MEASUREMENT & ANALYTICS

MB3600-CH20

FT-NIR chemicals analyzer for polyols, ethoxylates, glycols, urethanes and general chemicals

Measurement made easy

Reliable chemicals analysis for polyols, ethoxylates, glycols, urethanes and general chemicals. Our laboratory FT-NIR analyzers are renowned for their ruggedness and long-term stability. This makes them excellent method development platforms for a host of FT-NIR based methods, replacing tedious and expensive wet-chemical procedures.

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FT-NIR optimizing productivity

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01 Chemical plant

Rapid development of custom analytical methods
The MB3600-CH20 is ready to use for the quick development of custom analytical methods suitable for a wide variety of sample types, including polyester and polyether polyols, polyethylene or polypropylene glycols and amine derivatives.

Quick and simple analysis for fast product release
The MB3600-CH20 Laboratory analyzer simplifies hydroxyl value and similar analyses such as acid number, moisture or EO/PO ratio. Analysis is performed using disposable vials, which eliminates sample cell cleaning. The measurement time is only 1 minute after the sample has reached the fixed measurement temperature.

Guaranteed laboratory-to-process calibration transfer
ABB has developed manufacturing methods which ensure all our laboratory and process FT-NIR analyzers are highly stable, have a highly linear photometric response, and provide identical absorbance spectra. This guarantees calibration transferability from lab to process without any additional calibration effort or data manipulation.

MB3600-CH20 FT-NIR chemicals analyzer

02 MB3600 CH20 FT-NIR analyser solution

ABB's world-renowned range of on-line and laboratory FT-NIR analyzers provides guaranteed transferability of calibration models between laboratory and process applications

The MB3600-CH20 is an accurate, easy-to-use analyzer for determining key quality parameters of liquid or solid chemicals. It is particularly appropriate for fast determination of hydroxyl value in polyether and polyester polyols, fatty alcohols, pentaerythritol, glycols, EO/PO and related chemistries. Additional chemicals or polyol properties can be measured in the same analysis, such as moisture, acid number and EO/PO ratio. MB3600-CH20 results are totally traceable to the reference method and the calibrations are stable, rugged and transferable.

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- Enables fast qualification of raw materials, finished products certification and at-line verification of process batch reactions.
- Extensively field proven for the rapid development of custom site analytical methods. Rugged design and construction combined with superior manufacturing methods guarantee unsurpassed stability.
- Results obtained in less than 2 minutes, with simultaneous analysis of multiple components and key properties.
- Easy-to-use and operator friendly, with very low cost of analysis.
- Simplified sampling using heated disposable glass vialsmeans no clean-up between samples – very easy to run large sample batches.
  Vials are inserted in a heatable universal vial holder that supports different vial sizes (5, 8, 12 mm OD) (0.19, 0.31, 0.47 in. OD) and has USB port for automatic recognition by the analyzer.
- Higher analytical precision (increased repeatability, reproducibility and stability) compared with standard wet-chemical methods.
- Very little training required for use in a routine operations environment by plant personnel. Operations are all pre-configured in the modern and intuitive operator interface based on Horizon software suite.

FT-NIR optimizing productivity

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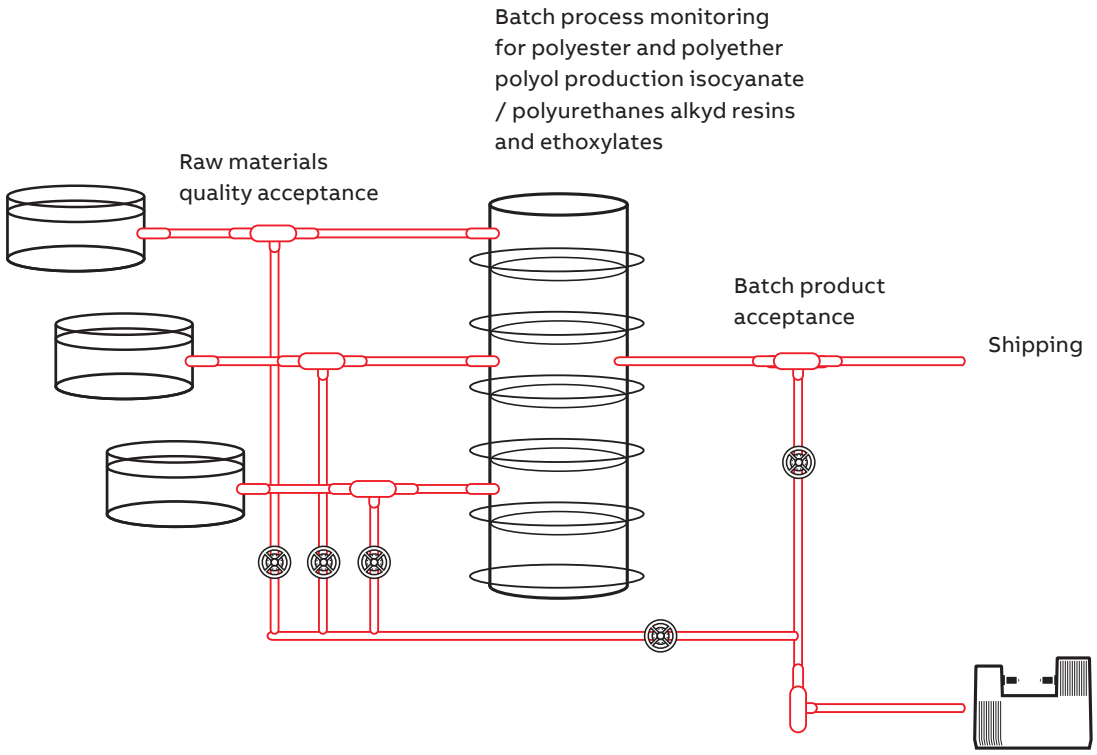
03 Chemicals batch process monitoring



