

COPPER (Cu)

MANUAL RX MONZA

INTENDED USE

For the quantitative of Copper in food and wine. This product is suitable for manual use and on the RX **monza**.

Cat. No.

CU 2340	R1a. Buffer	1 x 105 ml
1 x 100 ml	R2. Chromogen	1 x 30 ml
	R1b. Reagent	5 x 20 ml
	Standard (CAL)	1 x 5.5 ml

PRINCIPLE⁽¹⁾

At pH 4.7 copper, is released by a reducing agent. It then reacts with a specific colour reagent, 3,5-Di-Br-PAESA 4-(3,5-Dibromo-2-pyridylazo)-N-Ethyl-N-(3-sulphopropyl) aniline, to form a stable, coloured chelate. The intensity of the colour is directly proportional to the amount of copper in the sample.

SAMPLE

White wine only. Turbid samples should be filtered prior to assay.

REAGENT COMPOSITION

Contents	Initial Concentrations
R1a. Buffer	
Acetate Buffer	0.2 mol/l, pH 4.7
Non reactive stabilizers	
R2. Chromogen	
Acetate Buffer	0.2 mol/l, pH 4.7
Complexant 3,5-Di-Br-PAESA	
R1b. Reagent	
Ascorbic Acid	
Standard (CAL)	See lot specific insert

SAFETY PRECAUTIONS AND WARNINGS

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

Solution R1 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.

Health and Safety data sheets are available on request.

Please dispose of all biological and chemical materials according to local guidelines.

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

STABILITY AND PREPARATION OF REAGENTS

R1a. Buffer

Supplied ready for use. Stable up to expiry date when stored at +2 to +8°C.

R2. Chromogen

Supplied ready for use. Stable up to expiry date when stored at +2 to +8°C.

R1b. Reagent

Disolve the contents of 1 vial of Reagent R1b with **20 ml** of Buffer R1a. Ensure that contents are completely dissolved. Stable for 2 weeks at +2 to +8°C.

Standard (CAL)

Supplied ready for use. Stable up to expiry date when stored at +2 to +8°C.

MATERIALS PROVIDED

Buffer
Chromogen
Reagent
Standard

MATERIALS REQUIRED BUT NOT PROVIDED

dH₂O

PROCEDURE I

Select an open channel in Run Test screen, enter the assay parameters exactly as they appear on the page and save. Select Run and carry out a water blank as instructed.

Pipette into a cuvette:

	Reagent Blank S0	Standard S1	Sample
Redist. Water	60 µl	-	-
Standard	-	60 µl	-
Sample	-	-	60 µl
Reagent I	500 µl	500 µl	500 µl

Mix, incubate for 60sec at 37°C.

Insert the cuvette into the RX **monza** flowcell holder when prompted for Sample Blank and press Read.

	Reagent Blank S0	Standard S1	Sample
Chromogen R2	125µl	125µl	125µl

Mix, incubate for a further 5min at 37°C.

Insert the cuvette into the RX **monza** flowcell holder when prompted for Sample and then press Read.

CALIBRATION FOR RX MONZA

Recommended daily, using CAL Standard in kit.

FOR MANUAL USE

Temperature:	37°C
Wavelength:	580 nm (570 - 590 nm)
Pathlength:	1 cm
Reaction:	Endpoint
Measurement:	Against Reagent Blank

Pipette into cuvette:-

	Reagent Blank	Standard	Sample
Double Distilled H ₂ O	120 µl	-	-
Sample Supernatant	-	-	120 µl
Standard Supernatant	-	120 µl	-
Reagent I	1000 µl	1000 µl	1000 µl

Mix and allow to stand for 60 seconds at 37°C. Read initial absorbance (A₁) of sample and standard against the reagent blank.

	Reagent Blank	Standard	Sample
Chromogen (R2)	250 µl	250 µl	250 µl

Mix, incubate for 5 minutes at 37°C and read final absorbance (A₂) against reagent blank.

MANUAL CALCULATION

$$\Delta A = A_2 - A_1$$

$$\text{Concentration} = \frac{\Delta A_{\text{sample}}}{\Delta A_{\text{standard}}} \times \text{conc. of standard}$$

SPECIFIC PERFORMANCE CHARACTERISTICS

The following performance characteristics were obtained using an RX **monza** analyzer in cuvette mode at 37°C.

LINEARITY

The method is linear up to 7.25mg/L.

SENSITIVITY

The minimum detectable concentration of Copper with an acceptable level of precision was determined as 0.2mg/L.

PRECISION

Within run precision

	Level 1	Level 2	Level 3
Mean mg/l	1.158	2.37	4.49
SD	0.069	0.094	0.099
CV(%)	4.36	3.69	2.21
n	20	20	20

Between run precision

	Level 1	Level 2	Level 3
Mean mg/l	1.551	2.601	4.659
SD	0.056	0.046	0.070
CV(%)	3.59	1.75	1.49
n	20	20	20

REFERENCES

1. Abe. A. *et al.* Clin. Chem. 1989; **35/4** 552-554.
2. Jacobs *et al.* Laboratory Test handbook Ed. 2.

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