Streamline beer, wine, and food quality control and safety analyses

Gain insights with easy-to-use absorbance microplate readers

Absorbance microplate readers are widely used in research, drug discovery, bioassay validation, quality control, and manufacturing processes in the pharmaceutical, biotech, food and beverage, and academic industries. They provide rapid and sensitive measurements of a variety of analytes across a wide range of concentrations for a wide range of assays including ELISAs, microbial growth, detection of key compounds and contaminants, and protein quantitation.

Here, we highlight various applications using our SpectraMax® absorbance readers and SoftMax® Pro Software to illustrate how we help save you time and effort while easily generating the data you need.

MOLECULAR DEVICES

eBook contents

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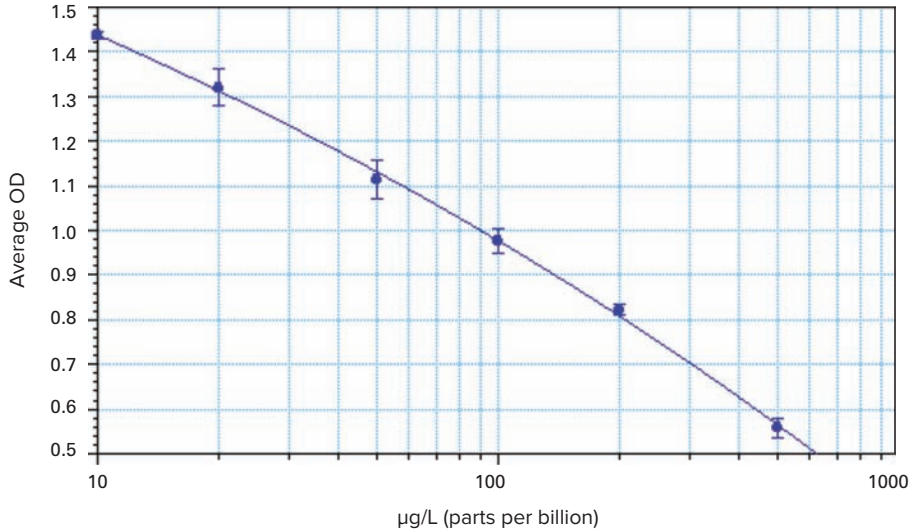
www.moleculardevices.com

FOOD AND PRODUCT SAFETY APPLICATIONS

High-throughput melamine detection with Abraxis melamine ELISA Kit

- Reliably detect melamine concentrations at least as low as 10 ppb using the VersaMax™ and EMax® microplate readers
- Use a preconfigured SoftMax Pro Software protocol to simplify data collection and analysis
- Get maximum throughput with minimum manual plate handling

Read Application Note



Melamine assay sensitivity. Melamine standard curve demonstrating assay sensitivity down to 10 ppb.

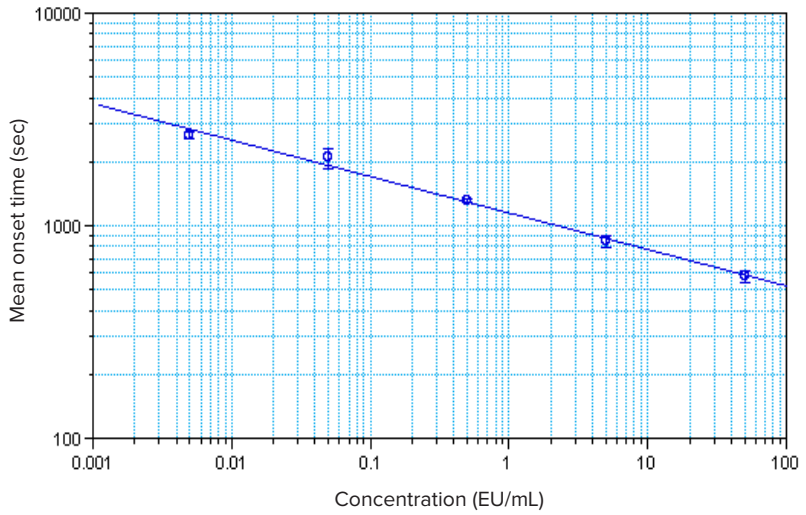
FOOD AND PRODUCT SAFETY APPLICATIONS

Microplate-based endotoxin testing in GLP/GMP environments using the pyrochrome assay

- Automatic interpolation of endotoxin concentrations of unknowns from the standard curve based on onset times is shown
- SoftMax Pro Software for data acquisition and analysis in a regulated environment

Read Application Note

A sensitive and specific method for detecting endotoxin contamination in the pharmaceutical production process using an absorbance microplate reader with the pyrochrome assay and SoftMax Pro GxP Software.



