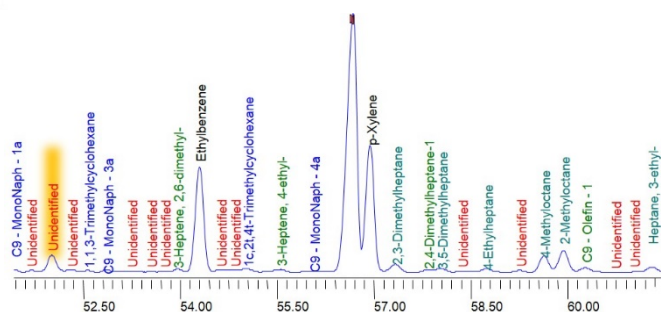
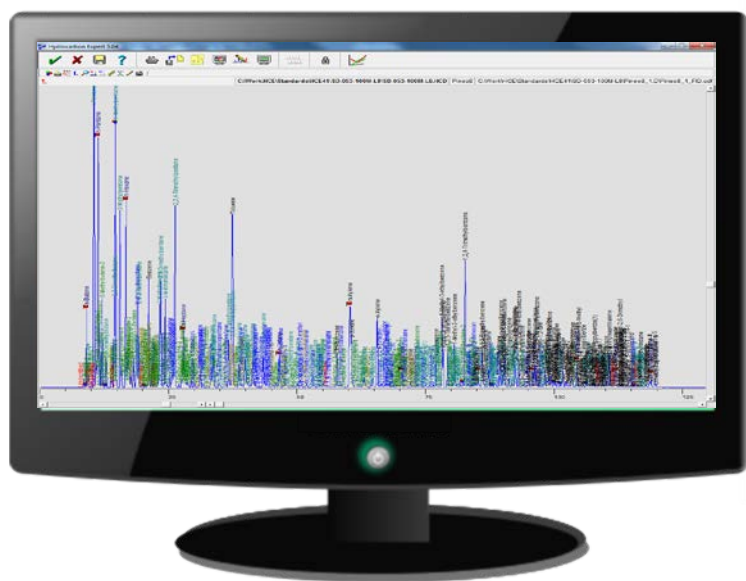




Hydrocarbon Expert™

Software for Detailed Hydrocarbon Analysis



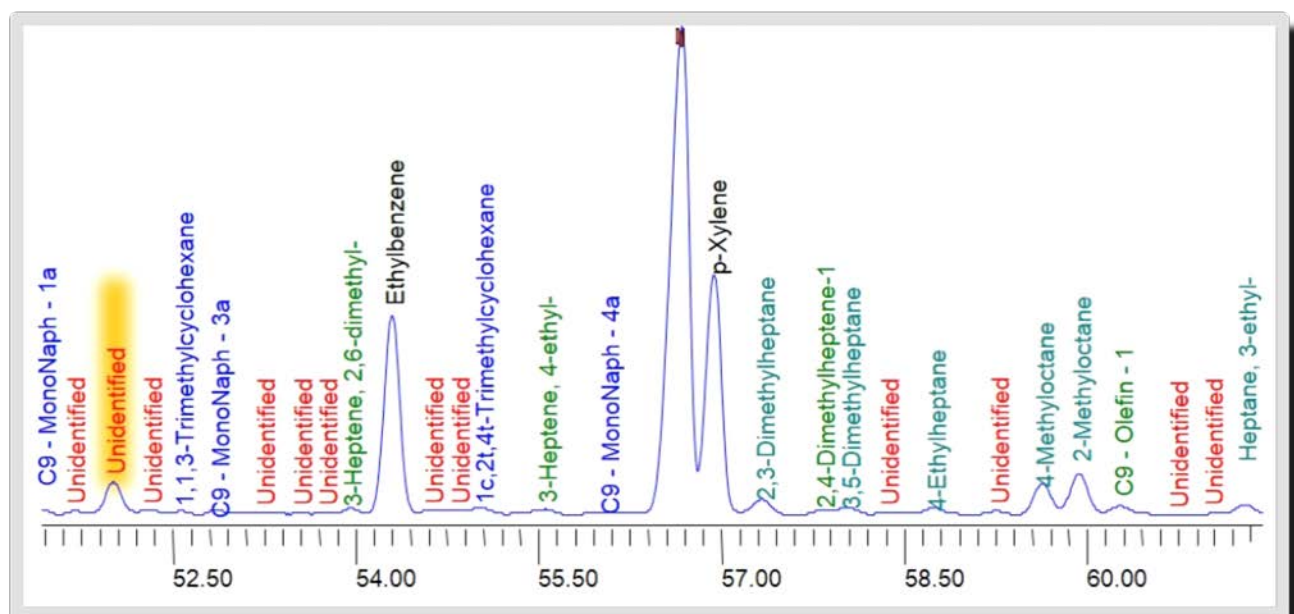
Making a Powerful Technique All the More So

