On-site Fuel Stability and Compatibility Tester - ST10

Method:

ASTM D4740

Applications

- Vessel operators
- Refineries
- Terminals
- Power plants
- Independent laboratories
- Military

Fuel Compatibility Testing

AD Systems has developed a portable / on-site / on-board fully automated instrument for stability and compatibility testing of heavy fuel oil.

On board a vessel, a good way to measure the compatibility of marine fuels, including residual and distillate fuels is the ASTM D4740 spot test.

This patented portable device – ST10 is a complete automation of the ASTM D4740 method.

All the phases of the test are grouped in a suitcase, the conditioning of the samples, the preparation of the spot, its drying and the automatic rating by camera and associated software.

The only phases under the load of the operator are the sampling and the deposition of the drop with the aid of a micropipette supplied with the equipment.

As a result, the apparatus can be used anywhere by untrained persons whenever power is available.

The results are stored in a built-in result database. The image of the spot is memorized at the time the spot is rated. The ST10 ensures perfect traceability of the test.

Principle

The sample is prepared according to the procedure described in the ASTM D4740 test method. Once the fuel is dropped on the filter paper, all phases are automatically performed. A picture of the spot is automatically taken after the one hour drying phase. The picture is binarized and the ST10 reports a 1 to 5 rating depending on the stability of the fuel.

AD systems

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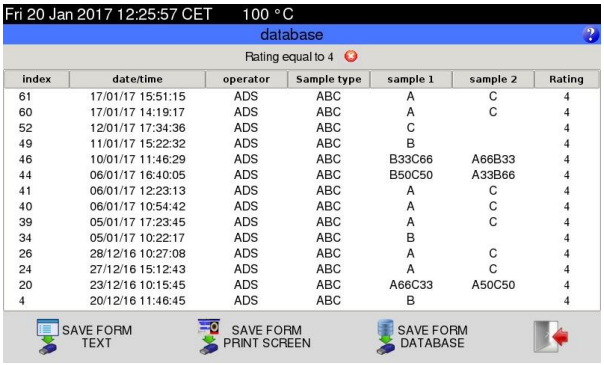
ST10 Features and Benefits

- A complete automated system self-contained in a carrying case
- Multi-applications instrument, lab, on-site, on-board
- Standard test method used by conventional laboratories.
- Fully automated, no training or analytical knowledge required
- Removes subjectivity
- Prevent sludge deposits, failure of fuel handling systems and costly combustion related engine damage.
- No solvents
- Quick and reliable determination.
- Designed for both on-board use and lab use.
- Full traceability with built-in database

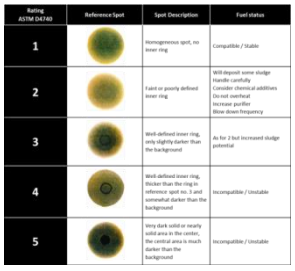
Operation

- The operator keys in all information related to the sample and the test conditions
- The fuel or the mixed fuel is poured into a disposable vial and then placed into the built-in oven.
- The filter paper is positioned on the conveyor. The ST10 automatically places the filter paper in the oven for drying at 100°C.
- The operator is prompted when the sample temperature is reached and the filter paper is pre-positioned for sample injection.
- With the micropipette, the operator pours one drop of fuel on the filter paper.
- The fuel spot is automatically positioned in the oven at 100°C.
- After the drying phase, the fuel spot is automatically moved under the camera and a picture is captured.
- The software analyses the fuel spot.
- The test result is displayed and stored in a built-in database.



index	date/time	operator	Sample type	sample 1	sample 2	Rating
61	17/01/17 15:51:15	ADS	ABC	A	C	4
60	17/01/17 14:19:17	ADS	ABC	A	C	4
52	12/01/17 17:34:36	ADS	ABC	C		4
49	11/01/17 15:22:32	ADS	ABC	B		4
46	10/01/17 11:46:29	ADS	ABC	B33C66	A66B33	4
44	06/01/17 16:40:05	ADS	ABC	B50C50	A33B66	4
41	06/01/17 12:23:13	ADS	ABC	A	C	4
40	06/01/17 10:54:42	ADS	ABC	A	C	4
39	05/01/17 17:23:45	ADS	ABC	A	C	4
34	05/01/17 10:22:17	ADS	ABC	B		4
26	28/12/16 10:27:08	ADS	ABC	A	C	4
24	27/12/16 15:12:43	ADS	ABC	A	C	4
20	23/12/16 10:15:45	ADS	ABC	A66C33	A50C50	4
4	20/12/16 11:46:45	ADS	ABC	B		4

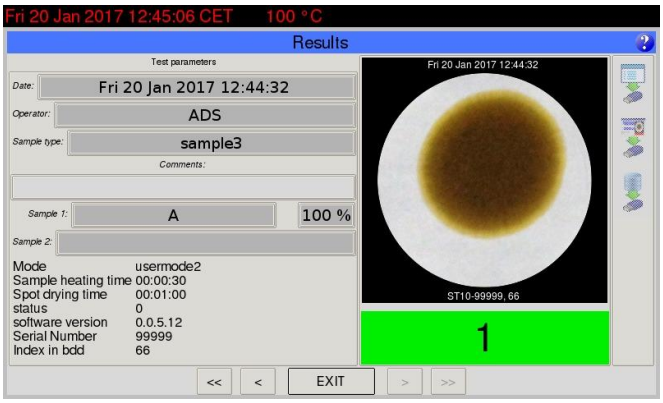
The ST10 comprises:



- ✓ All consumables and accessories including micropipette.
- ✓ Built- oven for sample and filter paper
- ✓ Automatic handling of the filter paper
- ✓ CCD camera to take the sample spot picture
- ✓ A built-in computer
- ✓ A dedicated software to analyze the picture and report the result
- ✓ A built-in database for full test traceability
- ✓ USB et Ethernet ports

Reporting

The test result is displayed and saved in the built-in database with all test conditions including the spot image.



List of parameters saved with a result:

- ✓ Sample type(s)
- ✓ Sample ID(s)
- ✓ ASTM D4740 rating (from 1 to 5)
- ✓ Date & time
- ✓ Operator name
- ✓ Comments
- ✓ Test conditions
- ✓ Calibration information *(tube serial number + date of calibration)*
- ✓ Instrument serial number
- ✓ Software version

Ordering Information

AA120-001	**ST10** - On site Fuel Stability and Compatibility Tester

Reported Results

Test method	ASTM D4740
ASTM D4740 rating	From 1 to 5
Accuracy	Less than one rating
Test mode	Programmable : Fuel Stability *or* Fuel Compatibility

Technical Specifications

Display	7" Touchscreen ; 10 finger capacitive touch ; Screen size : 155mm x 86mm ; Resolution : 800 x 480 px
Oven temperature	100°C for the filter paper 93°C for the fuel Resolution 0.1°C, precision ± 0.2°C
Sample heating time	According to D4740 or programmable
Oil spot drying time	According to D4740 or programmable
Results storage	Up to 100 000 results
LAN connectivity	Ethernet port RJ45
Data output	USB (4), Ethernet
Dimensions	W x D x H (mm) : 420 x 350 x 222 mm W x D x H (inches) : 16.5" x 14" x 8.5"
Weight	9 kg (20 lbs)
Electrical	115 to 230V - 2A - 50/60Hz

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