

OVERVIEW

Measuring range	Method	Ord. No.	Page	
10 - 250 mg/l	Aurin tricarboxylic acid	1.10015.0001	8	Aluminium
10 - 400 mg/l	Nessler	1.10024.0001	8	Ammonium
0.02 - 3 mg/l	Modified Gutzeit method	1.17926.0001	8	Arsenic
0.005 - 0.5 mg/l	Modified Gutzeit method	1.17927.0001	8	Arsenic
50 - 2000 mg/l	Phosphomolybdenum blue	1.10023.0001	9	Ascorbic acid
		1.11860.0001	9	Blank test strips
10 - 100 mg/l	Glyoxalbis(hydroxyl)	1.10083.0001	9	Calcium
4 - 24 °d	Mixed indicator	1.10648.0001	9	Carbonate hardness
500 - 3000 mg/l	Silver chromate	1.10079.0001	10	Chloride
0.5 - 20 mg/l	Redox reaction	1.17925.0001	10	Chlorine
25 - 500 mg/l	Redox reaction	1.17924.0001	10	Chlorine
3 - 100 mg/l	Diphenylcarbazide	1.10012.0001	11	Chromate
10 - 1000 mg/l	Rhodanide	1.10002.0001	11	Cobalt
10 - 300 mg/l	Cuproine	1.10003.0001	11	Copper
1 - 30 mg/l	Barbituric acid derivative	1.10044.0001	11	Cyanide
0.5 - 10 g/l/4-8	Cadmium sulfide/Mixed indicator Triazole	1.10008.0001	12	Fixing bath Ag/pH
10 - 100 mg/l	Triazole	1.10036.0001	12	Formaldehyde
3 - 500 mg/l	2,2-Bipyridine	1.10004.0001	12	Iron
20 - 500 mg/l	Rhodizonic acid	1.10077.0001	13	Lead
2 - 100 mg/l	Oxidation/Redox indicator	1.10080.0001	13	Manganese
5 - 250 mg/l	Toluene-3,4-dithiol	1.10049.0001	13	Molybdenum
10 - 500 mg/l	Diacetylmonoxime	1.10006.0001	13	Nickel
10 - 500 mg/l	Modified Griess reaction	1.10020.0001	14	Nitrate
100 - 3000 mg/l	Aromatic amine	1.10022.0001	14	Nitrite
2 - 80 mg/l	Griess reaction	1.10007.0001	15	Nitrite
5 - 50 mg/l	Redox reaction	1.10084.0001	15	Peracetic acid
100 - 500 mg/l	Redox reaction	1.10001.0001	15	Peracetic acid
500 - 2000 mg/l	Redox reaction	1.17922.0001	15	Peracetic acid
0.5 - 25 mg/l	Enzymatic reaction	1.10011.0001	16	Peroxide
1 - 100 mg/l	Enzymatic reaction	1.10081.0001	16	Peroxide
100 - 1000 mg/l	Enzymatic reaction	1.10337.0001	16	Peroxide
0 - 14 pH	Reactive dyes	1.09535.0001	16	pH
10 - 500 mg/l	Phosphomolybdenum blue	1.10428.0001	17	Phosphate
250 - 1500 mg/l	Dipicrylamine	1.10042.0001	17	Potassium
10 - 500 mg/l	Indicator	1.17920.0001	17	Quaternary ammonium compounds
200 - 1600 mg/l	Ba-thorin complex	1.10019.0001	18	Sulfate
10 - 400 mg/l	Nitroprusside/Zn-hexacyanoferrate	1.10013.0001	18	Sulfite
10 - 200 mg/l	Toluene-3,4 dithiol	1.10028.0001	18	Tin
3 - 21 °d	EDTA, Eriochrome Black	1.10025.0001	19	Total hardness
5 - 25 °d	EDTA, Eriochrome Black	1.10046.0001	19	Total hardness
10 - 250 mg/l	Dithizone	1.10038.0001	19	Zinc

Al³⁺ ALUMINIUM Ord. No. 1.10015.0001

Merckoquant® Aluminium Test

Presentation 100 test strips and reagents

Graduation 0 – 10 – 25 – 50 – 100 – 250 mg/l Al³⁺

Aluminium compounds are used as flocculating agents in water works, in swimming pools, paper mills, etc. The test, which is largely interference-free, can be directly used to check the integrity and efficiency of filtering systems as part of a general plan of in-process controls.

Wastewater discharged from aluminium smelting and processing plants requires regular monitoring, as aluminium does great harm to fish and other aquatic organisms. The test is also useful in the food and drinks industry, as a means of checking for damaged casks and pipes; also as a way of monitoring concentrations of aluminium-containing additives.

NH₄⁺ AMMONIUM Ord. No. 1.10024.0001

Merckoquant® Ammonium Test

Presentation 100 test strips and reagent

Graduation 0 – 10 – 30 – 60 – 100 – 200 – 400 mg/l NH₄⁺

The presence of ammonium ions in surface and ground water is indicative of potentially harmful pollution. In agriculture the test can be used to measure the ammonium nitrogen content of various types of manure and compost.

It can also be used directly to check for ammonium compounds employed in various industries including tanning, the photographic industry, plastics, textiles, etc.

