

HI 83740 Photometer

FOR THE DETERMINATION OF COPPER IN WINE



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Copper and its Sources

Copper, in small amounts, is an important catalyst in metabolic activities of microorganisms. In the US, copper content of musts and wine normally ranges from less than 0.1 to 0.30 mg/L. When found in higher levels, copper plays an important role in catalyzing oxidation of wine phenols. Concentrations of copper higher than 1 mg/L may be considered toxic. When found at levels higher than 9 mg/L, copper becomes a metabolic toxin and it delays alcoholic fermentation.

Three sources are attributed to the presence of copper in wine:

1. vineyards sprays;
2. winery equipment;
3. addition of copper salts in winery operations.

Also, the use of copper based fungicides in order to control mildew may lead to significant increases if copper contents in musts.

Why it is important to monitor Copper in wine

Instability, which is initially manifested as a white haze (white wines) and later as a reddish-brown precipitate, could result from storage of bottled wine containing levels of copper above 0.5 mg/L. The precipitated casse (see table 1) develops only in the strong reducing conditions found in bottled wine. Instability can damage the quality of wine irreparably. Excessive levels of copper are toxic. Excessive levels of copper in wine may be removed or reduced by treatment of potassium ferrocyanide (blue fining, see table 2).





HANNA's HI 83740 is an invaluable instrument to monitoring this crucial parameter in the process of wine making. With a few simple steps wine makers can quickly and accurately measure copper content in wine directly in mg/L.

\$495.00

ESTIMATED RETAIL PRICE



4 Easy Steps to Measuring Copper in wine

1	<p>Prepare two separate samples to be measured by mixing 15 ml of wine with the reagent in each.</p> 
2	<p>Fill the measuring cuvet with the prepared sample.</p> 
3	<p>Zero the instrument.</p> 
4	<p>Read the concentration of copper expressed in mg/L.</p> 

Optical system of HI 83740

The HI 83740 uses a tungsten light source and a narrow band filter of 560 nm

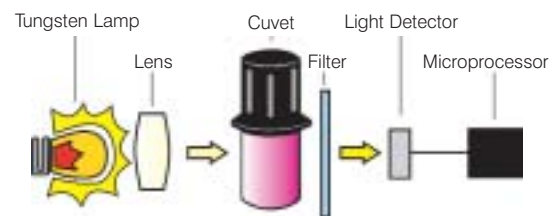


Table 1: Factors favoring copper casse

Conditions for copper casse formation	Preventive Measures
Strongly reducing conditions	Maintain copper levels at less than 0.3 mg/L
Absence (or very low levels) of iron	Cold-stabilize and bentonite fine
Light/heat which may hasten formation	Limit additions of SO ₂

Table 2: Copper elimination with potassium ferrocyanide treatment

Wine before treatment		Wine after Fe(CN) ₆ K ₄ treatment (blue fanning)
Iron (mg/L)	Copper (mg/L)	Copper (mg/L)
20	5	0.2
10	5	0.5
5	5	1.0
2.5	5	1.5
1	5	2.0
Small traces	5	3.0

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Ordering Information

HI 83740 is supplied complete with reagents for 5 tests, (2) spoons, (2) 1 ml pipettes, (2) 3 ml pipettes, (2) cuvetts with caps, (2) sample preparation vials, tissue for wiping cuvetts, 12 VDC power adapter, (4) 1.5V AA batteries and instruction manual in a hard carrying case.



Specifications	HI 83740 Copper Photometer
Range	0.00 to 0.50 mg/L
Accuracy	Typical $\pm 5\%$
Light Source	Tungsten lamp with narrow band interference filter @ 560 nm
Sensor	Silicon photocell
Method	Extraction method 2.2 bichinoline
Environment	0 to 50°C; max 95% RH non-condensing
Battery Type	(4) 1.5V AA batteries/12 VDC adapter
Auto Shut-off	After 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	500 g

Recommended Accessories

- HI 83740-20 Copper reagents (20 tests)
- HI 731318 Cuvet tissue (4 pcs)
- HI 731321 Glass cuvetts (4 pcs)
- HI 710006 12 VDC power supply



Authorized Distributor



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instruments
With Great Products, Come Great Results™