Saybolt Color Analyzer

Complete Analytical System for Measuring Saybolt Color (ASTM D156, ASTM D6045)

The visual Saybolt color test is often used for manufacturing control purposes because it is an easy, rapid determination of product quality or contamination.

Saybolt color (reference ASTM D156, ASTM D6045) is primarily used in characterizing fuels including automobile and aviation gasolines, jet fuel, diesel fuel and other petroleum products. The Saybolt color scale varies from near water white (30) to dark yellow (-16). Both of these ASTM methods are off-line manual laboratory methods.

The original test design required an observer to compare the color of a product to a known standard, and then judge the "color." Using a Guided Wave Saybolt Color Analyzer system to automate this measurement within a process, eliminates the visual judgement of a technician and delivers online real-time process control information to the process operators.

System Configuration

The Guided Wave Saybolt Color Analyzer system is a complete solution. The "ready-to-go" analytical system includes:

- Analyzer - ClearView® db filter photometer technology
- Fiber optic cables
- Sample interface - insertion probe or flow cell
- Control software and Saybolt application calibration

Accurate, Real-time Reliable Results

The Saybolt Analyzer system utilizes a Guided Wave multi-wavelength ClearView db filter photometer analyzer platform. It may be configured for either one (1) or two (2) independent sample monitoring points. The ClearView db analyzer is configured with application-appropriate wavelengths to measure the Saybolt color of the sample. The analyzer employs a dual-beam design – meaning; the system has an continual internal optical reference check that allows it to self-compensate for signal variation due to non-sample conditions. This ultimately provides the system with long term stability. The final product is a total Saybolt Color System that measures the color variation without interference from other factors.

Figure 1 shows a typical trend chart monitoring Saybolt color of a continuous flowing process. Figure 2 shows an initial calibration chart showing the measured values as compared to laboratory standard values.

Complete Saybolt Color Analyzer System

- Unique dual beam optics - for long term, stable operation
- Up to two (2) independent measurement points - for added analytical flexibility at reduced cost per point
- High efficiency yet rugged fiber optics - analyzer electronics can be located away from a hazardous sample point
- In-door touch screen or Ethernet (Modbus TCP) - easy local or remote analyzer operation and control
- Analytical calculations are all encoded in the software - answers and alarms are clearly reported

The Smart Choice

Guided Wave's Saybolt Color Analyzer system delivers accurate, real-time process measurement results. Its linearity and repeatability, as well as its low maintenance requirements make it a cost effective, smart choice to help optimize production, improve yields, ensure consistent product quality and enhance profitability.

Why Choose Guided Wave

- Over 33 years of online process experience with analyzers installed worldwide.
- A total solution with optically matched components and a well-planned calibration approach leading to your long-term success and overall cost savings.
- Expert technical support and responsive global service for the lifetime of the system.
- For a company you can depend on - for control you can measure!

Saybolt Color Analyzer Enclosure Options

Z-Purge Unit
Class I, Division 2

X-Proof Unit
Class I, Division 1,
IECEx, ATEX

General
Purpose Unit

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Proof of Continuous Accurate Saybolt Color Measurement

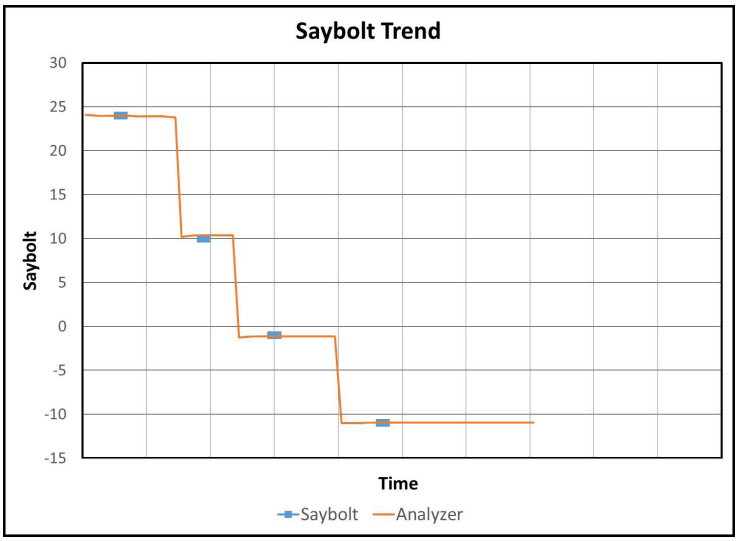

Figure 1

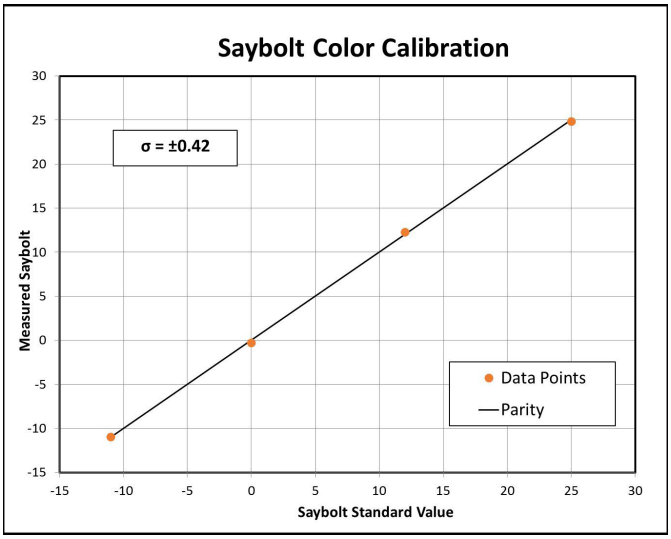

Figure 2

Saybolt Color Analyzer System Specifications

Analyzer Technology	Fiber optic dual-beam ClearView db photometer (see also document #1033)
Fiber Connectors	SMA 905
Light Source	Tungsten-Halogen, >4000 hours typical
Photometric Noise	<50 µAU 450-2100 nm 1 minute rms
Photometric Drift	<500 µAU rms/ °C
Response Time	1 second, minimum. User settable
Measurement Range	-16 to 30 Saybolt units (pathlength can be optimitzed to increase sensitivity)
Measurement Accuracy	Complies with ASTM methods D156 , D6045
Power	24 VDC, 3 A; 72 watts
Environmental	0 – 45°C, 0 – 90%, sun and rain sheltered

Options for a Custom Solution

Another advantage of the Saybolt Analyzer system is that is can be customized in many ways. For more information about specifications and analyzer operations request ClearView db document #1033 or call Guided Wave.

No. of Channels	Up to 2 (two) sample channels and optional turbidity monitoring
Outputs (analog)	Up to 6 for a one channel unit Up to 4 per channel for a two channel unit 4 – 20 mA, customer powered
Outputs (discreet)	Up to 6 for a 1 channel unit Up to 4 per channel for a 2 channel unit contact closures
Inputs (analog)	4 (optional) 4 – 20 mA, isolated grounds
Local Display	LCD touch screen, color QVGA
Communications	Ethernet (TCP Modbus) standard
Enclosures	General Purpose NEMA 4 unclassified Z-Purge, NEMA 4x, Cl D2 X-Proof, ICEEx, ATEX, Cl D1

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