As^{3+/5+} ARSENIC Ord. No. 1.17926.0001

Merckoquant® Arsenic Test

Presentation 100 test strips and reagents

Graduations 0 – 0.02 – 0.05 – 0.1 – 0.2 – 0.5 mg/l As^{3+/5+}

0 – 0.1 – 0.5 – 1.0 – 1.7 – 3 mg/l As^{3+/5+}

The Arsenic Test is suitable for measuring arsenic in water, soil extracts, pharmaceutical products, prepared biological specimens and liquid foods.

It can also be used in various production processes in order to monitor levels of arsenic compounds and to check the limits in electrical components, catalysts, special types of glass and certain electroplating baths.

As^{3+/5+} ARSENIC Ord. No. 1.17927.0001

Merckoquant® Arsenic Test

Presentation 100 test strips and reagents

Graduation 0 – 0.005 – 0.01 – 0.025 – 0.05 – 0.1 – 0.2 5–0.5 mg/l As^{3+/5+}

As a result of its high sensitivity and robustness, this Arsenic Test, used along with the Arsenic Test described above, is ideal for screening ground water to see whether it is of drinking quality. Various geological factors mean that arsenic is leached from rocks under certain circumstances and finds its way into ground water in toxic concentrations.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1,000	Fe ^{2+/3+}	50	PO ₄ ³⁻	100
Ca ²⁺	1,000	Fe(CN) ₆ ^{3-/4-}	1,000	S ²⁻	100
Cd ²⁺	1,000	Hg ^{2+/4+}	1,000	SCN ⁻	1,000
Cl ⁻	1,000	Mg ²⁺	1,000	Sn ²⁺	1,000
CN ⁻	500	Mn ²⁺	1,000	SO ₃ ²⁻	100
Co ²⁺	1,000	MnO ₄ ⁻	100	SO ₃ ²⁻	1,000
Cr ²⁺	1,000	NH ₄ ⁺	1,000	S ₂ O ₃ ²⁻	1,000
CrO ₄ ²⁻	500	NO ₂ ⁻	1,000	VO ₃ ⁻	500
Cu ²⁺	10	NO ₃ ⁻	1,000	WO ₄ ²⁻	250
F ⁻	250	OCN ⁻	500	Zn ²⁺	1,000

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Al ³⁺	1,000	Cu ²⁺	1,000	Ni ²⁺	100
Ca ²⁺	100	Fe ²⁺	10	NO ₂ ⁻	1,000
Cl ⁻	1,000	Fe ³⁺	1,000	NO ₃ ⁻	1,000
CN ⁻	10	K ⁺	1,000	PO ₄ ³⁻	1,000
Cu ²⁺	100	Mg ²⁺	1,000	S ₂ O ₃ ²⁻	1,000
CrO ₄ ²⁻	1,000	Mn ²⁺	10		

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1	Fe ^{2+/3+}	1,000	NO ₃ ⁻	100
Al ³⁺	100	Hg ²⁺	5	PO ₄ ³⁻	100
Ca ²⁺	1,000	K ⁺	1,000	S ²⁻	0.5
CN ⁻	1,000	Mg ²⁺	1,000	Sn ²⁺	100
Co ²⁺	5	MnO ₄ ⁻	500	SO ₃ ²⁻	1
CrO ₄ ²⁻	1,000	Na ⁺	1,000	SO ₃ ²⁻	1,000
Cu ²⁺	0.5	Ni ²⁺	10	S ₂ O ₃ ²⁻	0.5
F ⁻	500	NO ₂ ⁻	100	EDTA	1,000

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	0.5	Fe ^{2+/3+}	500	PO ₄ ³⁻	100
Al ³⁺	100	K ⁺	1,000	S ²⁻	2
Ca ²⁺	1,000	Mg ²⁺	1,000	Sb ³⁺	1
CN ⁻	500	MnO ₄ ⁻	500	SeO ₃ ²⁻	1
CO ₃ ²⁻	100	Na ⁺	1,000	SO ₃ ²⁻	2
CrO ₄ ²⁻	250	Ni ²⁺	1	SO ₃ ²⁻	1,000
Cu ²⁺	0.5	NO ₂ ⁻	100	EDTA	1,000
F ⁻	100	NO ₃ ⁻	100	NaCl	20 %

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Citrate	1,000	Oxalate	1,000	Fe ³⁺	50
Fe ³⁺	1	SO ₃ ²⁻	100	Tartrate	1,000

Since the basis of the test is a reduction reaction, reducing agents similar to ascorbic acid may yield "false-positives".

ASCORBIC ACID **Ord. No. 1.1002310001**

Merckoquant® Ascorbic acid Test

Presentation 100 test strips

Graduation 0-50-100-200-300-500-700-1000-2000 mg/l Ascorbic acid

The Ascorbic Acid Test can be used both for quickly measuring levels of natural ascorbic acid (vitamin C) in foods such as fruit and vegetable juices, soft drinks, beer and wine, and also to check how much ascorbic acid has been added to certain foods as a preservative or antioxidant. It can also be used to measure vitamin C loss in foods following storage, processing and cooking.

Direct determinations can be conducted in liquid samples as well as on the freshly cut surfaces of fruit, potatoes and other vegetables.