Hydrocarbon Expert™ software was the very first to exploit the power of an interactive computer graphics interface and a comprehensive time mapping algorithm making it very easy for GC operators to reliably identify individual components in 'light' hydrocarbon streams/feedstocks and produce group type reports without requiring a high level of skill and associated cost. Like SimDis® Expert for simulated distillation analysis, Hydrocarbon Expert™ has become the 'gold standard' when it comes to DHA software because of the intuitive user experience and advanced capabilities provided.

Hydrocarbon Expert™ is compatible with all popular GC Chromatography Data Handling Software systems including: Agilent GC Chemstation, OpenLab and EZChrom; Thermo Scientific's Chromeleon and Atlas, PerkinElmer TotalChrom, Justice Innovation ChromPerfect, Data Apex Clarity, Scion Compass and many others

The software includes hydrocarbon component name/retention time database templates and a calibration/reference material (a special naphtha blend containing ~ 700 individual components individually identified using MS). Making adjustments due to subtle differences in peak retention times produced by the GC system used to create the template and GC system used to produce the data is accomplished (from peak to peak) by the click of the mouse. Creating your own hydrocarbon component database(s) and then building them is very straightforward.

With the available Hydrocarbon Expert/MS™ module analysts are now able to confirm the identity of individual 'unknown' peaks and/or co-eluting species by supplementing traditional FID data with a MS detector to produce high quality spectra for comparison to MS spectral databases.



This diagram represents a small section of a DHA chromatogram showing both identified and 'undefined' components. Hydrocarbon Expert™ dramatically simplifies the identification of undefined components through the use of built in component name/retention time database templates. Templates that can be easily used to establish your own DHA database.

