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Enzytec™ Color Iron test

The determination of iron concentration belongs to the range of colorimetric tests performed in analysis of wine as the determination of copper, SO₂ free, SO₂ total and tartaric acid. These tests are based on the use of chromogens, without any enzyme involved in the reaction.

R-Biopharm has offered until now only enzymatic test combinations from Roche Diagnostics (Yellow Line) and the product line of Enzytec™. To cover the needs of these colorimetric tests in wine laboratories, in which R-Biopharm is strongly present, a new product line called **Enzytec™ Color** is launched. The first kit of this product line is the new Enzytec™ Color Iron test (Art. No. E2300).

The test principle is that iron is dissociated from proteins and reduced through ascorbic

acid. It will then react with the chromogenic reagent (Ferene-S) and build a stable blue complex, which is measured at 582 nm and proportional to the concentration of iron in the sample.

The reagents are all liquid and ready to use:

Reagent 1:
4 vials with approx. 84 ml each (buffer > 0.1 mol/l)

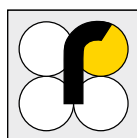
Reagent 2:
4 vials with approx. 16 ml each (Ferene-S > 0.1 mmol/l; Ascorbic acid > 0.1 mol/l)

Standard:
1 x 5 ml (iron 20 mg/l)

The practical test procedure is similar to a typical Enzymatic kit, because it is also an end-point reaction with 2 reagents even though there is no enzyme involved:

Pipette into cuvettes:	Reagent blank	Standard	Samples
Reagent 1 (buffer)	1680 µl	1680 µl	1680 µl
Distilled water	100 µl	-	-
Standard (vial 3)	-	100 µl	-
Sample	-	-	100 µl
Mix and read the absorbance A1 after approx. 5 min at 25 to 37 °C. Then add:			
Reagent 2 (Ferene-S)	320 µl	320 µl	320 µl
Mix and read the absorbance A2 after approx. 10 min at 25 to 37 °C. The colour is stable for approx. 30 min at room temperature.			

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For testing red wines, results were improved by adding PVP (Polyvinyl pyrrolidone) to the reagent 1, with a final concentration of approx. 5 g/l. For this purpose, a solution at 200 g/l is prepared and added into the reagent 1 (2.1 ml in one vial of 84 ml).



The absorbance measured for the samples cannot be converted into concentrations with the Lambert-Beer formula, because the extinction

coefficient of the chromogen (Ferene-S) is not known. For this reason, the test is calibrated via a standard which has exactly 20 mg/l of Iron. The measured optical density from a sample is compared to the standard and allows calculation of the concentration:

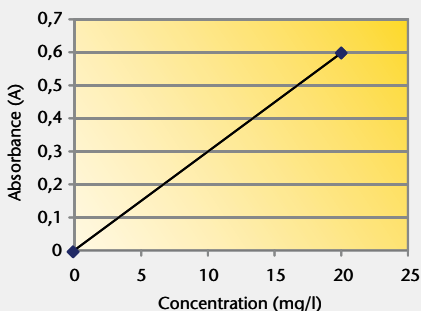
$$C_{\text{Sample}} [\text{mg/l}] = (\Delta E_{\text{Sample}} / \Delta E_{\text{Standard}}) \times 20$$

This calculation is equivalent to a linear calibration curve, as displayed here below with the example from a typical run:

Standards	mg/l	OD (ΔE)
Zero	0.0	0.000
Standard Iron (vial 3)	20.0	0.598

Reagent Blank 0.015 (ΔE)

Controls	Target value (mg/l)	Result (mg/l)	Recovery
Iron control 1	10.0	10.1	101.0 %
Iron control 2	5.0	4.91	98.2 %
Iron control 3	40.0	40.1	100.2 %



The result from control 3 shows that the test is linear up to 40 mg/l. The sample reached a ΔA around 1.198, which is twice as much as the 20 mg/l standard ($\Delta A = 0.598$). Therefore, the test is linear (proportional) up to this high absorbance range and so sample results can be extrapolated up to 40 mg/l. The measuring range as stated in the package insert goes from 0 to 40 mg/l accordingly.

