visocolor® ECO

en

Chromium(VI)

Test kit for performing colorimetric tests on chromium(VI) in surface water and sewage

Method:
In an acidic medium chromate ions react with diphenylcarbazide to form a red-violet dye. First chromium(VI) oxidizes diphenylcarbazide to diphenylcarbazone, being itself reduced to chromium(III). Combined with the enol form of the carbazone, these chromium(III) ions form the intensively colored complex.

Measurement range:
0.02–0.50 mg/L Cr(VI)

Contents of test kit (*refill pack):
sufficient for 140 tests
- 30 mL Cr-1*
- 25 mL Cr-2*
- 2 screw-plug measuring glasses
- 1 slide comparator
- 1 color chart
- 1 plastic syringe 5 mL
- 1 instructions for use*

Hazard warning:
Reagent Cr-1 contains ortho-phosphoric acid 55–70 %.
H314 Causes severe skin burns and eye damage.
P260sh, P280sh, P303+361+353, P305+351+338, P310 Do not breathe dust/vapors. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Dispose of contents / container to regulated waste treatment. For further information ask for a safety data sheet.

Instructions for use:
also refer to the pictogram on the back of the color chart
1. Pour a **5 mL water sample** into each of the measuring glasses using the plastic syringe.
   Place a measuring glass on position A in the comparator.

Only add the reagent to measuring glass B.
2. Add **5 drops of Cr-1**. Seal the glass and mix.
3. Add **5 drops of Cr-2**. Seal the glass and mix.
4. Open the glass after **3 min** and place it on position B in the comparator.
5. Slide the comparator until the colors match in the inspection hole on top. Check the measurement reading in the recess on the comparator reed. Mid-values can be estimated.
6. After use, rinse out both measuring glasses thoroughly and seal them.

The method can also be applied for the analysis of sea water.

The reagents can also be used for the **photometric evaluation** with photometers PF-12 / 12^{Plus}.

Disposing of the samples:
The used analysis specimens can be flushed down the drain with tap water and channelled off to the local sewage treatment works.

Interferences:
Only chromium(VI) can be determined with this test kit. Chromium(III) must first be oxidized (see below determination of total chromium).
Larger quantities of heavy metal ions interfere.

Conversion table:

mg/L Cr(VI)	mg/L CrO_4^{2-}
0.02	0.04
0.05	0.11
0.10	0.22
0.15	0.33
0.20	0.45
0.30	0.67
0.40	0.89
0.50	1.12

Determination of total chromium:
Add to 20 mL test sample 1 mL sulfuric acid 96 % and 0.5 g potassium peroxodisulfate and boil for 2 h. After cooling add approximately 10 mL of distilled water and carefully adjust to pH 1–3 with 5 mL of sodium hydroxide solution 20 %. Then fill up to 50 mL and determine the chromium concentration as described above. Multiply the read-off value with **2.5**.

Note:
For the determination of water-soluble chromium(VI) in cement contact MACHEREY-NAGEL for special working instructions.

Storage:
Store the test kit in a cool (< 25 °C) and dry place.

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
Tel.: +49 24 21 969-0 · Fax: +49 24 21 969-199 · info@mn-net.com · ***www.mn-net.com***