Software Capability Highlights

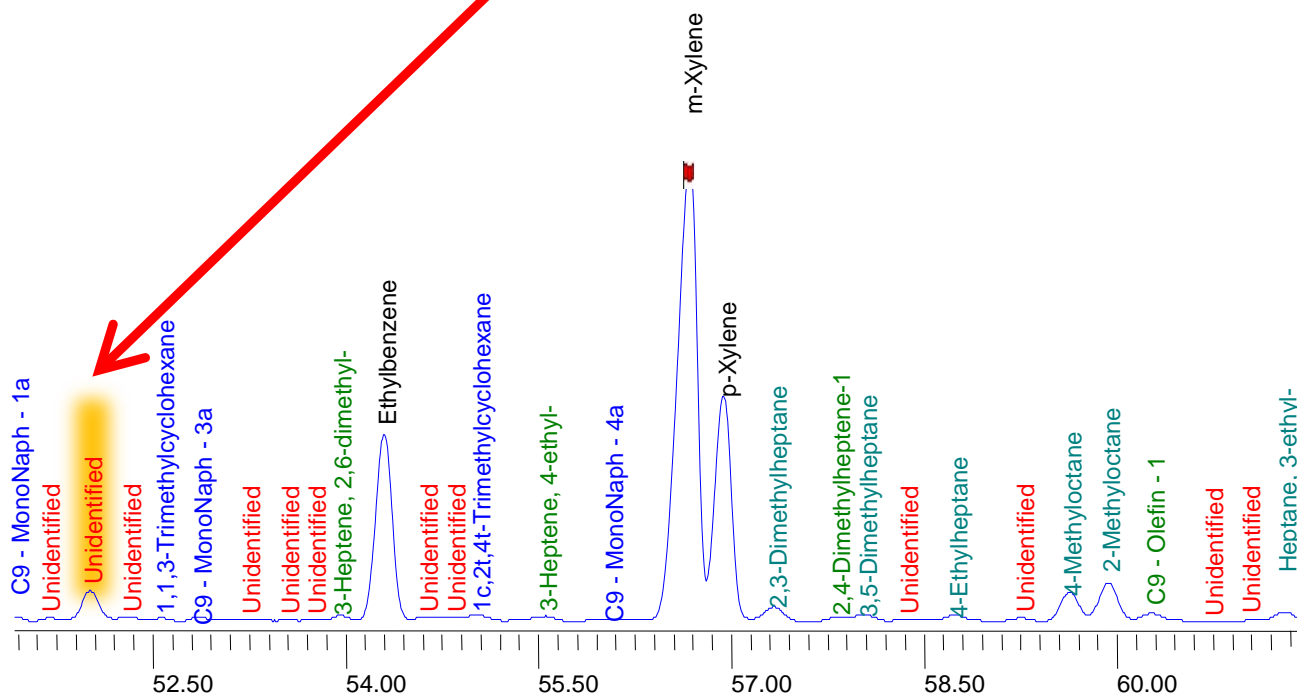
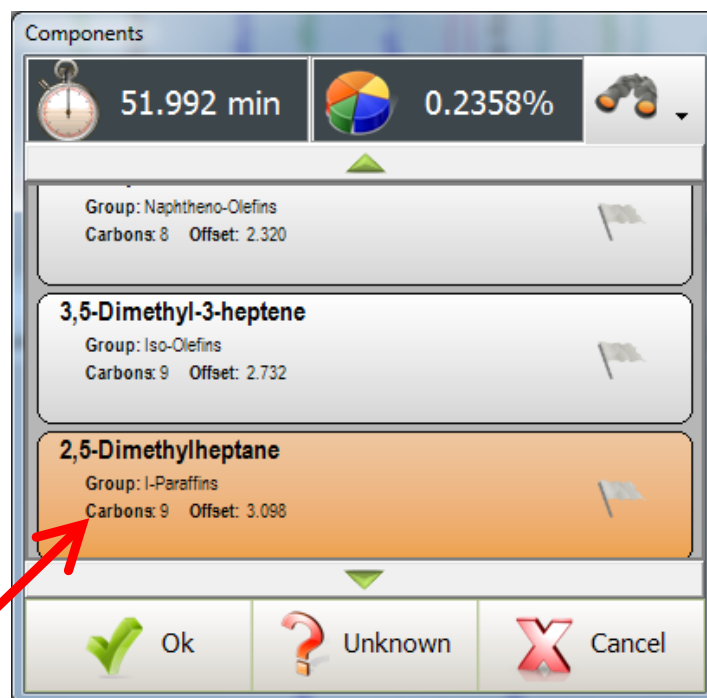
- ✓ Comprehensive pattern recognition (Sure-ID™). The original algorithm was modified to provide even greater accuracy while being more forgiving to very subtle pattern variations. It is now applied to the whole signal, not just a few select 'marker' peaks. All the components are identified with a single click of the mouse. The algorithm is built into the software. Therefore it is available to all GC data acquisition systems. Pattern recognition is carried out on the original raw signal, not on a time shifted chromatogram.
- ✓ Complies with ASTM D5134, D6729, D6730 and D7900. Other methods can be easily added.
- ✓ On-screen peak identification. Visually verify and correct the identification carried out by the built-in algorithms if need be. The sample chromatogram is displayed on the screen with each component's name on the apex of the identified peak. No typing is required to make corrections.
- ✓ Built-in peak integration. The signal can be re-integrated without leaving Hydrocarbon Expert.
- ✓ Hydrocarbon groups can be further broken down into class/sub-class.
- ✓ Standard physical properties calculated: RON, MON, Avg. API Gravity, Avg. MW, Avg. SG, Reid Vapor Pressure, % hydrogen, E200, E300, Ideal Gross Heating Value, C/H ratio, Bromine #, % oxygen by weight
- ✓ User can create custom calculations (ex. modify results using a 'correlation' factor) using Formula Editor
