

chromperfect

Solutions through
Chromatography
Automation

chromperfect

Operating Systems

Chromperfect, is a chromatography data system designed to run on;



The Instrument Work Horse

- Technology that bridges control and analytics
- Compact instrumentation
- Analysis at site of production
- Familiar software for the technical professional
- Result information for the non technical colleague

Data Sources

Chromperfect can acquire, process, and report data from any GC or HPLC



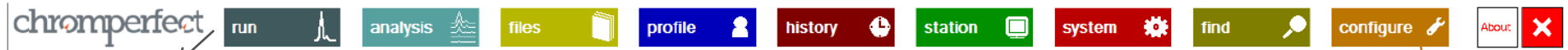
Ethernet/
TCPIP

Serial/RS
232

Analog
outputs



Chromperfect At a Glance



- Communicates with Instruments
- Creates Raw files

- Integrates Raw Files,
- Generates reports & plots
- Creates Bound files
- Update method
- Update calibration

- Creates, edits Methods and other files

- Search directories
- Set preferences

- Log Files
- Data
- Error
- Alarm

• Auditing

- Support information
- License information
- Software version
- Licensee

- System info
- Security

- CIMS
- Find Files

- Configure Instruments

chromperfect

chromperfect

run



analysis



files



profile



history



station



system



find



configure



About



Open Existing File

Which type of file do you wish to edit?

method



calibration



format



supermethod



sequence



raw data



sec cal



results job



setpoint



Show this form at startup

Cancel

Which type of setpoint file do you wish to edit?

Varian 3800
(.M38)



HP5890
(.MXT)



HP7890
(.M78)



Varian 4900
(.M49)



HP6890
(.M68)



Falcon
(.MFL)



Thermo
(.MTE)



DANI
(.MDI)



PAL Script
(.XML)



Shimadzu
(.MSZ)



<< Back

PE Clarus
(.MCS)



Show this form at startup

Cancel

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New Powerful Compact Instruments



Instrument Control

C:\CPData\SampleData\Sample.mfl

Aux Oven | Events | Inlet | Detectors | Columns

Detector #1

Temperature, deg. C

Hydrogen pressure

Air pressure (ignite)

Air pressure (run)

Invert data

Detector #2

Temperature, deg. C

Hydrogen pressure

Air pressure (ignite)

Air pressure (run)