BLANK TEST STRIPS **Ord. No. 1.101860.0001**

Merckoquant® Blank Test Strips

Presentation 100 test strips

The blank test strips incorporate a paper zone not impregnated with reagent. They are used to perform tests to see whether sample solutions turn the blank zone a different color. A difference in color can indicate that the intrinsic color of the sample may affect results obtained with other Merckoquant® test strips. Allowance can then be made for the difference in color.

The blank strips can also be used to prepare test strips for use in other determinations

Ca²⁺ CALCIUM **Ord. No. 1.10083.0001**

Merckoquant® Calcium Test

Presentation 60 test strips and reagents

Graduation 0 - 10 - 25 - 50 - 100 mg/l Ca²⁺

The Calcium Test is suitable not only for rapid determination of calcium in aqueous media but also for measuring levels of calcium compounds incorporated into fertilizers and animal feeds, or used as cleaners or polishes, or whiteners in enamels, glassware and porcelain.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	400	Cu ²⁺	10	Ni ²⁺	50
Al ³⁺	1,000	Fe ^{2+/3+}	100	NO ₂ ⁻	1,000
Br ²⁻	500	Hg ^{2+/2+}	100	NO ₃ ⁻	1,000
Cd ²⁺	10	Mg ²⁺	1,000	Pb ²⁺	1,000
Cl ⁻	1,000	Mn ²⁺	50	PO ₃ ³⁻	1,000
Co ²⁺	50	MnO ₄ ⁻	200	Sn ²⁺	200
Cr ³⁺	350	NH ₄ ⁺	1,000	Zn ²⁺	25

CARBONATE HARDNESS **Ord. No. 1.10648.0001**

Merckoquant® Carbonate Hardness Test

Presentation 100 test strips

Graduation 0 - 4 - 8 - 12 - 16 - 24 *d ± 0 - 5 - 10 - 15 - 20 - 30 °e

Carbonate hardness is part of the total hardness of water and is defined as that portion of alkaline earth ions present in the water for which there exists an equivalent amount of hydrogen carbonate ions and carbonate ions originating from dissolved carbonic acid.

Under heat, the carbonates and hydrogen carbonates of the hardening constituents precipitate as carbonates; for this reason, carbonate hardness was formerly termed "temporary hardness." It is this precipitation that leads to furring in heating systems, boilers and washing machines. The test can also be used to check the integrity of domestic filtering systems, water deaerators and coffee machines.

The presence of strong alkalis or other acid binding substances will falsify results.

Cl⁻ CHLORIDE Ord. No. 1.10079.0001

Merckoquant® Chloride Test

Presentation 100 test strips

Graduation 0 – 500 – 1000 – 1500 – 2000 – 3000 mg/l Cl⁻

Chloride ions occur in all natural waters. Their concentration depends on geological factors and the general local situation. In forced irrigation systems, for example, regularly monitoring chloride concentrations in ground water stops the soil becoming too saline.

Also, prior to COD measurements the chloride content of the sample should be known as this has a bearing on the method used and hence on the results obtained. In the food industry chloride (common salt) is used in vast quantities as a preservative. Here, too, the test strip can be used for monitoring purposes.



Cl₂ CHLORINE Ord. No. 1.17925.0001

Merckoquant® Chlorine Test

Presentation 75 test strips

Graduation 0 – 0.5 – 1 – 2 – 5 – 10 – 20 mg/l Cl₂

The Chlorine Test is a rapid exploratory test for chlorine and is intended primarily for checking the use of chlorinated disinfectants. Chlorinated disinfectants are still in common use all over the world, their major applications being in the chlorination of drinking water and swimming pools. Unlike chlorine additions the purpose of which is to raise the concentration to several mg/l above normal, lower-concentration chlorination calls for maintenance of a prescribed concentration requiring regular chlorine monitoring. Chlorine must then be continually added to make up for decomposition and reduction losses.

Cl₂ CHLORINE Ord. No. 1.17924.0001

Merckoquant® Chlorine Test

Presentation 100 test strips

Graduation 0 – 25 – 50 – 100 – 200 – 500 mg/l Cl₂

Higher concentrations of chlorinated disinfectants are added primarily to raise the chlorine concentration to several mg/l above normal. In this type of chlorination the test is used to monitor chlorine concentrations at various points within the apparatus or pipework in order to ensure that the prescribed concentration is reached everywhere within the system. Where this concentration is not reached, adequate disinfection is not assured.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	75	Hg ²⁺	75	PO ₄ ³⁻	1,000
Al ³⁺	1,000	I ⁻	100	S ²⁻	20
Ascorbate	10	K ⁺	1,000	SCN ⁻	100
Br ⁻	75	Mg ²⁺	1,000	Sn ²⁺	1,000
Ca ²⁺	1,000	Na ⁺	1,000	SO ₃ ²⁻	1,000
CN ⁻	20	NH ₄ ⁺	1,000	SO ₄ ²⁻	1,000
CrO ₄ ²⁻	1,000	Ni ²⁺	1,000	S ₂ O ₃ ²⁻	75
Cu ²⁺	1,000	NO ₂ ⁻	1,000	Zn ²⁺	1,000
Fe ^{2+/3+}	1,000	NO ₃ ⁻	1,000	EDTA	1,000