- ✓ Available MS module to expedite/simplify the accuracy of peak identification, identify co-eluting species.
- ✓ Reference chromatograms can be created. This is a very powerful tool when used in conjunction with On-screen Peak Identification reduces uncertainty by allowing the user to visually identify elution patterns.
- ✓ All the reports can be reviewed on-screen.
- ✓ Customizable reports. Chromatogram and calculations can be combined into a multi-page printed report.
- ✓ Reports can be saved into an ASCII delimited file and Microsoft Excel.
- ✓ Users access levels can be defined for security purpose.
- ✓ Multiple stored reports can be compared, both on screen and on paper, against the sample being analyzed.
- ✓ Several reference chromatograms can be overlaid during the analysis.
- ✓ Customizable groups. Group names can be added, removed or changed. Each group can also be included or excluded from the normalization.
- ✓ Co-elution. Two or more components can be assigned to the same integrated peak. The co-elution ratio can also be specified.
- ✓ Grouping. Several integrated peaks can be reported as a single component.
- ✓ Quick check of possible names for unidentified components. Only the available labels will be displayed based on the identified components that precede and succeed the unknown peak.
- ✓ Zoom in and out through clicking and dragging.
- ✓ User-defined correlation points can be added and optimized.
- ✓ Customizable report header.
- ✓ Available in English and Spanish
- ✓ Available for client or server based configurations

