Hach Company
100 Dayton Ave.
Ames, Iowa 50010

# Certificate of Analysis

Product : DR/Check Secondary Standards Kit

Product Number: **2763900** Lot Number: **A5212** Expiration Date: **Aug 2017**

| Wavelength | Blank A5197 | STD 1 (ABS) A5198 | STD 2 (ABS) A5198 | STD 3 (ABS) A5198 |
|---|---|---|---|---|
| 420 nm | 0.000 | 0.595 +/- 0.050 | 1.195 +/- 0.100 | 1.743 +/- 0.150 |
| 520 nm | 0.000 | 0.611 +/- 0.050 | 1.227 +/- 0.100 | 1.754 +/- 0.150 |
| 560 nm | 0.000 | 0.622 +/- 0.050 | 1.253 +/- 0.100 | 1.818 +/- 0.150 |
| 610 nm | 0.000 | 0.618 +/- 0.050 | 1.244 +/- 0.100 | 1.824 +/- 0.150 |

**NOTE: Transfer the control values to the enclosed certificate label and keep the label with your instrument for reference. For example, the test values for using a DR/890 Colorimeter at 560 nm would be :**

**0.622, 1.253, and 1.818 Absorbance for Standard 1, Standard 2, and Standard 3 respectively**
**File this certificate of Analysis for safe keeping. Certified at 25°C**

**Certified by:** _____ **for and on the behalf of Hach Company.**

Doc. Cat. No. 2763987

**DR/Check Absorbance Standard User Guidance Document**

The DR/Check Absorbance Standards are secondary standards that can be used as part of a Quality Control Program, to verify instrument performance - independent of sample or chemistry variables. The set consists of three absorbance standards and a lot-specific blank – all in 25 mm diameter sample cells.

The DR/Check absorbance values are specified at four commonly - used wavelengths: 420 nm, 520 nm, 560 nm, and 610 nm. Specific absorbance values and a tolerance range are given for each of the three standards at each wavelength. These twelve values are listed on a Certificate of Analysis (COA) that accompanies each set. The three standards are designed to be of increasing absorbance, with nominal targets of 0.6, 1.2 and 1.8 absorbance units. The standards have approximately equal absorbance across the visible spectrum, and are gray in color. The standards may be used at wavelengths other than those specified above, but the user will need to establish the initial absorbance value at any alternate wavelengths.

It is important to remember that the DR/Checks do not specifically give confirmation of wavelength accuracy, nor do they specifically indicate stray light or filter deterioration problems. The response of the instrument is an all-inclusive value encompassing all possible sources of instrument error. The DR/Checks can confirm if changes in instrument response have occurred, but they cannot clearly identify the cause of the changes.

The DR/Checks provide two primary benefits to the end-user:
They function as independent standards to confirm that an instrument is reading an absorbance value consistent with the value supplied with the standards set. This "Out of the Box" initial confirmation gives an end-user confidence that the instrument is reading absorbance values correctly at four different wavelengths over a wide absorbance range. These initial values obtained on the user's specific instrument are then recorded on a blank table that is supplied with the kit. The table has an adhesive back, and can be readily applied to a notebook or directly to the instrument.

The DR/Checks also provide an easy means to confirm the instrument's continued performance, allowing users to effectively troubleshoot performance issues – as instrument performance can be verified independently of chemistry issues – even under field measurement conditions.

Use and Care of DR/Check Standards:
To ensure optimum performance, the standards should be stored in an upright position, in their box at room temperature. Replace any standards in which the gel has separated from the cell walls.

The values listed on the Certificate of Analysis (COA) for each lot of standards are determined at the time of manufacture and are based on statistical sampling of the production lot. Standards and blanks should always be kept together and never switched between lots of DR/Checks. The standards do not have NIST traceability, and cannot be used to certify or re-calibrate the instrument.

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