Pyrochrome assay standard curve. Pyrochrome Assay log-log standard curve generated in SoftMax Pro GxP Software version 5.3. Standard curve was composed of five dilutions of control standard endotoxin in triplicate.

BEER AND WINE ANALYSIS APPLICATIONS

Quantifying gluten in beer using an ASBC-approved ELISA method

Read Application Note

- Confidently determine gluten levels with a quantitative method approved for use with beer and other food products
- Save time by automating ELISA wash steps with the MultiWash+™ Microplate Washer
- Obtain results quickly with SoftMax Pro Software data analysis

Sample	Wells	OD	R	Conc	AvgConc	SD	CV	Dilution Factor	AdjConc (ng/mL)	Gliadin (ppm)	Gluten (ppm)
01 Reduced Gluten	C2	2.061		13.922	16.763	4.0	24.0	500	8381.445	8.381	16.763
	D2	1.923		19.604							
02 Gluten Free	E2	2.098		12.717	9.032	5.2	57.7	500	4516.246	4.516	9.032
	F2	2.448	R	5.348							
03 Weizenbier	G2	0.486	R	683.442	706.316	32.3	4.6	500	353157.865	353.158	706.316
	H2	0.450	R	729.189							
04 Blond Ale	A3	1.298		91.844	87.242	6.5	7.5	500	43620.893	43.621	87.242
	B3	1.341		82.640							
05 American Porter	C3	1.230		108.663	118.153	13.4	11.4	500	59076.491	59.076	118.153
	D3	1.165		127.643							
06 India Pale Ale	E3	2.035		14.858	14.055	1.1	8.1	500	7027.733	7.028	14.055
	F3	2.081		13.253							

Beer gliadin and gluten analysis results. Using SoftMax Pro Software, gliadin ppm and gluten ppm were calculated from the original OD readings.

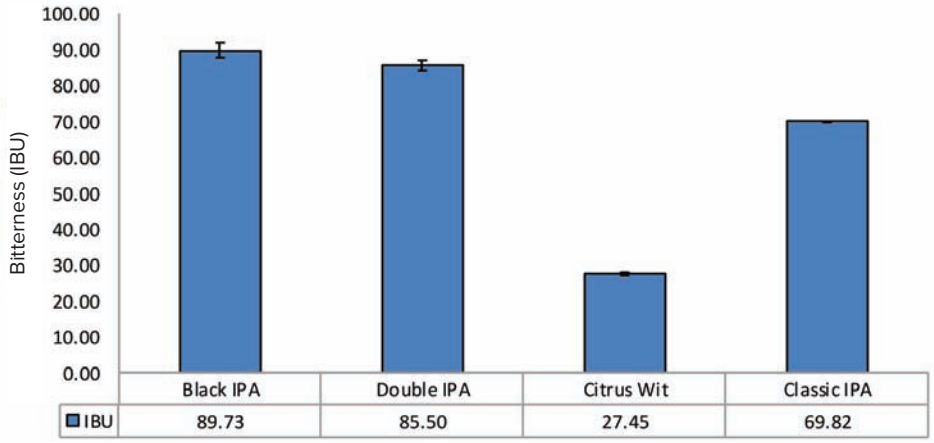
BEER AND WINE ANALYSIS APPLICATIONS

Beer analysis using the QuickDrop UV-Vis Spectrophotometer

Read Application Note

- Beer color was measured with the SpectraMax QuickDrop based on the ASBC protocol
- Bitterness compounds were isolated and measured utilizing a liquid-liquid extraction process
- Free-amino nitrogen (FAN) levels were used to measure yeast metabolism and determine when the beer fermentation is complete

An examination of color, bitterness, and free-amino nitrogen levels (FAN's) in four different beers were measured on the SpectraMax® QuickDrop™ Micro-Volume UV-Vis Spectrophotometer.