Software Shows the Most Probable ID for Unknown Peaks

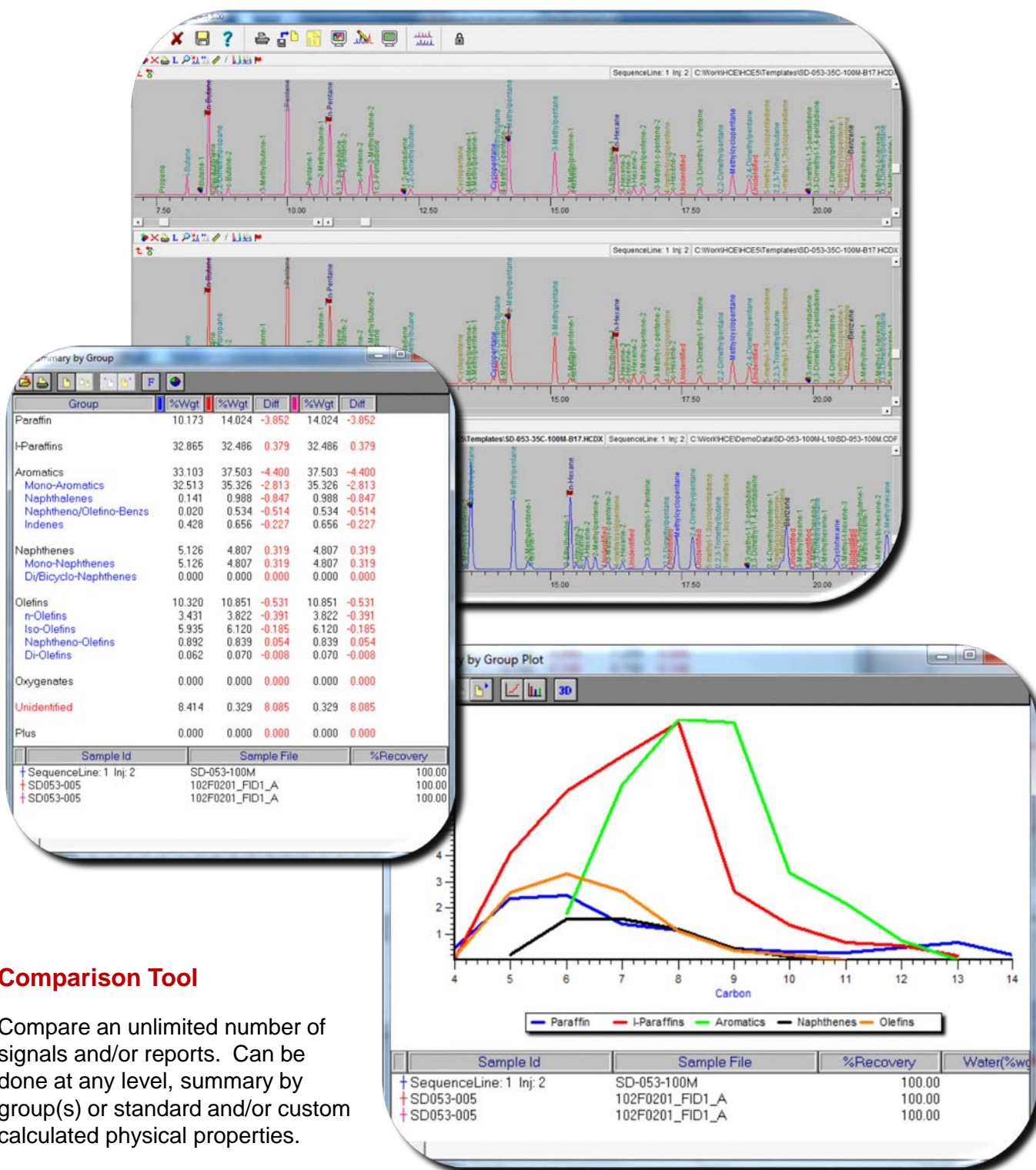
Identify Unknowns Faster

Hydrocarbon Expert will assist you identifying unknown peaks by offering most likely candidates using the built in component name/retention time database and sophisticated pattern recognition capability.

This capability is extended/enhanced through the addition of a MS detector and Hydrocarbon Expert's MS software module.