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MB3600-CH20 lab analyzer calibration models

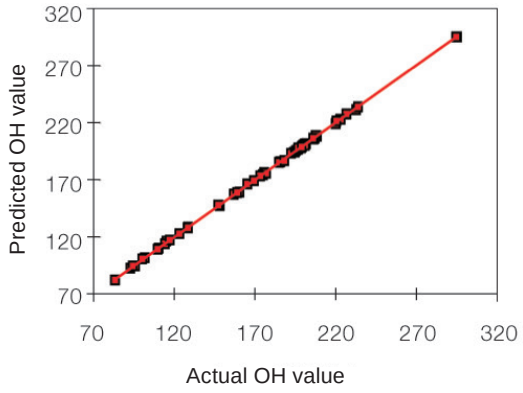
- QA/QC
- Method development

FT-NIR optimizing productivity

04 Actual vs predicted OH value

05 Actual vs predicted water content

The MB3600-CH20 laboratory FT-NIR Analyzer is not only a valuable and reliable tool for hydroxyl value determination, it also allows easy custom calibration model development for a wide range of other typical bulk, fine and specialty chemicals in both liquid and powder form.



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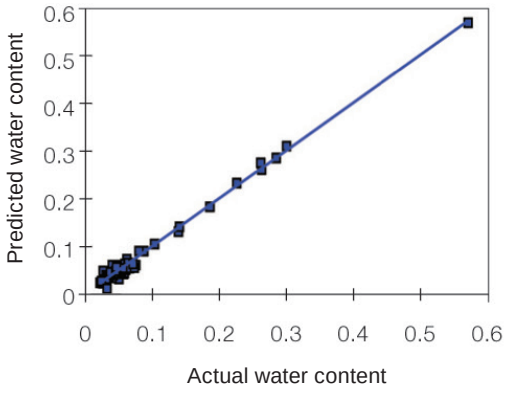

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The MB3600-CH20 FT-NIR Analyzer is more than just a robust field-proven analyzer for hydroxyl value that replaces costly and time-consuming wet-chemicaltitration analyses. It is also a powerful method-development platform for applications designed to replace other slow functional-group analytical procedures, in both liquids and solid powder products.

Property table

	Property/sample	Units	SEP (1 Sigma)	Repeatability (r)	Range min.	Range max.
Hydroxyl value	Polyester polyols	mg KOH/g	0.30	0.20	20	55
	Polyether polyols	mg KOH/g	0.30	0.20	26	59
	Amine derivatives	mg KOH/g	0.70	0.20	8	65
	Polyethylene glycol	mg KOH/g	0.70	0.20	10	370
	Non-ionic surfactant	mg KOH/g	0.60	0.20	80	300
	Sorbitan	mg KOH/g	1.50	0.30	100	230
	Nonylphenol	mg KOH/g	0.70	0.10	10	150
Other functional groups	Iodine value (high)	g	0.82	0.15	120	190
	Iodine value (low)	g	0.18	0.08	0	5
	Acid value	mg KOH/g	0.53	0.11	187	270
	Saponification number	Units	1.30	0.63	0	50
	Ethoxylated amine	mg/g	1.30	0.32	286	360
	Primary amine	meq/g	0.04	0.003	4.7	5.2
	Primary amine	meq/g	0.06	0.002	0.1	1
	Secondary amine	meq/g	0.006	0.001	0	0.7
	Secondary amine	meq/g	0.03	0.006	0.4	2.8
	Isocyanate content	%	0.07	0.01	1.4	2

Custom calibration models
The MB3600-CH20 simplifies the development of local site-data based calibration models, allowing the analyzer to be used for a wide range of process streams and properties. Many of our customers have successfully developed their own rigorous and stable calibration models. The sample temperature is indicated and adjustable in software.

ABB's calibration modeling and training services
Custom calibration models can easily be developed to generate QA and batch process monitoring data. These calibrations must be developed on a site-by-site basis for specific product groups. ABB will work in close partnership with you to develop customized solutions that meet your specific needs.

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