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Al ³⁺	500	Cr ₂ O ₇ ²⁻	100	NO ₂ ⁻	0.5
Br ₂	0.05	Cu ²⁺	250	S ²⁻	0.1
Ca ²⁺	1,000	Fe ³⁺	1,000	NaCl	2.5%
CN ⁻	0.2	H ₂ O ₂	0.5	NaNO ₃	0.1%
Cl ⁻	1,000	I ₂	0.5	Na ₂ SO ₄	10%

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Al ³⁺	1,000	Cr ₂ O ₇ ²⁻	1	NO ₂ ⁻	5
Br ₂	10	Cu ²⁺	250	S ²⁻	5
Ca ²⁺	1,000	Fe ³⁺	250	NaCl	10%
CN ⁻	5	H ₂ O ₂	10	NaNO ₃	10%
Cl ⁻	1,000	I ₂	5	Na ₂ SO ₄	5%

Merckoquant® Chromate Test

Presentation 100 test strips and reagent

Graduation 0 – 3 – 10 – 30 – 100 mg/l CrO_4^{2-}

The Chromate Test can be used to monitor waste water discharged from electroplating and pickling plants, tanneries, etc. and for rapidly and reliably determining chromium salts in many industrial processes. In-process controls in the tanning and chrome-plating industries can also be performed using this test, either directly or following dilution.

Like in other cation detection tests (Fe , Ni , Cu), this test strip is suitable for non-destructive surface testing in order to identify certain types of steel, for instance.

Ag^+	1,000	F^-	1,000	NO_2^-	1,000
Al^{3+}	1,000	Fe^{2+}	1	NO_3^-	1,000
Ba^{2+}	1,000	Fe^{3+}	25	PO_4^{3-}	1,000
Ca^{2+}	1,000	Hg^+	25	S^{2-}	1
Cl^-	1,000	Hg^{2+}	100	Sn^{2+}	1
CN^-	1,000	Mg^{2+}	1,000	SO_3^{2-}	1
Co^{2+}	1,000	MnO_4^-	10	SO_4^{2-}	1,000
Cu^{2+}	100	MoO_4^{2-}	25	$\text{S}_2\text{O}_3^{2-}$	1

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Merckoquant® Cobalt Test

Presentation 100 test strips

Graduation 0 – 10 – 30 – 100 – 300 – 1000 mg/l Co^{2+}

Interesting applications for the Cobalt Test are to be found in the testing of waste water, electroplating baths, in the electronics industry, metal industry, in the assaying and refining of ores, and for checking pigments and other colorants in the glass and ceramic industries.

Like in other cation detection tests (Fe , Ni , Cu), this test strip is suitable for non-destructive surface testing for cobalt.

Al^{3+}	1,000	$\text{Fe}^{2+/3+}$	1,000	NO_2^-	250
Ca^{2+}	1,000	$[\text{Fe}(\text{CN})_6]^{3+/4-}$	10	NO_3^-	1,000
Cd^{2+}	1,000	Hg^+	300	PO_4^{3-}	1,000
Cl^-	1,000	K^+	1,000	Sn^{2+}	1,000
CN^-	1	Mg^{2+}	1,000	SO_3^{2-}	1,000
CrO_4^{2-}	1,000	Na^+	1,000	SO_4^{2-}	1,000
Cu^{2+}	1,000	Ni^{2+}	1,000	Zn^{2+}	1,000

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Merckoquant® Copper Test

Presentation 100 test strips

Graduation 0 – 10 – 30 – 100 – 300 mg/l $\text{Cu}^{+2/+}$

The test is suitable, for instance, for monitoring and testing waste water, electroplating solutions, and copper etching baths used in the manufacture of printing plates and printed circuits. Copper compounds are used as anti-corrosive agents, wood preservers, cutting fluids and lubricants. They are also used in tanning processes, in paint manufacture and as oxidizing agents. In some cases the sample may need pretreatment while in others the test can be applied directly.

Like in other cation detection tests (Fe , Ni , Cu), this test strip is suitable for non-destructive surface testing.

Ag^+	1,000	$\text{Fe}^{2+/3+}$	1,000	NO_2^-	1,000
Al^{3+}	1,000	$[\text{Fe}(\text{CN})_6]^{3+/4-}$	1	NO_3^-	1,000
Ca^{2+}	1,000	I^-	250	Pb^{2+}	1,000
Cd^{2+}	1,000	K^+	1,000	PO_4^{3-}	1,000
Cl^-	1,000	Mg^{2+}	1,000	SO_3^{2-}	1,000
CN^-	1	Na^+	1,000	SO_4^{2-}	1,000
Co^{2+}	1,000	NH_4^+	1,000	Zn^{2+}	1,000
CrO_4^{2-}	500	Ni^{2+}	1,000		

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Merckoquant® Cyanide Test

Presentation 100 test strips and reagents

Graduation 0 – 1 – 3 – 10 – 30 mg/l CN^-

The effluent from electroplating works must be monitored for cyanide to ensure that none of this bacteriotoxic substance finds its way into treatment works. The test may also be used to monitor cyanide waste treatment plant. Only readily dissociable cyanides are detected.

