REF 985838

Test 8-38 04.23

NANOCOLOR® Ethanol 1000

Method:
Conversion of ethanol via catalytic oxidation using the enzyme alcohol oxidase. The hydrogen peroxide formed by this reaction is determined photometrically using the enzyme peroxidase and a specific indicator.

Range:	**0.10 – 1.00 g/L ethanol**
	0.013 – 0.13 vol.-% ethanol
Wavelength (HW = 5 – 12 nm):	**620 nm**
Reaction time:	**20 min**
Reaction temperature:	**25 °C**

Contents of reagent set:
23 Test tubes Ethanol R0
2 Flasks with 60 mL reagent Ethanol R1 each
1 Flask with 6 mL reagent Ethanol R2
1 Flask with 10 mL reagent Ethanol R3

Safety precautions:
This tube test contains no dangerous goods.

Preparation of samples:
Turbid samples must be filtered before analysis (*NANOCOLOR*® Membrane Filtration Set, REF 91650). Samples containing carbon dioxide must be degassed by stirring for 1 minute prior to analysis. The pH-value of the sample must be in the range of pH 2 to pH 6.
If necessary, the pH-value must be adjusted by using 1 N NaOH or 1 N HCl.

Sample dilution:
If the expected alcohol concentration is **higher than 1.0 g/L ethanol or 0.13 vol.-% ethanol**, preliminary dilution of the sample is necessary.
This is done by first filling approx. 50 mL distilled or deionized water in a 100 mL volumetric flask. Then add the volume of sample specified in the dilution table for the expected ethanol concentration. Finally the volumetric flask is filled up to 100 mL with distilled or deionized water. Samples with an expected alcohol concentration of less than 1.00 g/L ethanol (0.130 vol.-% ethanol) should **not** be **diluted** for testing.

DILUTION-TABLE			
Expected ethanol concentration		**Dilution of the sample**	**Quantity of sample to be added [mL]**
in [g/L]	**in vol.-%**		
1.0 – 10.0	0.13 – 1.26	1 + 9	10
10.0 – 100.0	1.26 – 12.6	1 + 99	1
100.0 – 500.0	12.6 – 63.0	1 + 499	0.2

Procedure:
Requisite accessories: piston pipette with tips, water bath or incubator (REF 951001)

Remark: *Remove only as many test tubes with freeze-dried reagent Ethanol R0 as are required from the freezer* ***immediately*** *before use!*

Test sample	
4.0 mL **0.5 mL**	Open test tube and add reagent **Ethanol R1** and test sample or diluted test sample, close and mix. Incubate in a water bath or incubator **exactly for 20 min at 25 °C.***
100 µL	Open test tube and add reagent **Ethanol R2**, close and mix. Wait 1 min.
2 drops	Open test tube and add reagent **Ethanol R3**, close and mix. Clean outside of test tube and measure after 10 min.

* An incubation is also possible at room temperature. But depending on the temperature, variations in the obtained results are then to be expected.

Measurement:
For MACHEREY-NAGEL photometers see manual, test 8-38.

Measurement when samples are colored or turbid:
For all *NANOCOLOR*® photometers see manual, use key for correction value.

Photometers of other manufacturers:
For other photometers check whether measurement of round glass tubes is possible. Verify factor for each type of instrument by measuring standard solutions.

Storage:
Box A of the tube test must be **stored icy-cold at < 0 °C! Box B** is to be stored in a refrigerator **at + 2 °C to + 8 °C**. Please pay attention to the expiry date. The reagents R1 to R3 must be adjusted to room temperature prior to carrying out analysis. We recommend removing Box B containing the additive reagents from the refrigerator in good time prior to use. Gently mix reagent R1 before use. Test tubes with reagent R0 stored at < 0 °C can be used for analysis immediately after removal from the freezer.

Interferences:
Strong oxidizing agents and lower primary alcohols like methanol, propanol and butanol may lead to false, excessively high results.

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