Beer bitterness analysis results. Bitterness contributes to one of beer's most defining characteristics—taste. We isolated and measured the bitter compounds of beer by utilizing a liquid-liquid extraction process. Results were reported in international bitterness units (IBUs), and they roughly correspond with the expected bitterness profiles of the beers. The double IPA's bitterness levels were lower than expected. Bitterness was calculated by multiplying the A275 values by 50 (n = 3).

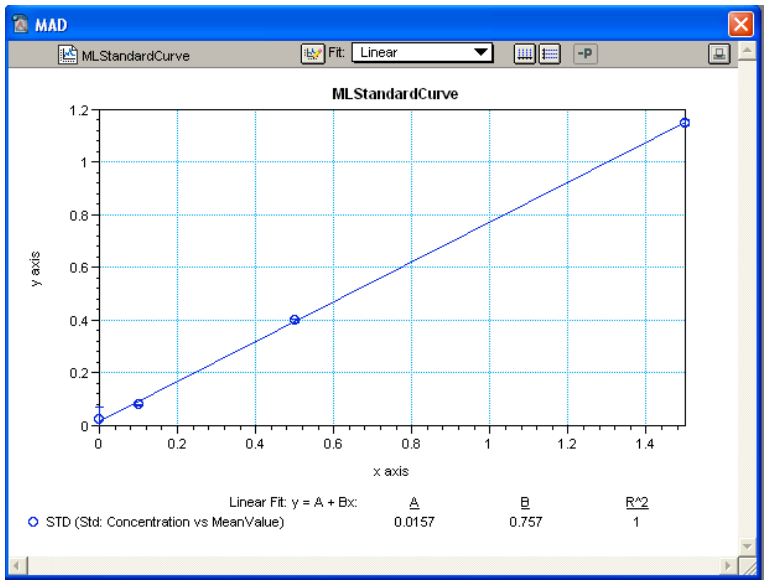
- Direct quantitation of analytes in wine samples using an absorbance plate reader
- Improved throughput relative to traditional single-tube assays

BEER AND WINE ANALYSIS APPLICATIONS

L-malic acid measurement in wines

Read Application Note

Here we describe a workflow that efficiently collects and analyzes data for the enzymatic determination of residual sugar in wine using the SpectraMax® Plus 384 Microplate Reader.



MAD assay standard curve. A standard curve was plotted with linear curve fit and used to derive the concentration of malic acid in wine samples.

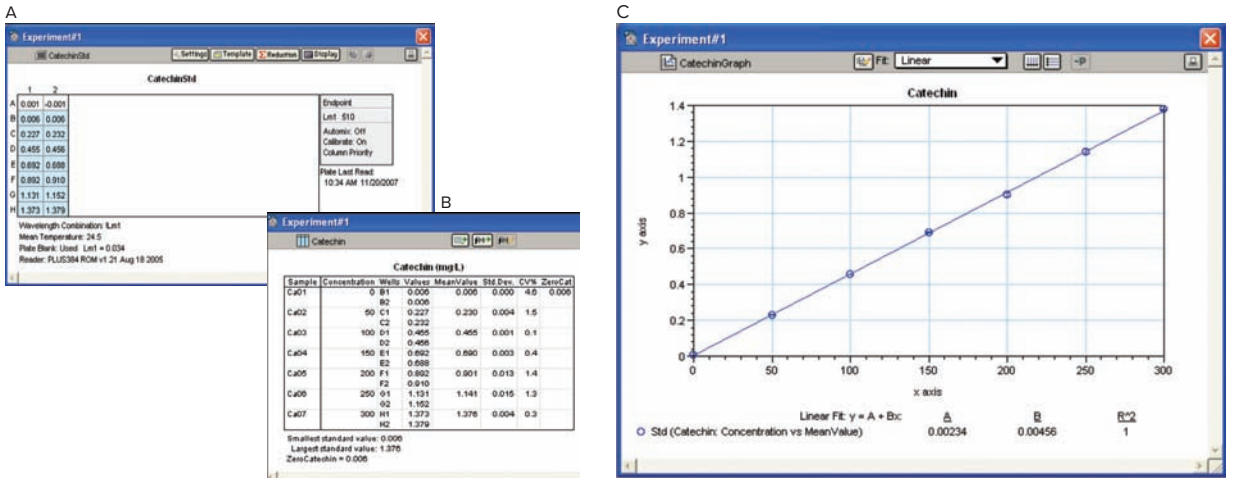
BEER AND WINE ANALYSIS APPLICATIONS

Phenolic compounds measurement in red wines

Read Application Note

- Increased throughput compared to traditional cuvette-based methods
- Automated data analysis with SoftMax Pro Software
- PathCheck Sensor for normalized absorbance readings in microplate wells