Ag^+	1	Cu^{2+}	1	Ni^{2+}	1,000
Al^{3+}	1,000	$\text{Fe}^{2+/3+}$	1,000	NO_2^-	50
Br^-	5	$\text{Hg}^{+2/+}$	1	NO_3^-	1,000
Ca^{2+}	1,000	I^-	5	PO_4^{3-}	1,000
Cd^{2+}	1,000	K^+	1,000	S^{2-}	100
Cl^-	1,000	Mg^{2+}	1,000	SCN^-	1
Co^{2+}	1,000	MnO_4^-	50	SO_4^{2-}	1,000
CrO_4^{2-}	50	Na^+	1,000	Zn^{2+}	1,000

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag⁺ **FIXING BATH (SILVER and pH)** Ord. No. 1.10008.0001

Merckoquant® Fixing bath Test

Presentation 100 test strips

Graduation 0 – 0.5 – 1 – 1.7 – 3 – 5 – 7 – 10 g/l Ag⁺
pH 4 – 5 – 6 – 7 – 8

The Fixing Bath Test provides a rapid method for establishing whether a fixing bath is still fresh enough to fix films and prints properly. Performing a simultaneous pH determination provides an additional benefit in that a change in the pH value also signals that the bath is stale. Furthermore, the test can be used to monitor the recovery of silver from fixing baths.

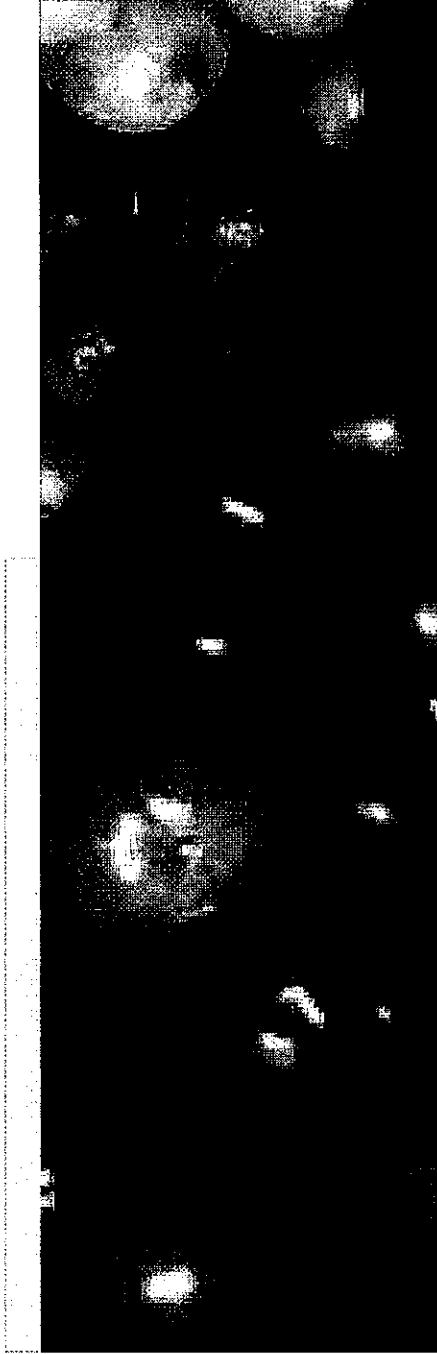
HCHO FORMALDEHYDE Ord. No. 1.10036.0001

Merckoquant® Formaldehyde Test

Presentation 100 test strips and reagent

Graduation 0 – 10 – 20 – 40 – 60 – 100 mg/l Formaldehyde

Formaldehyde is used as a disinfectant for surfaces and medical equipment, and also as a raw material for binders and fixing agents, and as a preservative. Formaldehyde is also a naturally occurring breakdown and intermediate product in foods, and may give some hint of the age and condition of the product.



Fe²⁺ **IRON** Ord. No. 1.10004.0001

Merckoquant® Iron Test

Presentation 100 test strips

Graduation 0 – 3 – 10 – 25 – 50 – 100 – 250 – 500 mg/l Fe²⁺

The test strips offer a very simple means of determining iron in all aqueous media and on metal surfaces. They can thus be used to distinguish between ferrous and non-ferrous metals. Applications of interest include the analysis of foodstuffs and checking the use (control and optimization) of iron compounds as flocculating agents in waste water treatment.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Al ³⁺	1,000	Fe ^{2+/3+}	250	Ni ²⁺	1,000
Co ³⁺	250	Hg ²⁺	250	Sn ²⁺	1,000
Cu ²⁺	1,000	Mn ²⁺	1,000	Zn ²⁺	1,000

The test also responds to other aldehydes such as acetaldehyde or glutaraldehyde, though only at higher concentrations, when the color produced is different from that of the color scale.