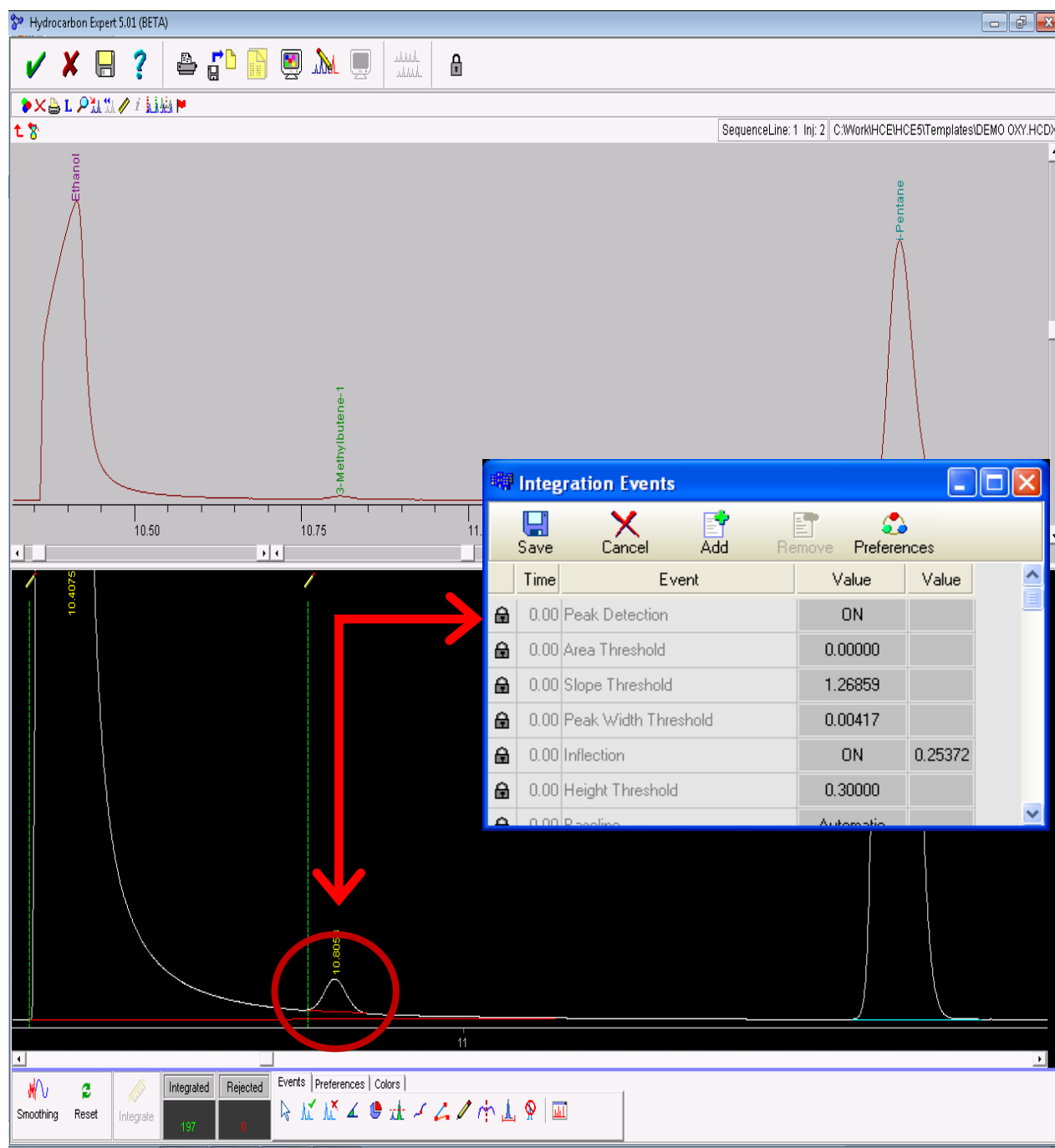
Compare Multiple Signals and/or Reports



Comparison Tool

Compare an unlimited number of signals and/or reports. Can be done at any level, summary by group(s) or standard and/or custom calculated physical properties.

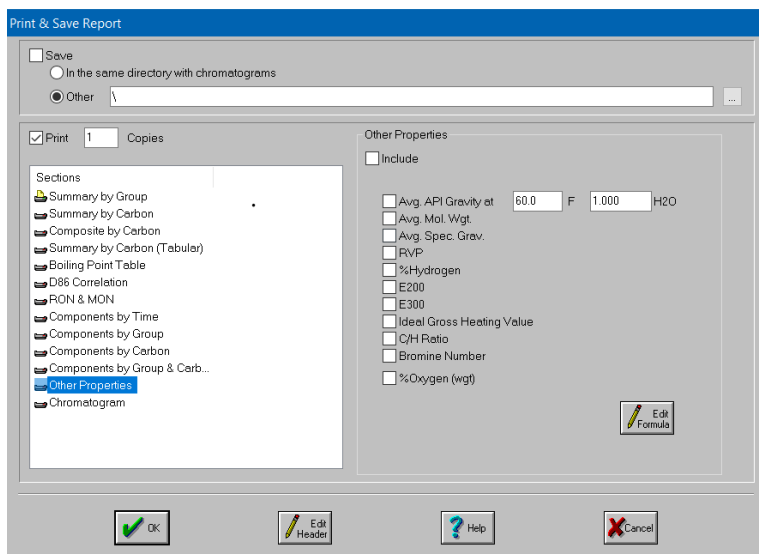
Built in Integrator and Run Time Events Table



Simplifying Your Signal Re-processing Workflow

The built in integrator with run time events table removes the need to leave the Hydrocarbon Expert software environment and return to the GC data acquisition software to reprocess the signal file (ex. too many or too few peaks because of an improper peak threshold setting, turn on tangent skimming to improve integration of small peak eluting on the shoulder of a larger peak)

