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ECO Chlorophyll Fluorometer Characterization Sheet

Date: 01/31/06

Customer: MBARI

Job #: E0508021

S/N#: WL-30005

Tech: CW

Output channel: 1

Chlorophyll output range: 50ug/l

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

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

BIN Wetlabs Eco triplet
second Deployment
2060417

Dark Counts

Chl. Equivalent Concentration (CEC)

Scale Factor (SF)

Resolution

Ambient temperature during characterization

Digital

40 counts

3927 counts

0.0036 $\mu\text{g/l/count}$

4.2 counts

20.6 $^{\circ}\text{C}$

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

Date: 1/31/2006

Customer: MBARI

Job #: E0508021

S/N#: WL-30005

Tech: cw

Output channel: 2

NTU output range: 400

Nephelometric Turbidity Unit (NTU) Scale Factor

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

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

Dark Counts	BIN Wetlabs Eco triplet second Deployment 201010 20160417	Digital
NTU Solution Value		33 counts
Scale Factor (SF)		722 counts
Resolution		0.0343 NTU/count
Ambient temperature during calibration	20.6 °C	1.9 counts

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: 1/31/2006

Customer: MBARI

Job #: E0508021

S/N#: WL-30005

Tech: cw

Output channel: 3

NTU output range: 40

Nephelometric Turbidity Unit (NTU) Scale Factor

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

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

Dark Counts
NTU Solution Value
Scale Factor (SF)
Resolution

BIN Wetlabs Eco triplet
second Deployment
~~2060417~~ 2060417

Digital
45 counts
7387 counts
0.0033 NTU/count
5.2 counts

Ambient temperature during calibration 20.6 °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.