Ketones, esters, amides, hydrazines, hydroxylamines, quinones, aminophenol, uric acid and formic acid prevent the proper color reactions from taking place, while strong oxidizing and reducing agents interfere by reducing the detection sensitivity.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1,000	Cu ²⁺	500	NO ₂ ⁻	1,000
Al ³⁺	1,000	[Fe(CN)] ₆ ⁴⁻	5	NO ₃ ⁻	1,000
Ba ²⁺	1,000	Hg ²⁺	1,000	PO ₄ ³⁻	1,000
Ca ²⁺	1,000	K ⁺	1,000	Sn ²⁺	1,000
Cd ²⁺	1,000	Mg ²⁺	1,000	SO ₃ ²⁻	1,000
Cl ⁻	1,000	Na ⁺	1,000	SO ₄ ²⁻	1,000
CN ⁻	1,000	NH ₄ ⁺	1,000	VO ₃ ⁻	250
Co ²⁺	250	Ni ²⁺	1,000	Zn ²⁺	1,000

Pb²⁺ LEAD Ord. No. M. 007/14.0001

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	300	Cu ²⁺	100	NO ₃ ⁻	1,000
Al ³⁺	1,000	Fe ²⁺	300	PO ₄ ³⁻	1,000
Ba ²⁺	10	Fe ³⁺	100	S ²⁻	10
Ca ²⁺	1,000	K ⁺	1,000	Sn ²⁺	300
Cd ²⁺	1,000	Mg ²⁺	1,000	SO ₃ ²⁻	10
Cl ⁻	1,000	Na ⁺	1,000	SO ₄ ²⁻	1,000
CN ⁻	1,000	Ni ²⁺	1,000	Sr ²⁺	100
Co ²⁺	1,000	NO ₂ ⁻	1,000	Zn ²⁺	1,000

Merckoquant® Lead Test
Presentation 100 test strips and reagent
Graduation 0 – 20 – 40 – 100 – 200 – 500 mg/l Pb²⁺

Despite being toxic, lead is a very versatile material that is still used, for instance, for cable sheathing, for protecting against x-ray and gamma radiation, in batteries, for manufacturing tubes and containers, and as a surface coating (red lead).
The test is only able to detect ionic lead; it cannot detect tetraethyllead as formerly used in leaded gasoline.
It can, however, detect lead and lead oxide deposited as combustion products in exhaust systems, on catalytic converters and on surfaces.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	25	Cu ²⁺	100	NO ₃ ⁻	1,000
Al ³⁺	1,000	Fe ²⁺	25	Pb ²⁺	1,000
Ca ²⁺	1,000	Fe ³⁺	10 ⁺	PO ₄ ³⁻	1,000
Cl ⁻	1,000	K ⁺	1,000	S ²⁻	10
CN ⁻	1,000	Mg ²⁺	1,000	Sn ²⁺	25
Co ²⁺	50	Ni ²⁺	1,000	SO ₃ ²⁻	100
Cr ³⁺	0.05	Na ⁺	1,000	SO ₄ ²⁻	1,000
CrO ₄ ²⁻	10	NO ₂ ⁻	10	Zn ²⁺	1,000

Mn²⁺ MANGANESE Ord. No. 1.10080.0001

Merckoquant® Manganese Test
Presentation 100 test strips and reagents
Graduation 0 – 2 – 5 – 20 – 50 – 100 mg/l Mn²⁺

The Manganese Test can be used for routine testing of ground water, industrial water and effluent.
It can also be used for quality control purposes wherever manganese compounds are used in the manufacture of pigments, paints and anti-corrosives, in tanneries, and within the textile industry.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	100	CrO ₄ ²⁻	100	Ni ²⁺	1,000
Al ³⁺	1,000	Cu ²⁺	10	NO ₂ ⁻	1,000
Ca ²⁺	1,000	Fe ^{2+/3+}	1,000	NO ₃ ⁻	1,000
Cd ²⁺	1,000	Hg ²⁺	100	Pb ²⁺	1,000
Cl ⁻	1,000	K ⁺	1,000	PO ₄ ³⁻	1,000
CN ⁻	1,000	Mg ²⁺	1,000	S ²⁻	10
Co ²⁺	1,000	MnO ₄ ⁻	1,000	Sn ²⁺	10
Cr ³⁺	1,000	Na ⁺	1,000	Zn ²⁺	1,000

Mo⁶⁺ MOLYBDENUM Ord. No. 1.10049.0001

Merckoquant® Molybdenum Test
Presentation 100 test strips and reagent
Graduation 0 – 5 – 20 – 50 – 100 – 250 mg/l Mo⁶⁺

The Molybdenum Test is chiefly used in the analysis of boiler water and cooling water as a means of measuring levels of molybdenum or molybdate added to inhibit corrosion.
The test can also be used to determine molybdenum on metallic surfaces, e.g. in order to differentiate between stainless steels with and without molybdenum (V 4A and V 2A, respectively).

Ni²⁺ NICKEL Ord. No. 1.10006.0001

Merckoquant® Nickel Test
Presentation 100 test strips
Graduation 0 – 10 – 25 – 100 – 250 – 500 mg/l Ni²⁺

Typical applications for the Nickel Test include the testing of waste water and electroplating solutions. It also has various applications in the glass and ceramics industry, in the testing of catalysts and of mordants used for textile printing. It is a simple way of detecting metallic nickel in alloys and electroplated objects.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1,000	CrO ₄ ²⁻	1,000	Na ⁺	1,000
Al ³⁺	1,000	Cu ²⁺	1,000	NH ₄ ⁺	1,000
Ca ²⁺	1,000	Fe ^{2+/3+}	50 ⁺	NO ₂ ⁻	1,000
Cd ²⁺	1,000	[Fe(CN)] ^{3+/4-}	10	NO ₃ ⁻	1,000
Cl ⁻	1,000	Hg ⁺	220	Pb ²⁺	1,000
CN ⁻	50	Hg ²⁺	750	PO ₄ ³⁻	1,000
Co ²⁺	50	K ⁺	1,000	SO ₄ ²⁻	1,000
Cr ³⁺	1,000	Mg ²⁺	1,000	Zn ²⁺	1,000

NO₃⁻ NITRATE Ord. No.

