TOC ANALYSER CALIBRATION WORKSHEETS

(Ref. MICLAB 115)

Inorganic Carbon Standard Worksheet

Date, Name of preparer		line 1
Lot of Na_2CO_3 used in prep.		line 2
Weight of Na_2CO_3 + weigh boat		line 3
Weight of weigh boat		line 4
Weight of Na_2CO_3		line 5

Table 1. **Preparation of the Stock Na₂CO₃ standard**

Concentration of stock solution	nominal 500 ppm	line 6

Table 2. **Preparation of the Dilute Na₂CO₃ standard**

Concentration of dilute solution	nominal 25.0 ppm	line 7

TOC ANALYSER CALIBRATION WORKSHEETS
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Organic Carbon Standard Worksheet

Date, Name of preparer		line 1
Lot of KHP used in prep.		line 2
Weight of KHP + weigh boat		line 3
Weight of weigh boat		line 4
Weight of KHP		line 5

Table 1. **Preparation of the Stock KHP standard**

Concentration of stock solution	nominal 2000 ppm	line 6

Table 2. **Preparation of the Dilute KHP standard**

Concentration of dilute solution	nominal 25.0 ppm	line 7

TOC ANALYSER CALIBRATION WORKSHEETS

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Calibration Worksheet for Autosampler Calibration

Date, Name of Analyst

_____

Measurements of Standards

Average TC of 3rd DI blank		$=TC_{DI\ blank}$
Average TC of 3rd TC(KHP) standard		$=TC_{ave,TC}$
Average TC of 3rd IC (Na_2CO_3) standard		$=TC_{ave,IC}$
Average IC of 3rd IC (Na_2CO_3) standard		$= IC_{ave,IC}$
TC value of TC(KHP) standard from formulation		$= TC_{std}$
Adjusted TC value of the TC(KHP) standard $= TC_{std} + TC_{DI\ blank}$		$= TC_{adj,TC}$

Calculation of Calibration Constants

Current TC calibration constant		$=TC_{cal,old}$

New TC calibration constant $= TC_{cal,old} \bullet \dfrac{TC_{adj,TC}}{TC_{ave,TC}}$		$=TC_{cal,new}$

Current IC calibration constant		$=IC_{cal,old}$

New IC calibration constant $= IC_{cal,old} \bullet \dfrac{TC_{adj,TC}}{TC_{ave,TC}} \bullet \dfrac{TC_{ave,IC}}{IC_{ave,IC}}$		$=IC_{cal,new}$

Verification of Calibration

Average TC of 3rd TC (KHP) standard		$=TC_{ave,chk,TC}$
Average TC of 3rd IC(Na_2CO_3) standard		$=TC_{ave,chk,IC}$
Average IC of 3rd IC (Na_2CO_3) standard		$=IC_{ave,chk,IC}$
New TC $_{adj,TC} = TC(KHP)_{std}$ + average TC 3rd DI Blank =		
TC Std % difference $= \dfrac{(New\ TC_{adj,TC} - TC_{ave,chk,TC})\ x\ 100}{New\ TC_{adj,TC}} =$		(NMT 3%)
IC Std % difference $= \dfrac{(TC_{ave,chk,IC} - IC_{ave,chk,IC})\ x\ 100}{TC_{ave,chk,IC}} =$		(NMT 3%)

TOC ANALYSER CALIBRATION WORKSHEETS

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500 ppb Sucrose Standard Worksheet

Date, Name of Preparer	line 1

Lot No. of Sucrose used	line 2

Carbon Assay (% value / 100)	line 3
nominal 0.421	

Gross Weight (Sucrose + Boat)	line 4

Tare Weight of Weigh Boat	line 5

Nett Weight of Sucrose	line 6

Carbon Conc. of Stock Solution — line 7

$$\text{ppb C} = \frac{\text{g [line 6]} * \text{ca [line 3]} * 10^{6}}{1 \text{ L}}$$

nominal 25,000 ppb C

Carbon Conc. of Working Solution — line 8

([line 7] ÷ 50)   nominal 500 ppb C

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TOC ANALYSER CALIBRATION WORKSHEETS

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500 ppb Benzoquinone Standard Worksheet

Date, Name of Preparer	line 1

Lot No. of Benzoquinone used	line 2

Carbon Assay (% value / 100)	line 3
nominal 0.666	

Gross Weight (Benzoquinone + Boat)	line 4

Tare Weight of Weigh Boat	line 5

Nett Weight of Benzoquinone	line 6
nominal 0.075g	

Carbon Conc. of Stock Solution   line 7

$$\text{ppb C} = \frac{\text{g [line 6]} * \text{ca [line 3]} * 10^{6}}{1\ \text{L}}$$ nominal 50,000 ppb C

Carbon Conc. of Working Solution   line 8

([line 7] ÷ 100)   nominal 500 ppb C

TOC ANALYSER CALIBRATION WORKSHEETS

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Suitability Verification Worksheet

Date and Name of Analyst		line 1

Calculated Concentration of Sucrose Standard		line 2

Calculated Concentration of Suitability Standard		line 3

Average TOC of Water Blank		line 4

Average TOC of Sucrose Standard		line 5

Average TOC of Suitability Standard		line 6

Response Efficiency $\text{Response Efficiency (\%)} = \dfrac{(TOC_{suitability} - TOC_{blank})}{(TOC_{sucrose} - TOC_{blank})} * \dfrac{C_{sucrose}}{C_{suitability}} * 100$	between 85% and 115%	line 7