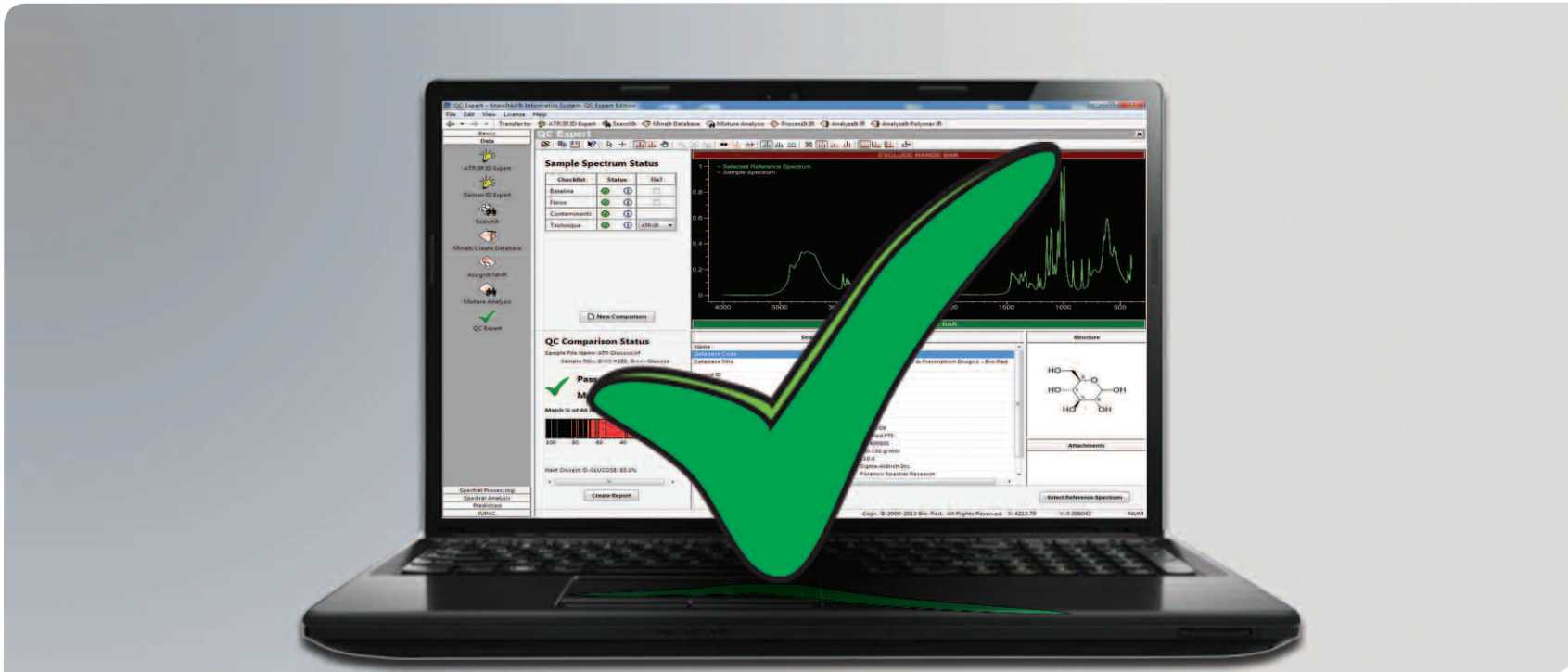


IR & Raman Quality Control



KnowItAll® QC Expert™



KnowItAll® QC Expert™

Bio-Rad's KnowItAll QC Expert software performs a rapid quality check of a sample IR or Raman spectrum against a "gold standard" user spectrum to verify that a material meets control specifications related to its identity or purity.

Bio-Rad has worked with experts in quality control to develop an easy-to-use tool that delivers accurate results and can discriminate even the most subtle differences between very similar materials to give manufacturers increased confidence in the materials being used in their manufacturing process.

With applications in the pharmaceutical, food, consumer products, and chemical industries as well as in customs and border protection, KnowItAll QC Expert is a secure, yet simple solution for quality control.



Features

- Perform QC comparison of a sample spectrum to a selected user spectrum for quantitative and qualitative results.
- Determine whether spectrum passes, fails, or is uncertain if results are not definitive.
- Discriminate between spectra based on subtle differences; set threshold sensitivity based on level of discrimination desired.
- Validate results - Also compare sample spectrum to an entire user database. This self-validating feature ensures that the sample not only matches the selected reference spectrum, but that it also does not match anything else in the database.
- Define user privileges, reference data, and other settings to ensure technicians follow set protocols and focus on output.
- Identify problems with the sample spectrum - QC Expert's built-in spectral intelligence identifies issues and suggests ways to fix them.
- Generate tamper-evident, digitally-signed reports for each analysis.
- KnowItAll QC Expert is 21 CFR Part 11-compliant.

Set Up QC Protocol

To maintain the integrity of the laboratory's QC analyses, the administrator or lab manager sets the reference data and other protocols.

Administrator/Lab Manager



Defines reference databases, user privileges, and QC testing protocols (algorithm, threshold, reference spectrum)



Technician/Bench Chemist



Imports sample spectrum, performs comparison using QC protocols, and generates a digitally-signed report.

QC Comparisons in Three Easy Steps

The screenshot displays the QC Expert software interface. On the left, the 'Sample Spectrum Status' panel includes a checklist with columns for 'Checklist', 'Status', and 'Fix?'. The 'QC Comparison Status' panel shows a green checkmark, 'Pass at 95% Threshold', and 'Match: 99.4%'. A bar chart below indicates the match percentage of all reference spectra. The central plot area shows two overlaid IR spectra: a green 'Selected Reference Spectrum' and a white 'Sample Spectrum'. The x-axis is labeled 'cm⁻¹' and ranges from 4000 to 500. The bottom right panel, 'Selected Reference Spectrum Properties', lists details such as Name (DEET), CAS Registry Number (134-62-3), and Formula (C₁₂H₁₇NO). A chemical structure of DEET is shown in the 'Structure' section.

Checklist	Status	Fix?
Baseline	✓ ⓘ	☐
Noise	✓ ⓘ	☐
Contaminants	✓ ⓘ	
Technique	✓ ⓘ	ATR-IR

QC Comparison Status
Sample File Name: Real DEET ATR Sample.irf
Sample Title: DEET SUPELCO 442541 LC
Pass at 95% Threshold
Match: 99.4%
Match % of All Reference Spectra
Next Closest: Usnic acid: 44.8%

Selected Reference Spectrum Properties	
Name	Value
Database Abbreviation	STW3X
Database Title	ATR-IR - Standards 3- Bio-Rad Sadtler (STW3X)
Record ID	501
Name	DEET
Algorithm	Correlation
Threshold	95 %
Proximity Warning	2 %
CAS Registry Number	134-62-3
Catalog Number	442541
Formula	C ₁₂ H ₁₇ NO
Lot Number	LC07804V
Mol.Weight	191.273 g/mol
Source of Sample	Supelco
Source of Spectrum	Forensic Spectral Research
Synonyms	N,N-Diethyl-3-methylbenzamide; N,N-Diethyl-m-toluamide
Technique	ATR-Neat (DurasampIR II)

Structure
<chem>CCN(CC)C(=O)c1cccc(C)c1</chem>

Attachments

Identify problems with the sample spectrum and fix them

1

Select sample spectrum to compare

View results

Validate QC comparison against reference library

3 Create PDF report

Overlay sample with reference spectra

View structure and properties associated with reference spectrum

2 Select reference spectrum

www.knowitall.com/qcexpert



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