Merckoquant® Nitrate Test			1.10020.0001
Presentation	100 test strips		
Graduation	0 - 10 - 25 - 50 - 100 - 250 - 500 mg/l NO ₃ ⁻		
Merckoquant® Nitrate Test			1.10020.0002
Presentation	25 test strips		
Graduation	0 - 10 - 25 - 50 - 100 - 250 - 500 mg/l NO ₃ ⁻		

Nitrate must be closely monitored in drinking water, process water and waste water, as well as in aquarium water where limits can quickly be exceeded. Farm produce and fruit juices often contain excessive amounts of nitrate because too much fertilizer has been applied to the crop. Apart from affecting quality and keeping properties, high concentrations of nitrate in foods can damage health.

A common cause of limits being exceeded is overfertilizing with fertilizer in agriculture and horticulture. Here, too, the test can be used to test nitrogen levels in soil samples and so control and optimize the application of fertilizer.

Individually sealed test strips are also available in bulk packs for special actions.

Examples:

Content	Ord. No.
1,000 test strips	1.10092.0022
25,000 test strips	1.10092.0023
With 2 reaction zones: nitrate reaction zone and additional nitrite warning zone	

5,000 test strips, individually sealed	1.10091.0022
25,000 test strips, individually sealed	1.10091.0023

With just nitrate reaction zone

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	50	Fe ³⁺	250	NO ₂ ⁻	0.5
Al ³⁺	1,000	[Fe(CN) ₆] ^{3-/4-}	100	PO ₄ ³⁻	1,000
Ca ²⁺	1,000	Hg ²⁺	50	S ²⁻	25
Cl ⁻	1,000	Hg ²⁺	100	SCN ⁻	100
CN ⁻	1,000	K ⁺	1,000	SO ₃ ²⁻	500
Co ²⁺	1,000	Mg ²⁺	1,000	SO ₄ ²⁻	1,000
CrO ₄ ²⁻	20	Mn ²⁺	1,000	S ₂ O ₃ ²⁻	250
Cu ²⁺	1,000	MnO ₄ ⁻	10	Zn ²⁺	1,000
Fe ²⁺	500	NI ²⁺	1,000		

NO₂⁻ NITRITE Ord. No. 1.10022.0001

Merckoquant® Nitrite Test			
Presentation	100 test strips		
Graduation	0 – 0.1 – 0.3 – 0.6 – 1 – 2 – 3 g/l NO ₂ ⁻		

Agents containing high levels of nitrite are used as corrosion inhibitors in the cooling systems of cars, trucks and ships' engines. They are also found in the heat transfer media used in solar powered systems. Regular testing avoids problems and provides the necessary protection against corrosion.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1,000	Cu ²⁺	1,000	NO ₃ ⁻	1,000
Al ³⁺	1,000	Fe ^{2+/3+}	500	PO ₄ ³⁻	1,000
Ca ²⁺	1,000	Hg ^{2+/2+}	500	S ²⁻	100
Cd ²⁺	1,000	K ⁺	500	Sn ²⁺	100
Cl ⁻	1,000	Mg ²⁺	1,000	SO ₃ ²⁻	1,000
CN ⁻	1,000	Mn ²⁺	1,000	SO ₄ ²⁻	1,000
Co ²⁺	1,000	MnO ₄ ⁻	500	S ₂ O ₃ ²⁻	500
Cr ³⁺	1,000	NH ₄ ⁺	1,000	Zn ²⁺	1,000
CrO ₄ ²⁻	500	NI ²⁺	1,000	EDTA	500



The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ag ⁺	1,000	Fe ²⁺	1,000	Pb ²⁺	1,000
Al ³⁺	1,000	Fe ³⁺	100	PO ₄ ³⁻	1,000
Ba ²⁺	1,000	[Fe(CN) ₆] ³⁻	25	S ²⁻	25
Cd ²⁺	1,000	[Fe(CN) ₆] ⁴⁻	100	SCN ⁻	100
Cl ⁻	1,000	K ⁺	1,000	SO ₃ ²⁻	500
CN ⁻	1,000	Mg ²⁺	1,000	SO ₄ ²⁻	1,000
Co ²⁺	1,000	Mn ²⁺	1,000	S ₂ O ₃ ²⁻	250
Cr ³⁺	1,000	MnO ₄ ⁻	5	Zn ²⁺	1,000
CrO ₄ ²⁻	10	Ni ²⁺	1,000		
Cu ²⁺	1,000	NO ₃ ⁻	1,000		

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ascorbate	10	Fe ²⁺ /Fe ³⁺	10	SO ₃ ²⁻	100
Free Cl ₂	10	Formaldehyde	1,000	NO ₃ ⁻	1,000
Bound Cl ₂	5	H ₂ O ₂	1,000	Total hardness: 38° d (1° d = 10 mg/l CaO)	

