RANDOX

IRON (Fe)

Colorimetric Method for Wine Analysis
RX ALTONA

FOR FULL PRODUCT DETAILS, PLEASE REFER TO THE KIT INSERT.

FOR THE ANALYSIS OF FOOD AND WINE. Not for use in diagnostic procedures.

INTENDED USE

For the quantitative determination of Iron in wine. This product is suitable for manual use and on the Rx **altona** analyser.

Cat. No.			
SI 257	R1.	Chromogen	1 x 10 ml
	R2.	Reductant	1 x 15 ml
	R3.	Buffer	2 x 100 ml
	CAL	Standard	1 x 10 ml

SIGNIFICANCE

Trace iron concentrations can be beneficial for enzyme activity however at higher concentrations it can favour oxidation thus altering the sensory characteristics of the wine. Furthermore it can form complexes with tannins and phosphates which results in precipitates more commonly referred to as casse.

PRINCIPLE[1,2,3]

Ferric iron is dissociated from its carrier protein, transferrin, in an acid medium and simultaneously reduced to the ferrous form. The ferrous iron is then complexed with the chromogen, a sensitive iron indicator, to produce a blue chromophore which absorbs maximally at 595 nm.

SAMPLE

Red, white and rosé wine. Turbid samples should be filtered prior to assay. Sample dilution with ddH_2O is only required when iron concentration is > 14 mg/L.

SAMPLE PRE-TREATMENT

All wine samples should be pre-treated with citric acid solution prior to assay as follows;
Prepare citric acid solution by dissolving 1.44g citric acid per 1ml ddH_2O. Mix well and ensure all citric acid is dissolved. Add 20µl citric acid solution per 1ml wine sample and mix well by pipetting. Continue assay as instructed.

SAFETY PRECAUTIONS AND WARNINGS

For the analysis of food and wine. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.

Buffer R3 contains Sodium Azide. Avoid ingestion or contact with skin or mucous membranes. In case of skin contact, flush affected area with copious amounts of water. In case of contact with eyes or if ingested, seek immediate medical attention.

Sodium Azide reacts with lead and copper plumbing, to form potentially explosive azides. When disposing of such reagents flush with large volumes of water to prevent azide build up. Exposed metal surfaces should be cleaned with 10% sodium hydroxide.

Buffer also contains dimethyl sulphoxide which is harmful. Avoid contact with skin and eyes.

Health and Safety data sheets are available on request.

The reagents must be used only for the purpose intended by suitably qualified laboratory personnel, under appropriate laboratory conditions.

STABILITY AND PREPARATION OF REAGENT

R2. Reductant

Dissolve the contents of one vial of Reductant R2 with **15 ml** of iron-free deionised water. Stable for 4 weeks at +4 to +8°C.

All other reagents are ready for use as supplied. Stable to expiry date when stored at +15 to +25°C.

MATERIALS PROVIDED

Chromogen
Reductant
Buffer
Standard

MATERIALS REQUIRED BUT NOT PROVIDED

Citric acid
Double deionised water.

PROCEDURE

Select Iron in the Test Screen. Then select Run Calibration or Run Sample and carry out a water blank as instructed.

Pipette into a cuvette:

	Reagent Blank / S0	Standard S1	Sample
Buffer	500 µl	500 µl	500 µl
Reductant	25 µl	25 µl	25 µl
Iron-free water	125 µl	-	-
Standard	-	125 µl	-
Sample	-	-	125 µl

Mix, insert the cuvette into the RX **altona** flowcell holder and press Read.

Chromogen	25 µl	25 µl	25 µl

Mix and incubate for 15 minutes at +20 to +25°C. Insert the cuvette into the RX **altona** flowcell holder and press Read.

CALIBRATION

Recommended with change in reagent lot or as indicated by quality control procedures, using CAL standard provided in kit

SPECIFIC PERFORMANCE CHARACTERISTICS

The following performance data were obtained using a Rx **altona** analyser in cuvette mode at +25°C.

LINEARITY

The method is linear up to a concentration of 14 mg/L. Samples above this concentration should be diluted 1 + 1 with iron-free deionized water and reassayed. Multiply the result by 2.

SENSITIVITY

The minimum detectable concentration of Iron was determined as 0.20 mg/L.

PRECISION

Intra Assay Precision

	Level 1	Level 2	Level 3
Mean (mg/L)	3.96	7.65	11.71
SD	0.060	0.245	0.142
CV(%)	1.50	3.20	1.22
n	20	20	20

Inter Assay Precision

	Level 1	Level 2	Level 3
Mean (mg/L)	3.97	7.65	11.85
SD	0.059	0.334	0.120
CV(%)	1.48	4.37	1.01
n	20	20	20

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