The lowest detection limit varies in each lab, considering the absorbance difference that

can be measured in a reproducible way (depending on the quality of the instruments and on the operator):

for $\Delta A = 0.050$, the limit is approx. 1.67 mg/l

for $\Delta A = 0.020$, the limit is approx. 0.67 mg/l

These limits can be improved to lower levels by increasing the sample volume in the test. This kit is therefore suited for measuring iron concentration in many types of food samples, even to very low concentrations.

RIDASCREEN®FAST Crustacean

R-Biopharm now offers a sandwich enzyme immunoassay for the quantitative analysis of crustacean proteins in raw or cooked food such as crab cocktails, sauces, salad dressings, soups or asian meals.



The limit of detection of RIDASCREEN®FAST Crustacean (Art. No. R7302) is 0.17 ppm (mg/kg) crustacean protein. One of the crustacean proteins is Tropomyosin which belongs to the muscle proteins of all vertebrates and invertebrates. It represents the main allergen in crustaceans.

The fibrous, rod-shaped protein is heat-stable and thus is suitable for the detection of crustaceans in processed food samples.

Shrimp, prawns, krill, lobster, langouste, crayfish and crab are described as crustaceans.

Crustaceans can cause allergic reactions, severe sensitizations are not rare. Allergies to crustaceans occur more frequently in adults and remain there for life.

Under the European Allergen Regulation EU 2007/68/EC, Annex IIIa crustaceans have to be declared in food.

RIDA®QUICK Gliadin (single packaged)

In supplement to the current RIDA®QUICK Gliadin kit (Art. No. R7003), R-Biopharm will introduce an additional Gliadin test with single-packaged test strips starting in September 2011. The supplementary RIDA®QUICK Gliadin kit (Art. No. R7004) is used for testing of single wipe samples collected, for example, in production areas of food manufacturing. Its single-packaged format prevents contamination and other problems from affecting the remaining test strips. This system for qualitative determina-

tion of gluten on surfaces is used for hygiene monitoring and for detection of potential gluten contamination in supposedly gluten-free raw material. It detects prolamins from wheat, rye and barley and has no cross-reactivity with oats, soy, corn, rice, millet, buckwheat or other cereals. The test system has no overloading effects. The RIDA®QUICK Gliadin test strips have a detection limit of 0.5 µg gliadin per 100 cm² surface area and 2.5 ppm (mg/kg) gliadin in raw material.

Our products

Early detection of EHEC contamination – A sure thing with the test systems manufactured by R-Biopharm

The appearance of a strain of enterohemorrhagic *Escherichia coli* (EHEC) last May not only kept German physicians and food inspectors in suspense, but was a source of concern in neighboring countries in the region as well. The causative agent, enterohemorrhagic *E. coli* strain O104:H4, apparently entered the human food chain by way of contaminated fenugreek seeds, resulting in the development of hemolytic uremic syndrome (HUS) – a life-threatening complication – in a number of infected patients. Hemolytic uremic syndrome results in kidney failure, which was the ultimate cause of death in nearly 48 cases.

Apart from the significant health risks of EHEC infection for consumers, the recent outbreak of enterohemorrhagic *E. coli* infection also led to significant revenue losses for producers of fresh vegetables. The damages associated with the epidemic have already run into the millions. It took until early July to determine precisely which foodstuff was the original source of the infection. This protracted search highlights the importance of conducting regular EHEC inspections in relevant foods. Meat and dairy products are the main sources of *E. coli* contamination. However, the latest outbreak showed that raw vegetables also play quite an important role.

The R-Biopharm company offers a wide range of test systems for early detection of *E. coli* contamination and for identification of

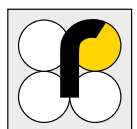
pathogenic *E. coli* strains (STEC, VTEC and EHEC). The RIDASCREEN® Verotoxin (R5701) test kit allows the detection of *E. coli* toxins SLT1 and SLT2 in test samples on an immunological basis. Therefore, the test ensures unequivocal identification of contamination with pathogenic *E. coli*.