Easy Adapt to Your Specific Needs

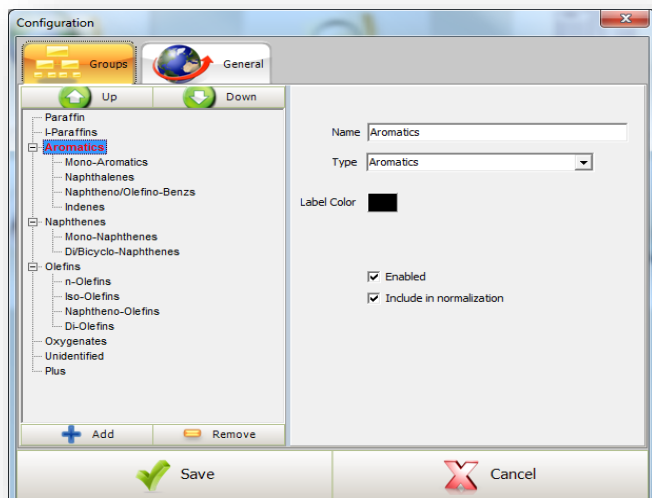
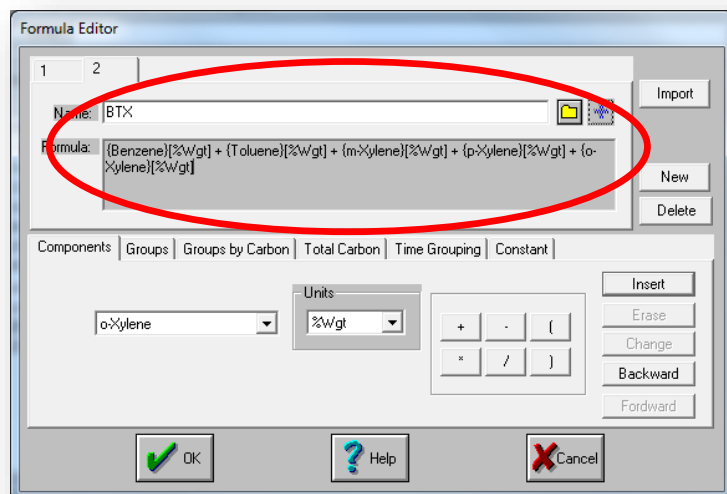


Wide Variety of Report Types and Calculated Properties

Although Hydrocarbon Expert can calculate a wide range of physical properties, additional special/custom calculations can be created using the built in Formula Editor.

Standard Calculations Don't Address Your Specific Needs?

If custom calculations are needed, they can be easily created using the built in Formula Editor