NO₂⁻ Nitrite

Merckoquant® Nitrite Test 1,10007,0001

Presentation 100 test strips
Graduation 0 - 2 - 5 - 10 - 20 - 40 - 80 mg/l NO₂⁻

Merckoquant® Nitrite Test 1,10007,0002

Presentation 25 test strips
Graduation 0 - 2 - 5 - 10 - 20 - 40 - 80 mg/l NO₂⁻

Nitrite is a pollution indicator. The test therefore has interesting application possibilities in the analysis of drinking water, waste water and aquarium water, and of cutting oils, in which nitrite may occur as a decomposition product. Nitrite compounds are also used as additives in various foods and, as a consequence, the test is useful for determining nitrite in meat products, pickling solutions, brine and deep frozen spinach, as well as in milk and dairy products.

PERACETIC ACID

Ord. No.

Merckoquant® Peracetic acid Test 1,10084,0001

Presentation 100 test strips
Graduation 0 - 5 - 10 - 20 - 30 - 50 mg/l peracetic acid

Merckoquant® Peracetic acid Test 1,10001,0001

Presentation 100 test strips
Graduation 0 - 100 - 150 - 200 - 250 -
300 - 400 - 500 mg/l peracetic acid

Merckoquant® Peracetic acid Test 1,17922,0001

Presentation 100 test strips
Graduation 0 - 500 - 1000 - 1500 - 2000 mg/l peracetic acid

Peracetic acid is a commonly used disinfectant. The test is suited for the selective determination of peracetic acid traces in aqueous solutions and for checks for the absence of peracetic acid after rinsing processes, also in cases in which hydrogen peroxide is present.

The Peracetic Acid Tests for higher concentrations of peracetic acid are eminently suitable for checking that the prescribed end concentrations of peracetic acid-based detergents are being maintained. Regular monitoring is recommended as peracetic acid solutions are very unstable.

Strong oxidizing agents such as halogens (chlorine, bromine, iodine) and hypochlorite can produce "false-positives".

O ₂ ² PEROXIDE		Ord. No.
Merckoquant® Peroxide Test		1.10011.0001
Presentation	100 test strips	
Graduation	0 – 0.5 – 2 – 5 – 10 – 25 mg/l H ₂ O ₂	
Merckoquant® Peroxide Test		1.10011.0002
Presentation	25 test strips	
Graduation	0 – 0.5 – 2 – 5 – 10 – 25 mg/l H ₂ O ₂	
Merckoquant® Peroxide Test		1.10081.0001
Presentation	100 test strips	
Graduation	0 – 1 – 3 – 10 – 30 – 100 mg/l H ₂ O ₂	

The Peroxide Test detects inorganic and organic compounds that contain a peroxide or hydroperoxide group. It is ideal, therefore, for the routine checking of simple ethers. Polymeric peroxides, on the other hand, are only detected with reduced sensitivity, if at all.

Peroxide is an all purpose disinfectant which, due to its excellent antiviral, bactericidal and fungicidal action, is widely used in the food industry. Here, the test is ideal for testing for residues on equipment or the product itself following cleaning and rinsing. The Peroxide Test with the higher measuring range is especially suitable for monitoring prescribed cleaning agent concentrations. With it, the sample does not need to be diluted. Regular monitoring is recommended as peroxide solutions are very unstable.

O ₂ ² PEROXIDE		Ord. No. 1.10337.0001
Merckoquant® Peroxide Test		
Presentation	100 test strips	
Graduation	0 – 100 – 200 – 400 – 600 – 800 – 1000 mg/l H ₂ O ₂	

This Peroxide Test covers very high substance concentrations and is thus eminently suitable for checking high-strength cleaning solutions without the need to dilute the samples. Regular monitoring is recommended as peroxide solutions are very unstable. This applications for this test are the same as for the two other tests, the only difference being that the use of a different detection method means that the interfering ions also differ.

pH		Ord. No. 1.09535.0001
pH Indicator Strips, non-bleeding		
Presentation	100 test strips	
Graduation	0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 – 11 – 12 – 13 – 14 pH	

These pH Indicator Strips contain special indicators or reactive dyes that are covalently bound to the cellulose of the reagent paper. The production process gives the pH Indicator Strips significant benefits over simple indicator papers in that they have universal applications. As the indicator does not bleed, the test strips can be left in weakly buffered solutions without causing contamination of the medium being tested.

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

CrO ₄ ²⁻	10	IO ₄ ⁻	40	VO ₃ ⁻	5
[Fe(CN) ₆] ^{3/4-}	10	MnO ₄ ⁻	2		
Hg ⁺	250	S ₂ O ₈ ²⁻	20		

The following concentrations of foreign ions (in mg/l) do not interfere with the determination.

Ascorbate	100	Fe ²⁺	5	NO ₃ ⁻	500
Free Cl ₂	100	Fe ³⁺	5	SO ₃ ²⁻	5
Bound Cl ₂	100	Formaldehyde	1,000	Total hardness	70 °d
				(1 °d = 10 mg/l CaO)	

► The "pH Tests at a glance" brochure lists the full range of pH indicator strips and pH indicator papers.