



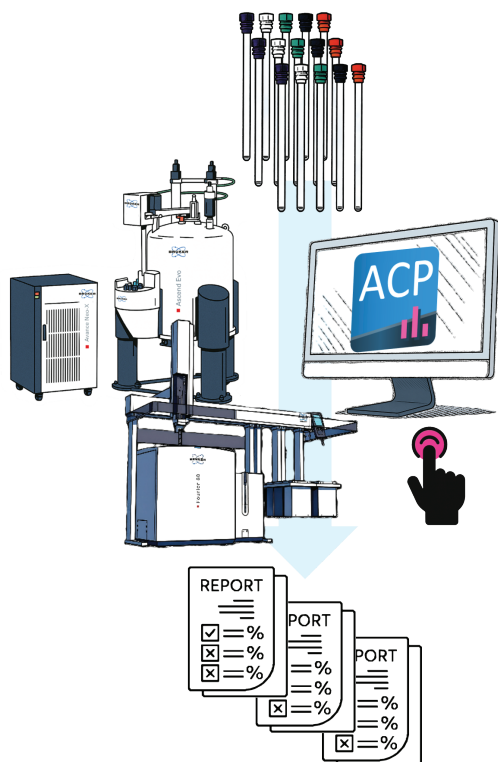
## CHEMICAL INDUSTRY

# Advanced Chemical Profiling for the Chemical Industry

Bruker's next-generation solution for quantitative workflow automation

Innovation with Integrity

Rethink NMR at any stage, from R&D to QC, with Advanced Chemical Profiling (ACP). ACP streamlines routine NMR testing with push-button simplicity while providing a new and advanced analytical toolbox. It simplifies method development and enables laboratories to fully leverage NMR, from raw materials to process screening and batch-release testing.

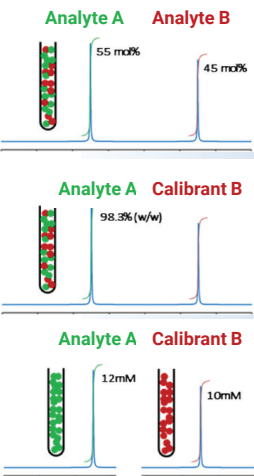


### Features

- **Automation for any quantitative NMR workflow** from simple purity determination to analyzing highly complex mixtures
- True **sample-to-report** automated workflows
- Compatible with **high-field and benchtop NMR** spectrometers
- **No expertise** required for routine operations
- Next generation algorithms tackling **complex matrices** with signal overlaps and demanding baselines
- **Custom calculations** and **pass/fail condition setting** + result print-out
- **Machine readable** output for LIMS integration
- ACP handles all **NMR nuclei**. Quantitate  $^{31}\text{P}$ ,  $^{19}\text{F}$ ,  $^{13}\text{C}$ ,  $^7\text{Li}$ ,  $^{23}\text{Na}$ ...as easily as  $^1\text{H}$
- ACP can store all methods and results history to easily roll back or compare
- Seamlessly **integrate** with TopSpin™, IconNMR™, SpinPilot and GoScan

# One-stop solution for effortless quantification, in simple or complex matrices

**Straightforward implementation of all qNMR workflows**, from simple relative content to high-accuracy, absolute potency determination and most complex mixtures.



**Relative quantification**

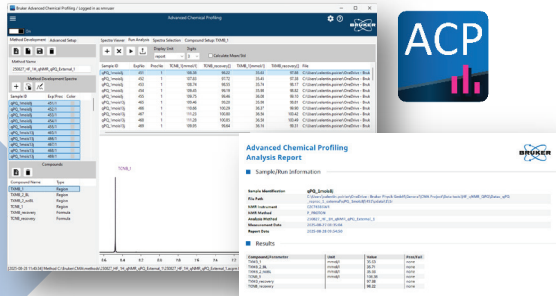
- Impurity content
- Mixture ratio
- Residual solvent
- Polymer structure