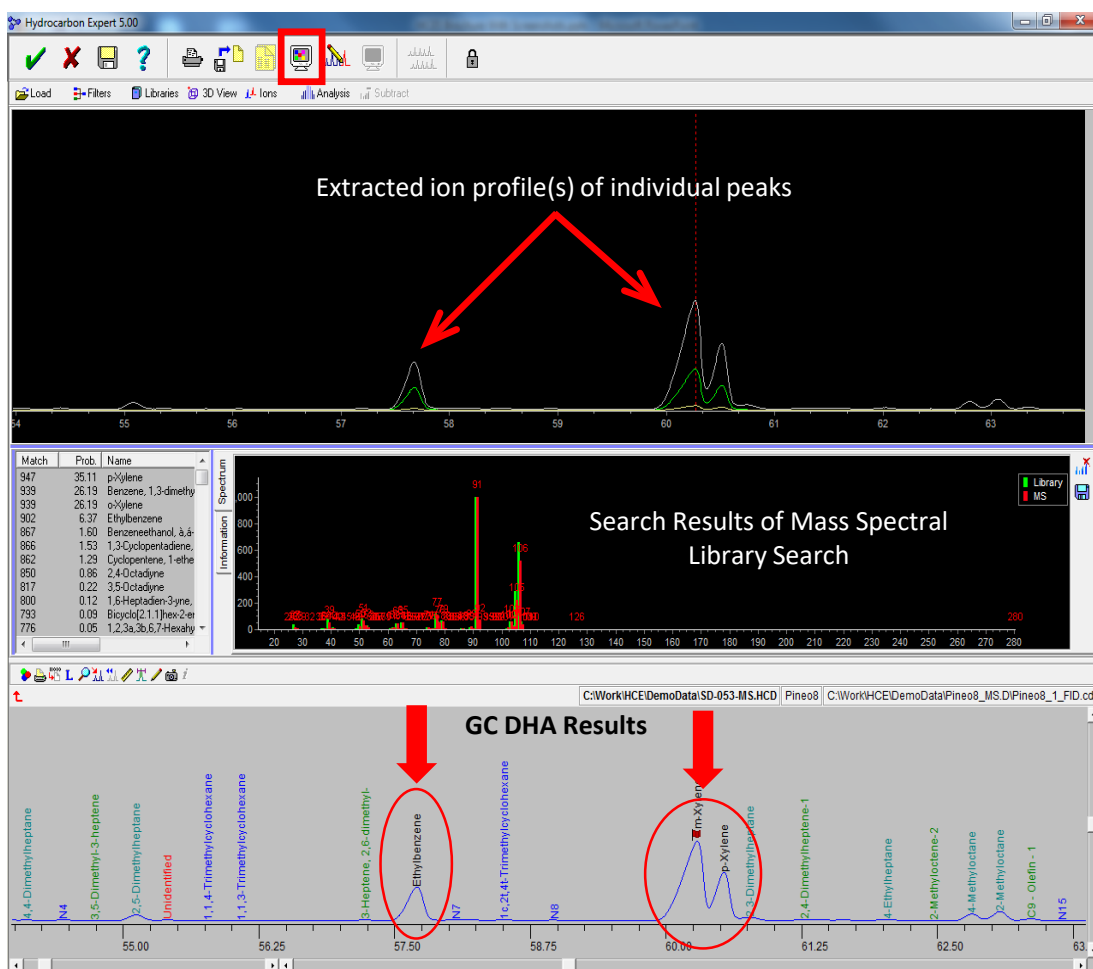
Hydrocarbon Groupings

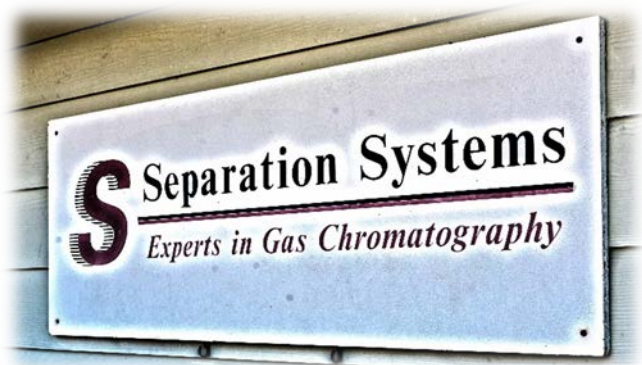
Primary and secondary groupings can be custom configured and new ones added

Available MS Software Module

Exploiting the Power of MS Detection

- Tightly integrated and streamlined FID and MS workflow. No need to switch between multiple software systems.
- Verify and extend FID identification by spectral review and NIST/Wiley MS databases searches.
- Unlimited individual extracted ion signals.
- Spectrum clean-up tool to remove individual masses to simplify identification
- Create your own proprietary component database.





The One Source for Your Detailed Hydrocarbon Analysis Needs

www.separationsystems.com

About Us

We are a minority owned business located in Gulf Breeze, Florida. We offer GC and GC-MS based analysis systems, application software, consumables, support and training for petroleum refining, bio-fuels and petrochemical applications. Our systems are comprehensive in nature and include a GC or GC-MS, our own specialized hardware and software, reference & calibration standards, consumables, training and support.

While the majority of our systems are designed to meet the international standard testing method requirements (ex. ASTM, EN, ISO), we also design systems for special requirements including custom software.

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