

Measuring ASTM D1500 Color

Applied Analytics Application Note No. AN-051

Application Summary

Detector: **OMA-300 Colorimeter**

Process Stream: **Lubricants, Heating Oils, Diesel Fuel Oils, Petroleum Waxes, Additives, etc.**

Typical Measurement Range: **0 to 8 on the ASTM D1500 Color Scale**

Introduction

The ASTM D1500 Color scale is used for ranking certain petroleum products based on color. The products that D1500 is used to evaluate are usually lubricants, additives, and specific oils. The inspection of particular petroleum products is key for control purposes in the manufacturing process. If the product color is off specification, this can indicate contamination somewhere in the production process. The exact definition of ASTM D1500 comes from “**ASTM D1500 Standard Test Method for ASTM Color of Petroleum Products**”. This standard provides a definition for a way to correlate color of certain petroleum products to a number. The number range that the ASTM D1500 standard uses is 0 to 8 (lightest to darkest).

ASTM D1500 should not be confused with the Saybolt Color scale (**ASTM D156 Standard Test Method for Saybolt Color of Petroleum Products**). Saybolt color is used for the inspection of petroleum products with a much lighter, yellowish color. This includes products such as kerosene, gasoline, aviation fuels, etc.

Color measurements are accomplished in the visible area of the electromagnetic spectrum, the region between 400 and 800 nm. The OMA-300 Colorimeter utilizes a diode array-based spectrometer to make this measurement. The OMA-300 is calibrated to the ASTM D1500 color scale using certified reference materials (certified to International Standards BS EN ISO/IEC 07025 and ISO Guide 34 under UKAS accreditation). Using this calibration, the OMA-300 is able to measure the transmittance/absorbance of the petroleum sample and output a resultant D1500 color number by using AAI’s proprietary ECLIPSE software.

OMA-300 Process Analyzer Benefits

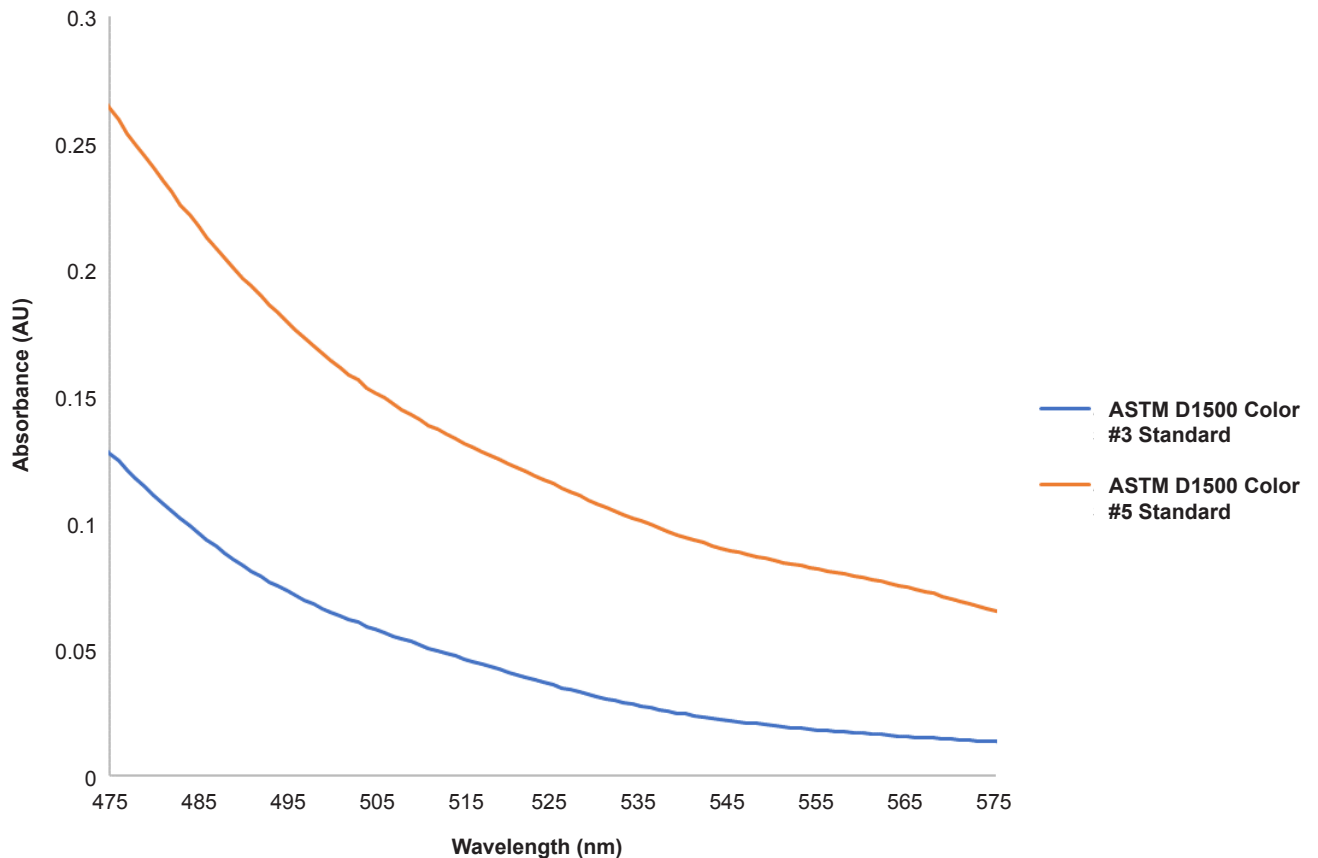
- » Continuously measures the D1500 Color of a sample for quality assurance
- » Totally solid-state build with no moving parts — modern design for low maintenance
- » Ultra-safe fiber optic design eliminates the need to bring sample fluid inside analyzer unit
- » One-time calibration at factory or site. No need for re-calibration

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ASTM D1500 Calibration on the OMA-300 Colorimeter



Above is an example of spectra collected from two different ASTM D1500 standards on the OMA-300. The different standards show different levels of absorbance across a given wavelength range.



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