**Absolute concentration with internal calibration**

- Potency / purity
- High accuracy assay for impurity

**Absolute concentration with external calibration**

- Formulation testing
- IPC
- Process monitoring



Workflows

Relative

External

Internal

Models

Peaks

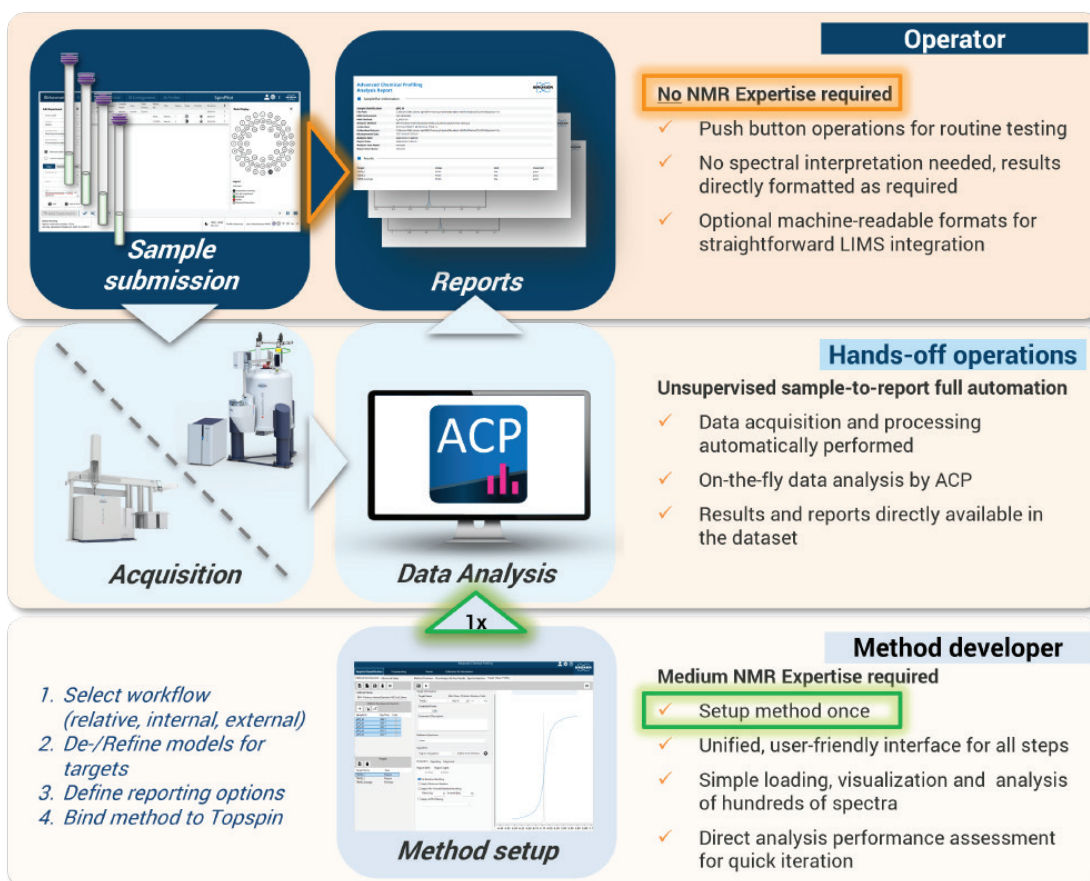
Shapes

Regions

Baseline

- Unified solution for all qNMR workflows
- User-friendly interface for method setup - no script, no external files
- User-selectable algorithms for each target to adapt to each product and matrix, including complex baseline and overlapped signals
- Highly customizable, with direct pass/fail decision capabilities, tailored calculation methods, and flexible reporting options

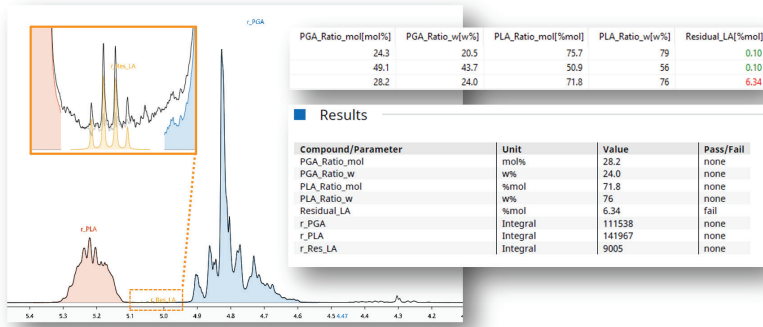
## Simple setup for the method developer, push-button operations for the user



Learn More:



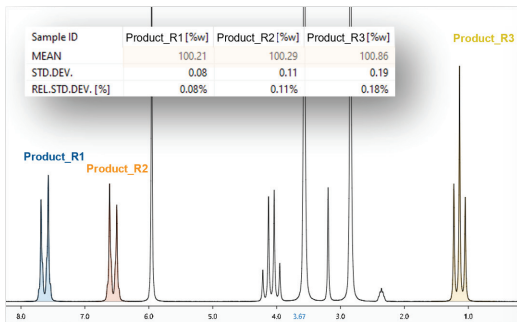
## Effortless qualitative and quantitative analysis



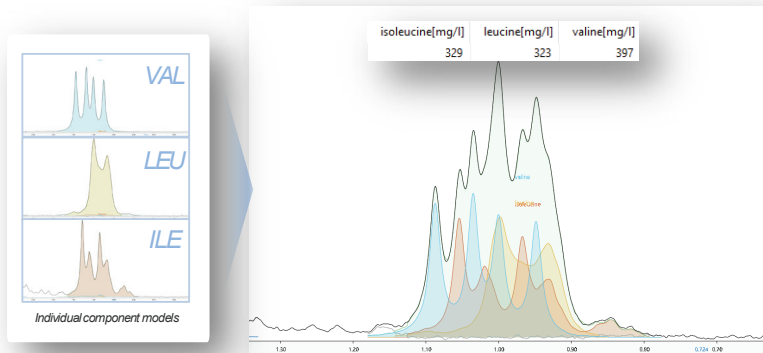
### Control of polymer raw material for block ratio and residual monomer content (PLGA) (400 MHz)

