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Spectroquant®

Oxygen Scavengers Test

1. Method

In the presence of oxygen scavengers iron(III) ions are reduced to iron(II) ions. These react with a triazine derivative (FerroZine®) to form a violet complex that is determined photometrically.

2. Measuring range and number of determinations

Cell	Measuring range	Number of determinations
20 mm	0.020 - 0.500 mg/l DEHA ¹⁾	200
	0.027 - 0.667 mg/l Carbohy ²⁾	
	0.053 - 1.315 mg/l Hydro ³⁾	
	0.078 - 1.950 mg/l ISA ⁴⁾	
	0.087 - 2.170 mg/l MEKO ⁵⁾	

¹⁾ N,N-diethylhydroxylamine

²⁾ carbohydrazide

³⁾ hydroquinone

⁴⁾ isoascorbic acid (erythorbic acid)

⁵⁾ methylethylketoxime (2-butanoneoxime)

For programming data for selected photometers / spectrophotometers see www.service-test-kits.com.

3. Applications

Sample material:

Residual corrosion inhibitors (oxygen scavengers) in boiler feed water or condensate

This test is **not suited** for seawater.

4. Influence of foreign substances

The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

Concentrations of foreign substances in mg/l					
Co ²⁺	0.025	Ni ²⁺	0.8	CaCO ₃	1000
Cu ²⁺	8	PO ₄ ³⁻	10	Lignosulfonates	0.05
Fe ²⁺	0 ¹⁾	SO ₄ ²⁻	1000	Na ₂ B ₄ O ₇	500
Mn	0.8	Zn ²⁺	50	Phosphonates	10
Mo	80				

Reducing and complexing agents interfere with the determination.

¹⁾ If iron(II) ions are present repeat the determination without adding reagent Oxyscav 2. In the event that the result obtained lies above 0.20 mg/l DEHA, subtract this value from the original measurement result.

5. Reagents and auxiliaries

Please note the warnings on the packaging materials!

The test reagents are stable up to the date stated on the pack when stored closed at +15 to +25 °C.

Package contents:

2 boxes of reagent Oxyscav 1 (each containing 100 powder packs)

1 bottle of reagent Oxyscav 2

1 AutoSelector

Other reagents and accessories:

Hydrochloric acid 25 % for analysis EMSURE®, Cat. No. 100316

Empty cells 16 mm with screw caps (25 pcs), Cat. No. 114724

Pipettes for pipetting volumes of 0.20 and 10 ml

Rectangular cells 20 mm (2 pcs), Cat. No. 114947

6. Preparation

- Analyze immediately after sampling.
- Filter turbid samples.

7. Procedure

Pretreated sample (25 ± 3°C)	10 ml	Pipette into an empty cell.
Reagent Oxyscav 1	1 powder pack ¹⁾	Add immediately , close the cell, and swirl until the reagent is completely dissolved .
Reagent Oxyscav 2	0.20 ml	Add with pipette, close the cell, and mix.
Leave to stand, protected from light, for exactly 10 min²⁾ (reaction time). Then fill the measurement sample into a 20-mm rectangular cell and immediately measure in the photometer.		

¹⁾ Add the reagent straight from the powder pack!

²⁾ for hydroquinone **only 2 min**

Notes on the measurement:

- Certain photometers may require a blank** (preparation as per measurement sample, but with distilled water instead of sample).
- For photometric measurement the cells must be clean. Wipe, if necessary, with a clean dry cloth.
- Measurement of turbid solutions yields false-high readings.
- The color of the measurement solution does not remain stable after the end of the reaction time stated above.
- If the measurement sample is not protected from light during the reaction time, false-high readings are yielded.**

8. Analytical quality assurance

recommended before each measurement series

To check the photometric measurement system (test reagents, measurement device, handling) and the mode of working, a freshly prepared N,N-diethylhydroxylamine standard solution containing 0.250 mg/l DEHA (application see the website) can be used.

Sample-dependent interferences (matrix effects) can be determined by means of standard addition.

Additional notes see under www.qa-test-kits.com.

Characteristic quality data:

In the production control, the following data were determined in accordance with ISO 8466-1 and DIN 38402 A51:

Standard deviation of the method (mg/l DEHA)	± 0.0025
Coefficient of variation of the method (%)	± 0.90
Confidence interval (mg/l DEHA)	± 0.006
Number of lots	8

Characteristic data of the procedure:

Sensitivity: Absorbance 0.010 A corresponds to (mg/l DEHA)	0.016
Accuracy of a measurement value (mg/l DEHA)	max. ± 0.022

For quality and batch certificates for Spectroquant® test kits see the website.

9. Notes

- Reclose the Oxyscav 2 reagent bottle immediately after use.
- All glass surfaces coming into contact with the measurement solution must be cleansed from time to time as follows:
First rinse the round cells and the rectangular cells with hydrochloric acid (approx. 20 %) and then thoroughly with distilled water.
- Information on disposal can be obtained at www.disposal-test-kits.com.**

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