Quality control of isocyanates

Fast and straightforward determination with NIR pre-calibrations

HIGHLIGHTS

- ASTM E1655-17 (Standard Practices for Infrared Multivariate Quantitative Analysis)
- Measuring out of the box
- Reliable results from day one
- Straightforward and intuitive operation
- Customized service and support

Metrohm

A dedicated solution for routine isocyanate analysis

Metrohm offers a turnkey solution for routine analysis of isocyanates. Based on a dedicated spectral database and a pre-calibration model, this solution enables isocyanate producers and processors, such as polyurethane manufacturers, to reduce the cost of their daily routine analysis while improving the quality of their products.

Isocyanates are widely used in chemical manufacturing of polyurethane. Next to the hydroxyl number in polyols, the NCO content in isocyantes determines the properties of the final polyurethane product. A key quality parameter of isocyanates is the NCO content. This parameter is still often determined in the laboratory by time consuming wet chemical analysis involving sample preparation such as ASTM D7252.

Near Infrared Spectroscopy (NIRS) on the other hand requires neither chemicals nor any sample preparation, it can even be used by non-chemists, and provides results in less than a minute. The combined benefits of this technology make NIRS the ideal solution for various daily QA/QC measurements in the laboratory or at-line process analysis.

Range of NCO content in wt%	1–50%
SECV in wt%	0.39%
Samples used	>400
R^2	0.999

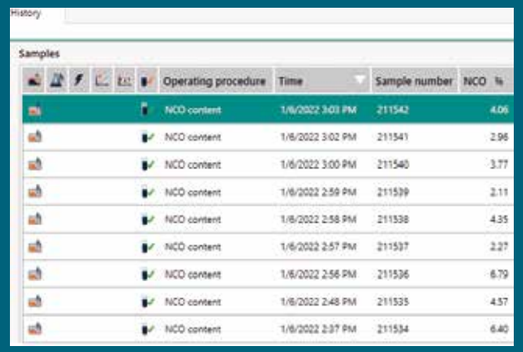
wt%	weight percentage
SECV	Standard error of cross validation
Samples used	Number of samples used to create the prediction model
R^2	Coefficient of determination

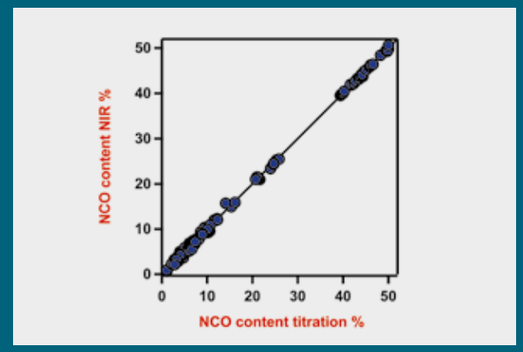
EASY TO USE
- Turnkey solution
- Measure at the push of a button
- No expertise required

COST-MINIMIZING
- No solvents, no reagents
- No waste disposal

FAST
- No sample preparation required
- Analysis results within one minute
- More than 15 minutes time saving compared to reference methods

CLEAN
- Non-destructive, chemical-free method
- Minimum of impact on health and environment





Measuring out of the box
The Metrohm solution for isocyanates comes with a ready-to-use pre-calibration model for the determination of the NCO content. Due to this pre-calibration, the Metrohm solution can be used out of the box.

Reliable results from day one
The robust pre-calibration model allows precise and accurate determination of the NCO content with excellent reproducibility. The performance of the pre-calibration can be improved even further, if a smaller calibration range is selected or if it is augmented with customer specific samples.

Straightforward and intuitive operation
Metrohm solutions are controlled by Vision Air software. Vision Air provides two environments tailored to different user needs: Vision Air Routine for secure daily operation by untrained operators and Vision Air Manager for full control of data and instrument configuration by experienced users. For daily routine analysis measurements can be started with two simple clicks.

Customized service and support
Metrohm supports users by updating the default pre-calibration on demand with customer specific samples. This improves the performance of the method and/or extends it to new applications. Such updates are easily performed in the Vision Air Manager network mode. When using Vision Air Network, all instruments within a customer's global network (client-server) can be synchronized at the push of a button. Customer specific calibrations can be easily developed for the determination of additional quality parameters of isocyanates e.g., water content.

ORDERING INFORMATION

	Pre-calibration
6.6072.312	**NIRS pre-calibration for liquid isocyanates**

	Requires hardware
2.929.0010	DS2500 Liquid Analyzer
6.7492.020	DS2500 Holder 8 mm disposable vials
	Requires software
6.6072.201	Vision Air
	Recommended standard
6.7494.000	DS2500 Liquid Wavelength standard
	Accessories
6.7402.000	Disposable vials, 8 mm (250 pcs.)