The same applies to real-time PCR tests for identification of the pathogenicity factors associated with EHEC strains at the molecular biological level. The SureFood® PATHOGEN system manufactured by CONGEN, our affiliate company in Berlin, can be used to confirm the presence of pathogenic *E. coli* strains in food samples by detecting their *stx 1* and *stx 2* genes (STEC Screening PLUS V/R/LC, Art. No. S5105V/R/LC).

Two very simple methods for detection of *Escherichia coli* contamination are the RIDA®COUNT *E. coli* (R1006) and RIDA®COUNT *E. coli*/Coliform (R1007) systems, which are also suitable for use by small laboratories for internal control testing. The ready-to-use test cards in these kits are simple and reliable tools for determining the general presence or absence of pathogenic *E. coli* strains in food samples or on surfaces. If these tests are positive, samples should be submitted to an accredited laboratory to determine whether the detected organisms are harmless bacteria or pathogenic *E. coli*.

If you are interested in our products,

please contact your local distributor.



Information from R-Biopharm Rhône (RBR), Scotland

New Application Notes available

Coconut	Oats	Beer	Cinnamon	Baby Food	Bee Pollen
EASI-EXTRACT® Aflatoxin and AFLAPREP®	DONPREP®	DZT MS-PREP®	EASI-EXTRACT® Aflatoxin	EASI-EXTRACT® Zearalenone	EASI-EXTRACT® Chloramphenicol

Instructions for Use

R-Biopharm Rhône would like to remind customers that the instructions for use for all RBR-products will be changing in order to follow the format that R-Biopharm AG products currently use. Already in this format are the liquid standards, the solid phase

columns for Aflatoxin and Ochratoxin and pectinase. Currently in preparation are DONPREP®, EASI-EXTRACT® Zearalenone and FUMONIPREP® with others to follow in the course of next time.

EASI-EXTRACT® Chloramphenicol FAPAS Round

R-Biopharm Rhône Ltd recently took part in FAPAS round 02169 which looked at levels of chloramphenicol in prawns.

A z-score of '0' using the EASI-EXTRACT® Immunoaffinity Columns under lab number 67 was achieved.

Fairs and conferences Representative: R-Biopharm AG



18.09. - 21.09.2011	AOAC Annual Meeting Sheraton, New Orleans, USA http://www.aoac.org/meetings1/125th_annual_mtg/main_2.htm
27.09. - 29.09.2011	3rd MoniQa International Conference Hotel Meliá Grand Hermitage, Varna, Bulgarija http://varna2011.moniqa.org/
10.10. - 12.10.2011	AOAC International Workshop University of Erlangen, Germany http://www.aoaceurope.com/
12.10. - 14.10.2011	Analytica Anacon India Bombay Exhibition Center, Mumbai, India http://www.analyticaindia.com/
16.10. - 19.10.2011	AACC International annual Meeting Palm Springs Convention Center, Palm Springs, USA http://meeting.aaccnet.org
01.11. - 04.11.2011	RAFA Recent Advances in Food Analysis Clarion Congress Hotel, Prague, Czech Republic http://www.rafa2011.eu
15.11. - 18.11.2011	ISM-MycoRed Argentina Convention Center Mendoza, Argentina http://mycored2011.com.ar

The next R-Biopharm^{news} will be published in the IVth quarter 2011.

R-Biopharm^{news} is edited by

R-Biopharm AG
An der neuen Bergstraße 17
64297 Darmstadt, Germany
Reg.-Nr.: Amtsgericht Darmstadt, HRB 8321
Phone: +49 (0) 61 51 - 81 02-0
Fax: +49 (0) 61 51 - 81 02-40
E-mail: info@r-biopharm.de
www.r-biopharm.com

r-biopharm

