- ✓ S: S-value (intrinsic stability of the oil)
- ✓ Sa: peptizability of the asphaltene
- ✓ So: peptizing power of the oil
- ✓ R2: goodness of fit
- ✓ Titration tests & linear regression graph

## Ordering information

## Description

AA410-001	SV10 – S-Value Delivered ready for operation
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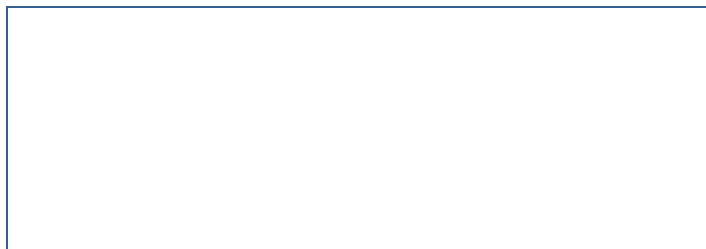
## Technical specifications

## Description

Test method	ASTM D7157
S-value range	1.05 to 15.00
Resolution	0.01
Interface	7" full-color touch screen
Test temp.	From 15°C to 60°C
Reported results	S-value, Sa, So, Xmin, FRmax, R2
Languages	English, French, Russian
Results storage	Up to 100 000 results database (8 GB) USB stick, LAN
Communication	USB (2), Ethernet (1)
Printing	USB graphic printer (optional)
Dimensions	440 x 620 x 700 mm (17" x 24" x 28")
Weight	55 kg (110 lb)
Power supply	100/240 V – 50/60 Hz – 750 W

We reserve the right to alter specifications without notification

Your local distributor:



For additional information:

## AD Systems

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