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ECO Chlorophyll Fluorometer Characterization Sheet

BIN DEPLOYMENT#1
20151013
SSDS ID 1535
S/N 30010
output channel 1

Date: 01/28/15

S/N#: WL-30010

Output channel: 1

Chlorophyll output range: 50ug/l

Chlorophyll concentration expressed in $\mu\text{g/l}$ can be derived using the equation:

$$\text{CHL } (\mu\text{g/l}) = \text{Scale Factor} * (\text{Output} - \text{Dark Counts})$$

Dark Counts

Chl. Equivalent Concentration (CEC)

Scale Factor (SF)

Resolution

Ambient temperature during characterization

Digital

44 counts

6168 counts

0.0035 $\mu\text{g/l/count}$

3.2 counts

22.3 $^{\circ}\text{C}$

Dark Counts: Signal output of the meter in clean water with black tape over detector.

CEC Signal output of the fluorometer when using a fluorescent proxy that has been determined to be approximately equivalent to 25 $\mu\text{g/l}$ of a *Thalassiosira weissflogii* phytoplankton culture.

SF: Used to derive chlorophyll concentration from the signal output of the fluorometer. The scale factor is determined using the following equation: $\text{SF} = 25 \div (\text{CEC} - \text{Dark Counts})$. For example: $25 \div (2865 - 43.5) = 0.00886$.

Resolution: Standard deviation of 1 minute of collected data.

The relationship between fluorescence and chlorophyll-a concentrations in-situ is highly variable. The scale factor listed on this document was determined using a mono-culture of phytoplankton (*Thalassiosira weissflogii*). The population was assumed to be reasonably healthy and the concentration was determined by using the absorption method. To accurately determine chlorophyll concentration using a fluorometer, you must perform secondary measurements on the populations of interest. This is typically done using extraction-based measurement techniques on discrete samples. For additional information on determining chlorophyll concentration see "Standard Methods for the Examination of Water and Wastewater" part 10200 H, published jointly by the American Public Health Association, American Water Works Association, and the Water Environment Federation.

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NTU Characterization Sheet

1/28/2015

S/N#: WL-30010

Output channel: 2

NTU output range: 400

Nephelometric Turbidity Unit (NTU) Scale Factor

Turbidity units expressed in NTU can be derived using the equation:

$$\text{NTU} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

	Digital
Dark Counts	49 counts
NTU Solution Value	5390 counts
Scale Factor (SF)	0.0393 NTU/count
Resolution	1.2 counts
Ambient temperature during calibration	22.3 °C

Dark Counts: Signal output of the meter in clean water with black tape over detector.

NTU Solution Value: Signal output of the turbidity sensor when measuring a sample of interest.

SF: Scale factor is determined using the following equation: $\text{SF} = \text{xx} \div (\text{Output} - \text{Dark Counts})$, where xx is the value of a Formazin concentration. For example: $12.2 \div (2011 - 50) = 0.0062$.

Resolution: standard deviation of 1 minute of collected data.

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NTU Characterization Sheet

Date: 1/28/2015

S/N#: WL-30010

Tech: SML

Output channel: 3

NTU output range: 40

Nephelometric Turbidity Unit (NTU) Scale Factor

Turbidity units expressed in NTU can be derived using the equation:

$$\text{NTU} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

	Digital
Dark Counts	49 counts
NTU Solution Value	10517 counts
Scale Factor (SF)	0.0030 NTU/count
Resolution	4.2 counts
Ambient temperature during calibration	22.3 °C

Dark Counts: Signal output of the meter in clean water with black tape over detector.

NTU Solution Value: Signal output of the turbidity sensor when measuring a sample of interest.

SF: Scale factor is determined using the following equation: $\text{SF} = \text{xx} \div (\text{Output} - \text{Dark Counts})$, where xx is the value of a Formazin concentration. For example: $12.2 \div (2011 - 50) = 0.0062$.

Resolution: standard deviation of 1 minute of collected data.

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OUTPUT channel 3