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The Photometry Dictionary

TIPS AND TRICKS FOR PHOTOMETRIC MEASUREMENTS -
FROM OUR CUSTOMERS' MAGAZINE

WATERWORLD

Tips for the practical use of photometric test sets

wtw.com/en/photometry

photometry-compendium.com

Tips for the practical use of photometric test sets

You will frequently be faced with a measuring result and do not even need a plausibility check: The result appears completely "off" – a totally incorrect measuring value! However, the cause is almost never the test set or the measuring device; more frequently the problem lies with the sample matrix and the unknown interference variables.

Read the package insert of the desired test!

The package inserts of the tests contain the required information about the permissible maximum limits of associated ions in the sample. You will also find information about other (measuring) traps, such as an incorrect pH value of the sample. Package inserts can also be an important decision aid during the test preselection.

The most important facts in the package inserts:

- Reagent handling, e.g. dosing caps, quantities, replacing caps and dosing units
- Preparing the cuvettes: e.g. if tests are sensitive to tensides, cuvettes must not be washed with detergents
- Disturbing ions which mask the capture of the actual measuring parameters
- Measuring ranges that are achieved by different cuvette sizes
- Standstill times until the measurement
- Special notes about sample volumes, e.g. when using CombiChecks

The mercury-free test sets 09772 and 09773 for the determination of COD

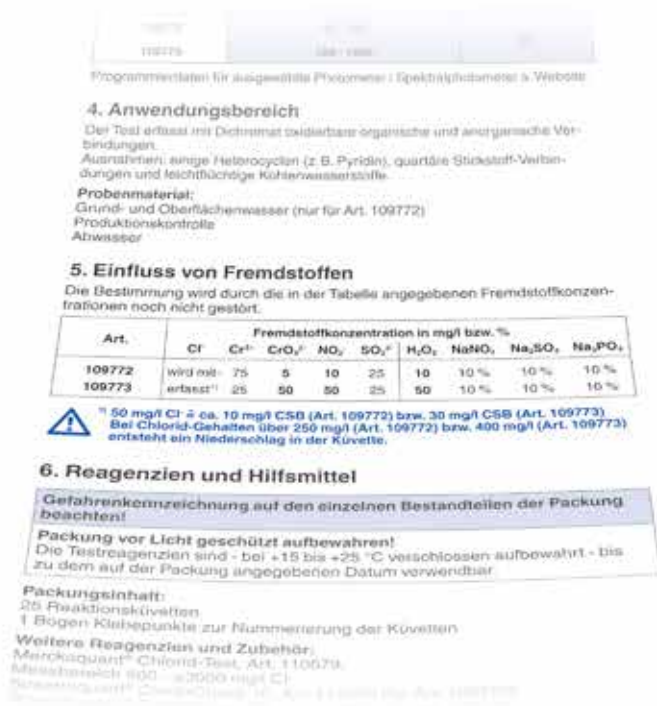
These test sets always sound tempting if you are to make an environmentally responsible choice. But unfortunately, the margin for suitable measurements is quite small here:

The most important interference factor when using the mercury-free test sets is the chloride content of the sample. Chloride is always captured in the measurement for COD: fourfold compared to a normal COD determination such as with the test set C3/25 is not a rare occurrence; there will be precipitation if there is a high level of chloride. The test set is therefore more or less unsuitable for standard wastewater, as salt content stemming from natural and "human" sources is normal. Also important is the use of chloride-free COD standard solutions for plausibility checks: for example, the WTW standards KCSB 100/400. Did you know that dilution often contains COD? Depending on the region, drinking water or uncarbonated mineral water is very suitable.

The mercury-free COD tests were developed for special applications in the far north of Europe where only minimal chloride contents are to be expected.

Galvanizing: Unknown interference factors - undetected error sources

Enormous problems occurred in a laboratory when determining the cadmium value: Only after extensive troubleshooting, beginning with the device, then the test set all the way to the procedure, it was found that the sample matrix was contaminated with an extremely high ammonium value. After vaporizing as ammonium to a value of < 100 mg/l, the measuring results became so good that they were even comparable to the results of the ICP (mass spectrometric analysis). Therefore: especially with more complex sample compositions, a more extensive analysis of the sample matrix is helpful before testing for certain individual parameters as a routine!



Programmierdaten für ausgewählte Photometer / Spektrophotometer & Webotti

4. Anwendungsbereich

Der Test erlaubt die Bestimmung oxidierbarer organischer und anorganischer Verbindungen.
Ausnahmen: einige Heterocyclen (z. B. Pyridin), quartäre Stickstoff-Verbindungen und leichtflüchtige Kühlwasserstoffe.

Probematerial:
Grund- und Oberflächenwasser (nur für Art. 109772)
Produktionskontrolle
Abwasser

5. Einfluss von Fremdstoffen

Die Bestimmung wird durch die in der Tabelle angegebenen Fremdstoffkonzentrationen noch nicht gestört.

Art.	Cl ⁻	Cr ⁶⁺	CrO ₄ ²⁻	NO ₂ ⁻	SO ₄ ²⁻	H ₂ O ₂	NaNO ₂	Na ₂ SO ₃	Na ₂ PO ₃
109772	wird mit-	25	5	10	25	10	10%	10%	10%
109773	erlaubt ¹⁾	25	50	50	25	50	10%	10%	10%

¹⁾ 50 mg/l Cl⁻ ≈ ca. 10 mg/l C5B (Art. 109772) bzw. 30 mg/l C5B (Art. 109773)
Bei Chlorid-Gehalten über 250 mg/l (Art. 109772) bzw. 400 mg/l (Art. 109773) entsteht ein Niederschlag in der Küvette.

6. Reagenzien und Hilfsmittel

Gefahrenkennzeichnung auf den einzelnen Bestandteilen der Packung beachten!

Packung vor Licht geschützt aufbewahren!
Die Testreagenzien sind - bei +15 bis +25 °C verschlossen aufbewahrt - bis zu dem auf der Packung angegebenen Datum verwendbar.

Packungsinhalt:
26 Reaktionsküvetten
1 Bogen Klebpunkte zur Nummerierung der Küvetten

Weitere Reagenzien und Zubehör:
Merckosquant[®] Chlorid-Test, Art. 11007a
Messbereich 500 - 3500 mg/l Cl⁻
Schwammkart[®] C-2000 (mg Cl⁻ / ml) - Art. 11008a
Reagenzien-Set für die Bestimmung von COD, Art. 109772

And here is another advantage of the prior information: The package insert contains all additionally necessary aids: from pH paper to concentrated sulphuric acid p.A.

