

Photometer

for the Determination of Concentration of Reducing Sugars



"HANNA meters are the best for wine producers because they are portable and give very quick results."

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Wine Specialist—Cantina Montelliana
Italia

SPECIFICATIONS

HI 83746 Reducing Sugars Photometer

Range	0.00 to 50.00 mg/L
Precision	±0.50 @ 10.00 g/L
Resolution	0.25 g/L
Light Source	Tungsten lamp with narrow band interference filter @ 610 nm
Sensor	Silicon photocell
Method	Fehling
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	224 x 87 x 77 mm (8.7 x 3.3 x 3.1")
Weight	512 g (17.6 oz)

ORDERING INFORMATION

HI 83746-01 (115V) and **HI 83746-02** (230V) is supplied with glass cuvettes and caps (4), reagents for about 20 tests (HI 83746A-0 and HI 83746B-0), HI 93703-59 Charcoal, 200 µL Automatic Pipette with two plastic tips, 1000 µL Automatic Pipette with plastic tips (2), instruction Sheet for Automatic Pipette, Spoon, Funnel, Filter paper (25), 12 VDC Adapter, 1.5V AA batteries, (4), cuvette cleaning cloth and instruction manual in a rugged carrying case.

OPTIONAL REAGENTS

HI 83746-20 RS reagent set (20 tests)
HI 93703-59 Charcoal for decoloration of Red Wine (about 100 tests)

ACCESSORIES

HI 731318 Cuvet cleaning cloth (4)
HI 731331 Large 10 mL cuvette (4)
HI 731340 200 µl pipette
HI 731350 200 µl pipette tips (25)
HI 731341 1000 µl pipette
HI 731351 1000 µl pipette tips (25)
HI 740142P 1 ml graduated syringe
HI 740144P 2 mL graduated syringe tips (10)
HI 740216 Tube rack for glass vials
HI 740217 Safety shield
HI 740232 Filter paper type 1 (100)
HI 839800 Thermoreactor
HI 740027P 1.5V AA batteries (10)

The Determination of Concentration of Reducing Sugars (RS)

The determination of concentration of reducing sugars (RS) is one of the most important parameters that need to be measured during the wine making process. Following the increase of RS during maturation of grapes can help decide when to start harvest. Having the highest possible sugar content is important because this is the main parameter that defines the commercial value of grapes. During the alcoholic fermentation instead, the decrease of sugars can be followed to decide when fermentation is completed, or allows making corrective actions if the content of RS is too low to obtain the desired alcohol degree or sweetness.

The predominant RS in grape products are glucose and fructose (hexoses). After reaction with excess alkaline cupric tartrate (Fehling reagents), the RS content can be determined colorimetrically. The Fehling method is not an exact determination but an index of the reducing sugar concentration, because the reaction depends upon the amount and kind of RS present. When the reducing sugar content is known at the beginning of fermentation, the potential alcohol degree can be estimated multiplying the sugar concentration (in g/L) by 0.06. Phenols interfere in the Fehling reaction and therefore red wine must be colored prior to analysis. Wine also contains non-fermentable reducing sugars like pentose which will also be analyzed by this method.

TYPICAL CONTENT OF REDUCING SUGARS IN MUST AND WINE

MUST

Sweet Must	20-25 %	200-250 g/L
Normal	10-20 %	100-200 g/L
In fermentation	4-12.5 %	40-125 g/L

WINE

Sweet	2.5-12.5 %	25-125 g/L
Semi Sweet	0.8-2.5 %	8-25 g/L
Almost Dry	0.2-0.8 %	2-8 g/L
Dry	0-0.2 %	0-2 g/L