

# GAS

Member of the SGS Group



## Gas Analysis Services Scotland Ltd.

Lomond Court,  
Castle Business Park,  
Stirling,  
FK9 4TU.

### Report for Carbon Dioxide (CO<sub>2</sub>) analysis for Osmio Water.

**Customer:** Osmio Water

**Customer contact details:** Mark Kent

**Test location:** Cliffe, Kent, United Kingdom

**Sample Dates:** 29<sup>th</sup> September 2023

**Gases analysed:** Hydrogen Oxygen Mix

**Report Date:** 12<sup>th</sup> January 2024

**Report attachments:** Ellutia Flowmeter calibration certificate.  
Digital Stopwatch calibration certificate.  
Drager certificates of conformity.  
Moisture meter certificate of calibration.

### **Introduction**

The requirement was to test a Hydrogen and Oxygen gas mix on site. It was required to travel to site and complete analysis of the *Osmio Infinity Hydroxy Gas/Water Production Electrolysis System*. The machine was set to a Duty cycle of 66% and configured with two humidifiers. The gas was sampled after the second humidifier at different times. The water was not changed in between tests and was made using Reverse Osmosis with DI Resin. Where possible, analysis was completed at site with samples taken for further analysis at our laboratory in Rathnew, Co. Wicklow, Ireland. The analysis yielded the results below.

**Methodology**

All instruments used were in calibration at the time of the test. The tests detailed below were completed as per GAS internal procedures.

Test	Method	Revision	Equipment	Serial / Batch Number	Expiry / Calibration due date
Impinger Sampling	N/A	N/A	Flowmeter	950362	06FEB24
			Stopwatch	1347541/340 1347545/57	03APR24 04APR24
Moisture/ Dew point	IN-40	8.0	MDM 300	161581	10JAN2024
Oxygen	IN-73	1.0	Servomex 5200	12548	Time of Use
Sulphur Dioxide	IN-22	4.0	Drager colorimetric tube	ARRL-0971	APR2025
Oil Drager	IN-28	5.0	Drager colorimetric tube	ARRH-2111	MAR2025
Carbon Monoxide	IN-23	4.0	Drager colorimetric tube	ARRK-2061	APR2025
Carbon Dioxide	IN-24	4.0	Drager colorimetric tube	ARRM-2731	APR2025
Nitrogen Monoxide/ Nitrogen Dioxide	IN-21	5.0	Drager colorimetric tube	ARPN-0611	MAR2025

## Results

Component	Specifications	Sample Point: Start Point	Sample Point: 2 Hours	Sample Point: 4 Hours
<b>Concentration</b>	<b>N/A</b>	<b>(mg/L)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Manganese (Mn)	<b>INFO</b>	0.003867	0.000240	0.000153
Nickel (Ni)	<b>INFO</b>	0.000021	0.000010	0.000015
Chromium (Cr)	<b>INFO</b>	0.000313	0.000333	0.000313
Iron (Fe)	<b>INFO</b>	0.000620	0.000647	0.000600
Molybdenum (Mo)	<b>INFO</b>	ND ≤ 0.000067	ND ≤ 0.000067	ND ≤ 0.000067
Sodium (Na)	<b>INFO</b>	0.012000	0.012667	0.012000
Phosphorus (P)	<b>INFO</b>	ND ≤ 0.000333	ND ≤ 0.000333	ND ≤ 0.000333
Sulphur (S)	<b>INFO</b>	0.001400	ND ≤ 0.000333	ND ≤ 0.000333
Silicon (Si)	<b>INFO</b>	0.004600	0.005667	0.005133

Component	Specifications	Sample Point: Start Point	Sample Point: 2 Hours	Sample Point: 4 Hours
Moisture (ppm)	≤ 67	27,770	23,530	22,450
Oxygen (%)	> 99.5	32.7	32.8	32.8
Carbon Monoxide (ppm)	< 5	ND ≤ 2	ND ≤ 2	ND ≤ 2
Sulphur Dioxide (ppm)	< 1	ND ≤ 0.5	ND ≤ 0.5	ND ≤ 0.5
Carbon Dioxide (ppm)	< 300	ND ≤ 100	ND ≤ 100	ND ≤ 100
Nitric oxide & Nitrogen Dioxide (ppm)	< 2	ND ≤ 0.2	ND ≤ 0.2	ND ≤ 0.2
Oil (mg/m <sup>3</sup> )	≤ 0.1	ND ≤ 0.1	ND ≤ 0.1	ND ≤ 0.1
Appearance	<b>Colourless</b>	<b>Colourless</b>	<b>Colourless</b>	<b>Colourless</b>

## Conclusion

The results obtained pertain to the items/samples tested.

Analysts: Colin Harrison

Report compiled by: Killian Hannon

Report Date: 12<sup>th</sup> January 2024

Report no: C230929 OW H2O2 MK RGC10253 E

Signed: Killian Hannon  
Killian Hannon for Gas Analysis Services.

Date: 12 JAN 24

Approved by: Lucy Doran  
Lucy Doran for Gas Analysis Services

Date: 12 JAN 2024

Revision History		
Revision	Description	Date
A	Initial Release	10NOV2023
B	Inclusion of further results	13NOV2023
C	Units changed from ug/m3 to ug/L at customer request	11JAN2024
D	Further detail added to Introduction and units changed to mg/l as requested	12JAN2024
E	Conversion of units corrected	12JAN2024

*This report was completed in line with the requirements of MF-32 Rev 7.0*

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