

MATURITY TREND mod. MT00
OPERATIVE SPECIFICATIONS

Application:	Measurement of polyphenols in liquidized red grapes
Type of measurement:	The MT00 analysis unit operates in the UV – VIS – NIR range measuring diffused reflectance
Preparation of the analysis sample:	Minimum quantity of fresh product: 200 grape berries. Liquidizing time: 5 minutes. Minimum: waiting time (after liquidizing): 10 minutes.
Characteristics of the product "en measure"	<p>Measurement limits: Minimum turbidity value 200 FTU Minimum sample volume 100 ml Measurement time 10 s Wavelength range 280...900 nm</p> <p>Product temperature: 10...40 °C (50...104 °F)</p> <p>Dew point on the speculum: Product at 10 °C with an ambient temperature of 15 °C and relative humidity at 75%</p>
Parameters measured Total Anthocyanins and Anthocyanin Extractability	<p>Measurement limits: 0...10000 mg/kg</p> <p>Accuracy: ±10% of the given reading</p> <p>Repeatability: ±20 mg/kg</p>
Total Polyphenol Index	<p>Measurement limits: 0...200</p> <p>Accuracy: ±20% of the given reading</p> <p>Repeatability: ±1% of the given reading</p>
Tonality	<p>Measurement limits: 0...3.50</p> <p>Accuracy: ±0.03</p> <p>Repeatability: ±0.005</p>
MP% index	<p>Measurement limits: 0...100%</p> <p>Accuracy: ±10%</p> <p>Repeatability: ±1%</p>
Phenolic Quality	<p>Measurement limits: 90...300 PQ units</p> <p>Accuracy: ±1 PQ units</p> <p>Repeatability: ±0.50 PQ units</p>
Notes:	Tonality and Phenolic Quality (PQ) index measurements are specifically for the delivery phase. Please remember that the values of these measurements depend on the grape sample preparation system and in particular on pigment extraction efficiency. Hence the values given by must obtained from a worm screw truck sampling probe and those given by must from a liquidizer cannot be compared.

GENERAL SPECIFICATIONS

Power supply	Electric: DC +5V 4A, +12V 2A by means Power Supplier: AC 100...240V $\pm 10\%$ 47...63Hz 50VA Connection via cable with SP7748 (EEC-7) 10A/250V plug for EC versions or P620 15A/125V plug for US versions.
Interfaces	Serial: RS232 for connection to a PC via 9P.M. D-connector Parallel: CENTRONICS for Printer connection – via 25P.F. D-connector Usb: A type for external connection Ethernet: RJ-45 for external connection PS/2: MiniDIN 6P.F. for external connection keyboard and mouse

CONSTRUCTION FEATURES

Execution:	One-piece enclosure in 304 AISI stainless steel
Measuring section:	Measuring bowl made of "PVC". Light sources with electronically compensated LEDs. Illumination area diameter 10 mm. Measurement area diameter 10 mm. Analysis test tubes made of "PVC" and "Fused Silica" / Optical Glass. Window with diameter 35 mm. Illumination/detection geometry 45°/0°.
Electronic section:	External temperature sensor "Pt100", for automatic adjustment of thermostat. Internal temperature sensor "Pt1000", for constant luminosity compensation of LEDs. Light detector: photodiode with large sensitive surface. "CPU" central unit with microprocessor.
Materials in contact with the product	PVC and Fused Silica/Optical Glass
Processing system	Construction: One-piece enclosure in 304 AISI stainless steel Electronic Section: Industrial monoboard microprocessor CPU. Graphic displays on 800x600 10.4" touch screen and touch pen. 2 GB Flash Memory. External power supplier housed in black ABS bookstand enclosure. A choice of 4 languages (Italian, English, French and Spanish) for menus and messages display.
Dimensions and total weight:	503 (b) x 319 (h) x 275 (p), 11.7 kg
Dimensions and total weight of the Liquidizer:	Ø 250 x 400 (h), 3.5 kg
Dimensions and total weight of the Programmer:	160 (b) x 145 (h) x 110 (p), 2 kg
Product preparation system	Execution: High-efficiency liquidizer controlled by specific programmer. 4-blade liquidizer with 1000 ml capacity. PLC programmer for the management of liquidizing and waiting times. Cycles displayed via LCD "Touch Screen". Possibility to overlap cycle times to minimize waiting times. Power supply: AC 230V $\pm 10\%$ 47...63Hz 500VA
Notes:	The instrument is guaranteed only when used with this specific model of liquidizer
Measurements to be performed	The following analytic measurements are obtained from the Absorbance spectrum: Total Anthocyanins and Anthocyanin Extractability (A). Total Polyphenol Index. Hue (= Abs 420 / Abs 520). Glories MP%.

	Phenolic Quality (PQ).
Display of the maturity curves	The MT00 Unit allows the user to enter: Grape species. Lost. Companies. It is compulsory to associate the aforementioned identifying data to each measurement before it is saved in the database. By selecting a single grape name it is possible to view the maturity curve based on the measurements taken by the MT00 (up to four other variables set manually at the time of measuring).
Note on sampling and extraction method:	The maturity curve can be studied only if the sampling of grapes is carried out to represent the vineyard as a whole. It is recommended that sampling be carried out following one of the official methods (e.g. ITV).
Note on the “Anthocyanin Extractability” index measurement:	The measurement is based on the difference of the samples’ response when liquidized for two different times. The first time is 60s, the second is 240s. The programmer is set to manage sample preparation automatically.

TECHNICAL-NORMATIVE SPECIFICATIONS

Ambient characteristics	<p>Temperature limits: Ambient: 5...+40 °C (41...104 °F) Storage: -20...+70 °C (-4...+158 °F)</p> <p>Humidity limits: Ambient: 5%...95% (R.H. non condensing) Storage: 5%...95% (R.H. non condensing)</p> <p>Altitude limits: <2000 m a.s.l.</p> <p>Protection Degree: IP50 to EN60529</p>
Conformity to Directives:	EMC: 2014/30/EU RAEE: 2012/19/EU CE marking conforming to EU Directives

	Unit of measure	Instrument limits	Typical range	Mean value	R ²	Mean error	Correlation
TA	mg/kg	0...10000	500...3500	1500	0.85	180	significant
A Extr.	mg/kg	0...10000	200...1500	700	0.7	180	significant
TPI	D0280	0...200	30...90	60	0.5	15	significant
MP%	%	0...100%	40...60%	55%	0.5	10%	significant
PQ	PQ Units	90...300	100...180	130	n.d.	1	n.d.
T	dimensionless	0.00...3.50	0.30...1.10	0.55	n.d.	0.03	n.d.
	TA	A Extr	TPI	MP%	PQ	T	
MT01	•	•					
MT02	•	•	•	•			
MT03					•	•	
MT04	•	•	•	•	•	•	