

# AANDERAA Calibration Certificate

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Sensor Type: Oxygen Optode 3835

Serial No: 22

Certificate No: 3835 22 38258

Calibration Date: 28 September 2004

Sensing Foil Batch No: 2204

This is to certify that this product has been calibrated using the following instruments:

ASL Digital Thermometer model F25

Serial No. 1103-14

Platinum Resistance Thermometer

Serial No. SV1915/D

Calibration Bath model FNT 321-1-40

**Parameter:** Internal Temperature

Calibration points and readings

Temperature (°C)	1.09	12.05	24.06	36.04
Reading (mV)	616.34	254.67	-143.00	-500.06

Giving these coefficients

Index	0	1	2	3
TempCoef	1.96541E+01	-3.03184E-02	2.84862E-06	-4.09935E-09

Date: 29 September 2004

Sign. *Tor Ove Kvalvaag*  
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Calibration Manager

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# AANDERAA Calibration Certificate

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Sensor Type: O2 Sensing Foil PST3  
 Certificate No: 3853 2204 38159

Batch No: 2204  
 Calibration Date: 21 June 2004

Calibration points and phase readings (degrees)

Temperature (°C)	3.04	10.70	20.24	29.82	39.18	
Pressure (hPa)	970.95	970.95	970.95	970.95	970.95	
O <sub>2</sub> in % of O <sub>2</sub> +N <sub>2</sub>	0.00	71.53	70.80	69.82	68.57	67.96
	1.00	67.03	65.86	64.25	62.65	61.15
	2.00	63.18	61.69	59.74	57.75	55.79
	5.00	54.06	52.02	49.51	47.10	44.71
	10.00	44.03	41.75	39.11	36.66	34.39
	20.90	32.04	29.90	27.54	25.46	23.60
	30.00	26.39	24.46	22.37	20.53	18.94

Giving these coefficients <sup>1)</sup>

Index	0	1	2	3
C0 Coefficient	3.12899E+03	-1.05764E+02	2.06640E+00	-1.68983E-02
C1 Coefficient	-1.67671E+02	4.80582E+00	-8.73323E-02	6.61507E-04
C2 Coefficient	3.73685E+00	-8.78300E-02	1.47560E-03	-9.96701E-06
C3 Coefficient	-3.96052E-02	7.46930E-04	-1.17804E-05	6.77619E-08
C4 Coefficient	1.61999E-04	-2.37870E-06	3.63223E-08	-1.62194E-10

<sup>1)</sup> Ask for Form No 621S when this O<sub>2</sub> Sensing Foil is used in Oxygen Sensor 3830 with Serial Numbers lower than 184.

Date: 29 September 2004

Sensor Type: Oxygen Optode 3835

Serial No: 22

Certificate No: 3835 22 38258

Calibration Date: 28 September 2004

Sensing Foil Batch No: 2204

Parameter: Oxygen:

O<sub>2</sub> Concentration

Air Saturation

Range: 0-500 µM<sup>1)</sup>

Range: 0 - 120%

Accuracy<sup>2)</sup>: < ±8µM or ±5%  
whichever is greater

Accuracy<sup>2)</sup>: ±5%

Resolution: < 1 µM

Resolution: < 0.4%

Settling Time (63%): < 25 seconds

Calibration points and readings<sup>2)</sup>

	Air Saturated Water	Zero Solution (Na <sub>2</sub> SO <sub>3</sub> )
Phase reading (°)	2.39735E+01	6.02381E+01
Temperature reading (°C)	2.08478E+01	2.14519E+01
Air Pressure (hPa)	1.00368E+03	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-1.00923E+00	1.17913E+00	0.00000E+00	0.00000E+00

<sup>1)</sup> Valid for salinity 33 - 37ppt

<sup>2)</sup> The calibration is performed in fresh water and the salinity setting is set to 0

### SR10 Scaling Coefficients:

At the SR10 output the Oxygen Optode 3830 can give either absolute oxygen concentration in µM or air saturation in %. The setting of the internal property "Output"<sup>3)</sup>, controls the selection of the unit. The coefficients for converting SR10 raw data to engineering units are fixed.

Output = -1	Output = -2
A = 0	A = 0
B = 4.883E-01	B = 1.465E-01
C = 0	C = 0
D = 0	D = 0
Oxygen (µM) = A + BN + CN <sup>2</sup> + DN <sup>3</sup>	Oxygen (%) = A + BN + CN <sup>2</sup> + DN <sup>3</sup>

<sup>3)</sup> The default output setting is set to -1