- Region integration for main polymer signals
- Advanced signal fitting and baseline correction for accurate residual monomer content with Pass/Fail statement
- Results directly expressed in mol% and w%

### Absolute purity determination (80 MHz, 9 replicates)



### Concentration measurement for in-process control (80 MHz)

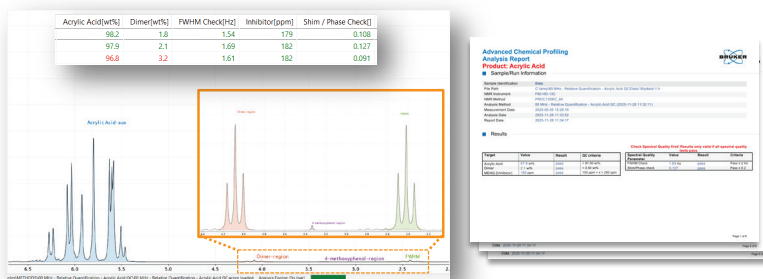


- Direct purity calculation using integration of internal standard product resonances
- Combination of several resonances (e.g. R1-R3) can be used to improve accuracy
- Statistical information directly available in ACP to assess accuracy and precision
- Direct concentration measurement using signal fitting and external standard
- Strongly overlapped signals can be used as interferences are solved by fitting
- Reference models can be provided as experimental shape or built using theoretical patterns

Learn More:



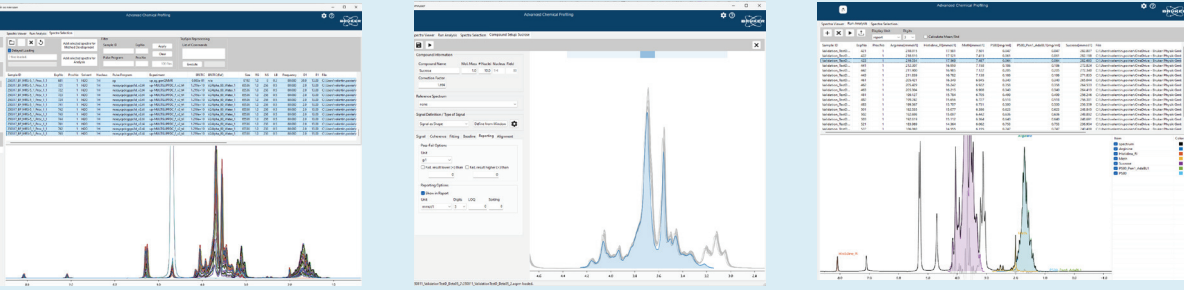
### Batch-release testing of acrylic acid including customized report (80 MHz)



- Direct quantification of impurity (dimer) and stabilizer (inhibitor) using region integration and custom calculations
- Include spectral quality checks (FWHM, S/N,...). Gain trust in autonomously generated results.
- Create customized reports with direct pass/fail result printout.

## Simple to use, Simple to run

The ACP user-friendly, unified interface empowers users to setup methods, review results, and (re)analyze hundreds of spectra in just a few clicks.

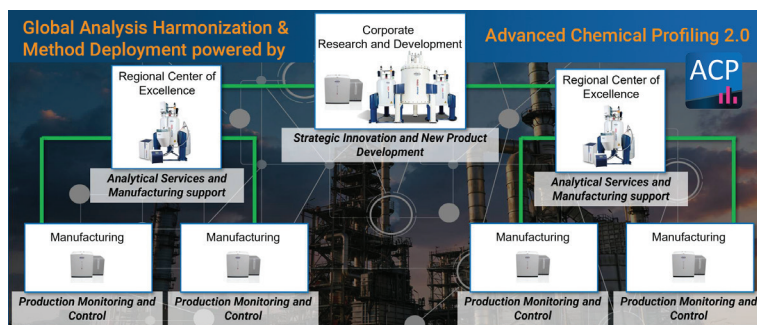


- Smoothly load, compare, and overlay hundreds of datasets
- (Re)process directly in ACP using TopSpin commands
- Setup methods entirely graphically - no code, no external files
- Directly bind to TopSpin methods for full sample-to-report automation
- Review results dynamically, (re)analyze entire batches as needed
- Directly assess fit and baseline quality for quick iteration

## Built-in Support for Harmonization and (Downstream) Method Deployment

Use inherently quantitative NMR spectroscopy with automated data analysis and reporting for **operator- and site independent global harmonization of analysis** with high result consistency and comparability with **auditable workflows**

- ACP allows for **easy method sharing** between on all levels – between instruments, laboratories or even sites
- Deploy sophisticated NMR analysis** and have them executed by operators not requiring NMR expertise
- Operators receive **fully customized report with pass / fail decision printout**
- Stay in control even if analysis is executed somewhere else or by someone else: Real-time access to NMR data and results with optional **LIMS integration**



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**Advanced Chemical Profiling 2.0 (ACP 2.0)**

**Distributed Lab Topology (DLT)**