Here, we describe the use of the Adams/Harbertson assay for measurement of tannins, iron-reactive phenolics, anthocyanin and polymeric pigments in red wine using the SpectraMax Plus 384 Microplate Reader. The assay uses spectrophotometry, protein precipitation, and bisulfite-bleaching techniques to measure red wine phenolics.



Catechin standard curve. A: Plate View. **B:** Results. Catechin standard curve was used for interpolation in calculating tannin and IRP concentrations.

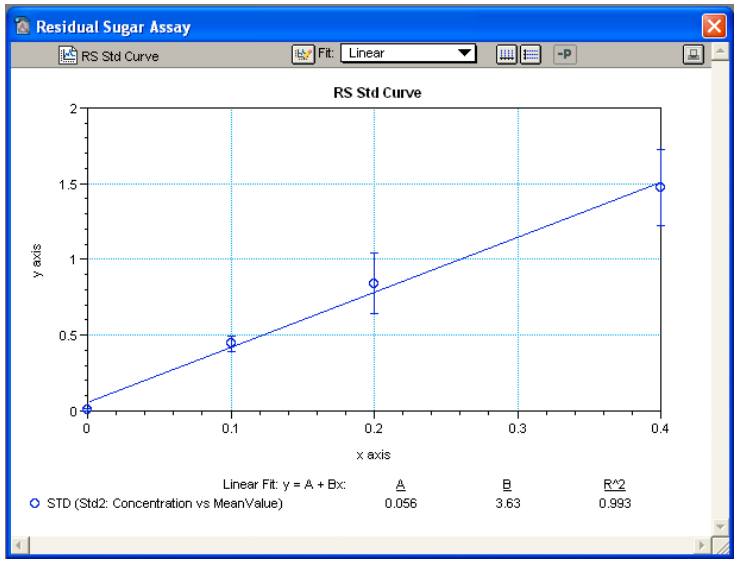
BEER AND WINE ANALYSIS APPLICATIONS

Residual sugar measurement in wine

Read Application Note

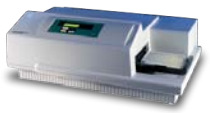
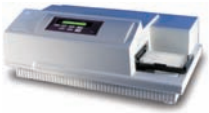
- Direct quantitation of analytes in wine samples
- Improved throughput relative to traditional single-tube methods
- Automated calculation of results with SoftMax Pro Software

Analysis of malic acid, residual sugar, volatile acidity, and ammonia is very important in quality control during wine production. Enzymatic determination of residual sugar and malate in wine using the SpectraMax Plus 384 Microplate Reader is described.



RS assay standard curve. A standard curve plotted and used for deriving the concentration of residual sugar in wine samples.

Absorbance reader solutions for your laboratory

	SpectraMax® QuickDrop™ Micro-Volume Spectrophotometer	VersaMax™ Microplate Reader	SpectraMax® 190 Microplate Reader
Wavelength ranges	190 – 1100 nm	340 – 850 nm	190 – 850 nm
Wavelength bandwidth	5 nm	2 nm	2 nm
Cuvettes & test tubes			
VIS absorbance detection	•	•	•
UV absorbance detection	•		•
Plate type(s)		96 well plates	96 well plates



	SpectraMax® ABS Microplate Reader	SpectraMax® Plus 384 Microplate Reader	SpectraMax® ABS Plus Microplate Reader
Wavelength ranges	340 – 850 nm	190 – 1000 nm	190 – 1000 nm
Wavelength bandwidth	2 nm	2 nm	2 nm
Cuvettes & test tubes		•	•
VIS absorbance detection	•	•	•
UV absorbance detection		•	•
Plate type(s)	96 well plates	96 and 384 well plates	96 and 384 well plates

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