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MColorTest™

Color Test

1. General

The color of weakly brown-yellow, transparent liquids can be measured in color units (CU, Hazen/APHA units) by visual comparison with a series of aqueous platinum-cobalt standard solutions ($K_2PtCl_6 + CoCl_2 \cdot 6 H_2O$ in hydrochloric acid) or using a correspondingly calibrated color comparator. **1 CU** corresponds to the color of a standard solution that contains **1 mg/l Pt + 0.5 mg/l Co**. Although the numerical value of the color unit is identical to that of the platinum content of the respective standard solution in mg/l, the statement of the color of liquids in "mg/l Pt" (or also "mg/l Pt/Co") is misleading and should hence be avoided.

2. Method

Determination with color-card comparator

The color of the liquid under investigation is measured **semiquantitatively** by visual comparison of the measurement solution with the color fields of a color card.

The result obtained when measuring an unfiltered sample corresponds to the "apparent color", which is caused by dissolved substances and suspended matter.

When the sample is filtered prior to the measurement, the result corresponds to the "true color", which is caused only by dissolved substances.

The two results are identical in the case of clear samples.

The color of water samples depends strongly on the pH. **When measuring the color, it is hence advisable to also determine the pH of the water sample under investigation.**

3. Measuring range and number of determinations

Measuring range / color-scale graduation
5 - 10 - 20 - 30 - 40 - 50 - 70 - 100 - 150 CU (Hazen)

4. Applications

Sample material:

Surface water
Drinking water
Water in the water-treatment process
Wastewater
Electroplating wastewater
Inorganic liquids (e.g. salt solutions)
Organic liquids (e.g. solvents)
Beverages

5. Reagents and auxiliaries

Package contents:

1 glass filter funnel
2 test tubes with screw caps (in comparator block)
1 color card

Other reagents:

MColorpHast™ Universal indicator strips pH 0 - 14, Cat. No. 109535
Platinum-Cobalt Color Reference Solution (Hazen 500) CertiPUR® acc. to DIN EN ISO 7887 and ASTM D1209, 500 mg/l Pt, Cat. No. 100246

6. Procedure

Perform the determination as soon as possible after sampling.

6.1 Determination of the "apparent color" of aqueous solutions and organic liquids

Open the box and set up with both test tubes on the left . Unfold the color card and insert it, colored end first, into the slit at the lower right-hand edge of the box.			
	Measurement sample tube nearer to the tester (A)	Blank tube farther from the tester (B)	
Sample	40 ml	-	Fill the test tube to the mark (= 40 ml).
Distilled water	-	40 ml	Fill the test tube to the mark (= 40 ml).
Slide the color card through to the left until the closest possible color match is achieved between the two open test tubes when viewed from above. Read off the result in CU (Hazen) from the color card at the lower right-hand edge of the box. In the case of water samples also determine the pH of the measurement sample.			

6.2 Determination of the "true color" (only for aqueous solutions!) Use a new sample of the same kind!

Open the box and set up with both test tubes on the left . Place the glass filter funnel on the tube nearer to the tester (for the measurement sample). Unfold the color card and insert it, colored end first, into the slit at the lower right-hand edge of the box.			
	Measurement sample tube nearer to the tester (A)	Blank tube farther from the tester (B)	
Sample	40 ml	-	Fill the test tube to the mark (= 40 ml) through the glass filter funnel.
Distilled water	-	40 ml	Fill the test tube to the mark (= 40 ml).
Slide the color card through to the left until the closest possible color match is achieved between the two open test tubes when viewed from above. Read off the result in CU (Hazen) from the color card at the lower right-hand edge of the box. Also determine the pH of the measurement sample.			

Note on the measurement:

If the color of the measurement solution is equal to or more intense than the darkest color on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 150 CU (Hazen) is obtained.

Concerning the result of the analysis, the dilution must be taken into account:

$$\text{Result of analysis} = \text{measurement value} \times \text{dilution factor}$$

7. Method control

To check measurement device and handling:
Dilute the Platinum-Cobalt Color Reference Solution with distilled water to 50 CU (Hazen) and determine the color as described in section 6.1.
Additional notes see under www.qa-test-kits.com.