Invert data

C:\CPData\SampleData\Sample.mfl

Aux Oven | Events | Inlet | Detectors | Columns

Oven Temperature, deg C

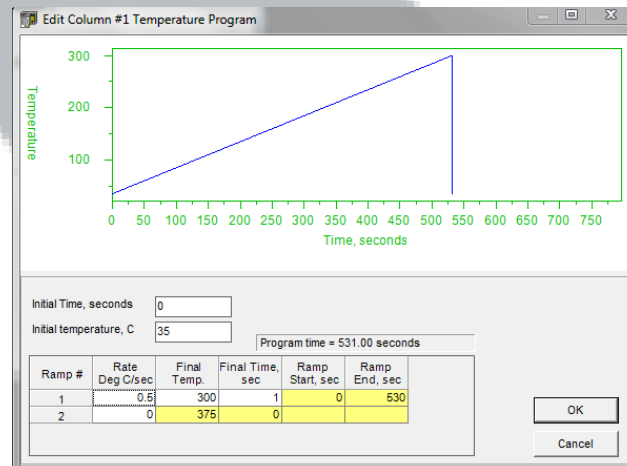
Delay time, seconds

Splitless time, seconds

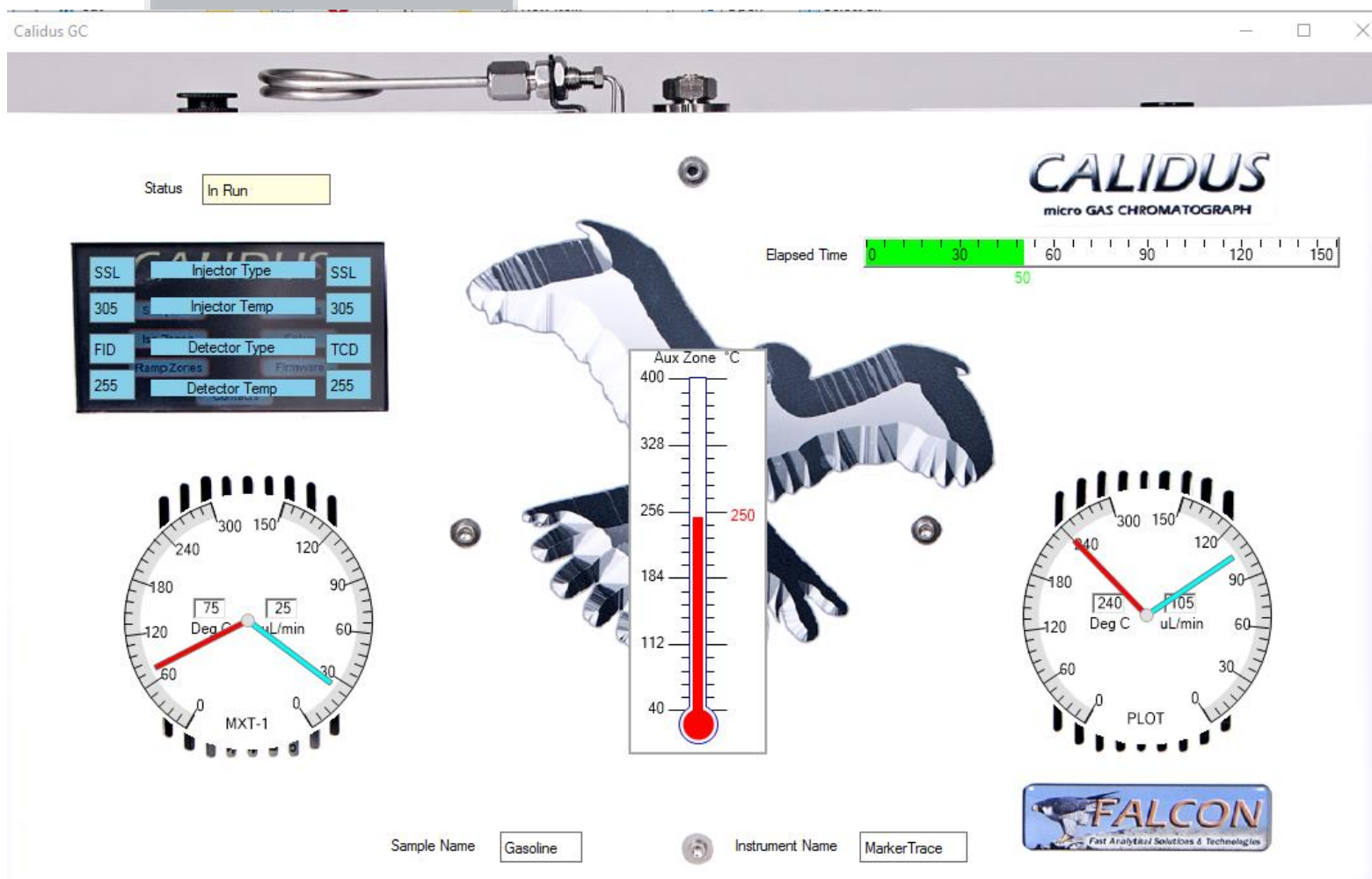
Split vent time, seconds

Loop injection time, seconds

Idle Flow fraction, percent



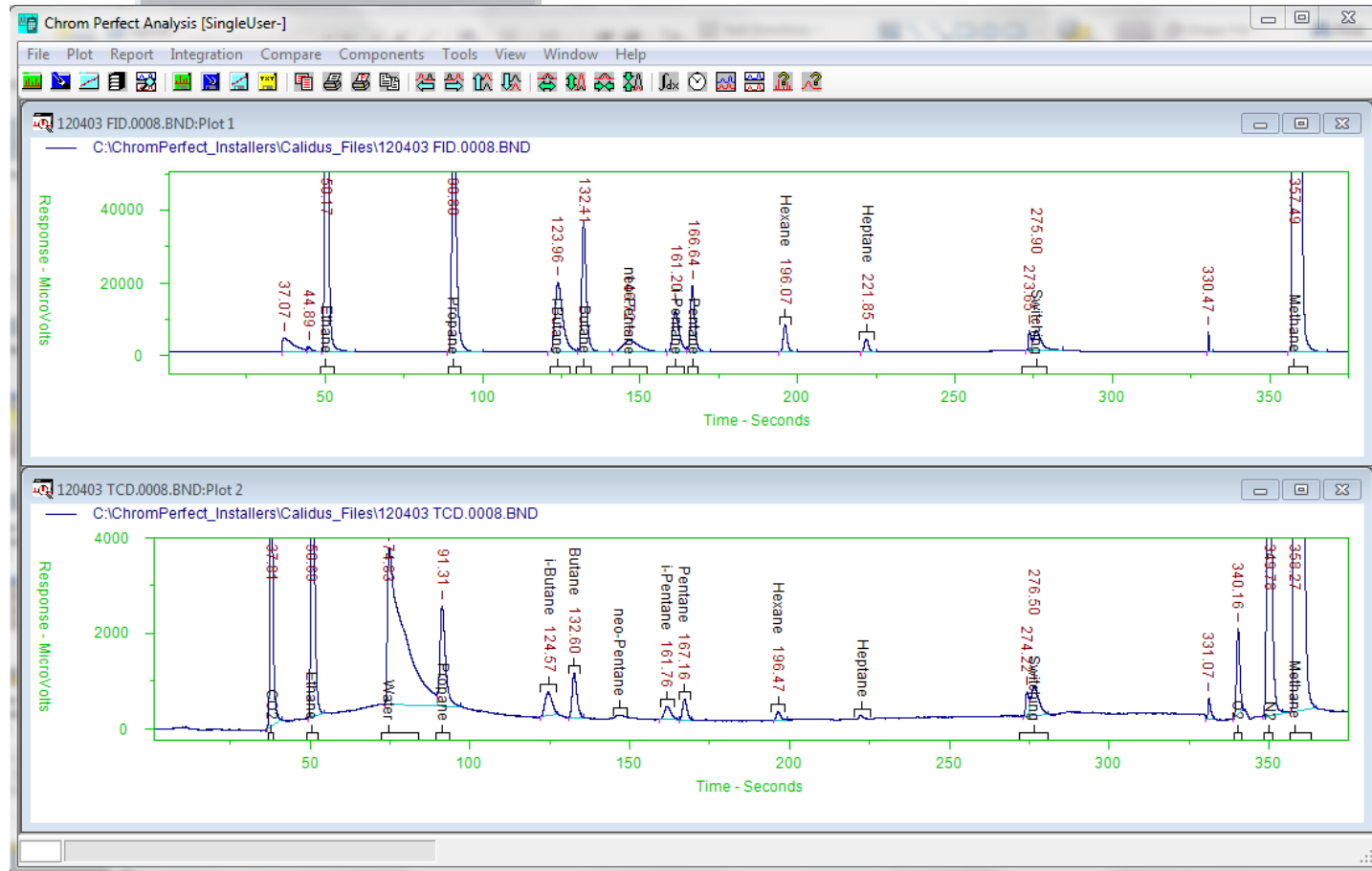
Instrument Control



Simplified Desktop

The screenshot displays the Chromperfect software interface, which mimics a Windows desktop environment. At the top, there is a navigation bar with icons for 'run', 'analysis', 'files', 'profile', 'history', 'station', 'system', 'find', 'configure', and 'About'. The desktop background is a blue and green abstract image. On the left, there is a window titled 'CALIDUS' showing a stylized bird logo and various gauges. The main area contains two stacked chromatogram windows. The top window, '120403 FID.0008.BND-Plot 1', shows a gas chromatogram with peaks labeled with retention times and chemical names: 37.07, 44.83, 98.80, 123.96, 132.51, 144.93, 168.84, 181.20, 196.07, 219.85, 273.80, 275.95, 330.47, and 357.40. The bottom window, '120403 TCD.0008.BND-Plot 2', shows another chromatogram with peaks labeled: 42.84, 48.80, 51.31, 91.31, 124.57, 132.60, 151.76, 167.16, 186.47, 276.50, 274.50, 331.07, 340.16, 354.27, and 357.40. The taskbar at the bottom includes the Windows Start button, a search bar 'Ask me anything', and various application icons. The system tray shows the time as 3:55 PM on 10/9/2016.

Fast Fast Fast





Robust Software to Match

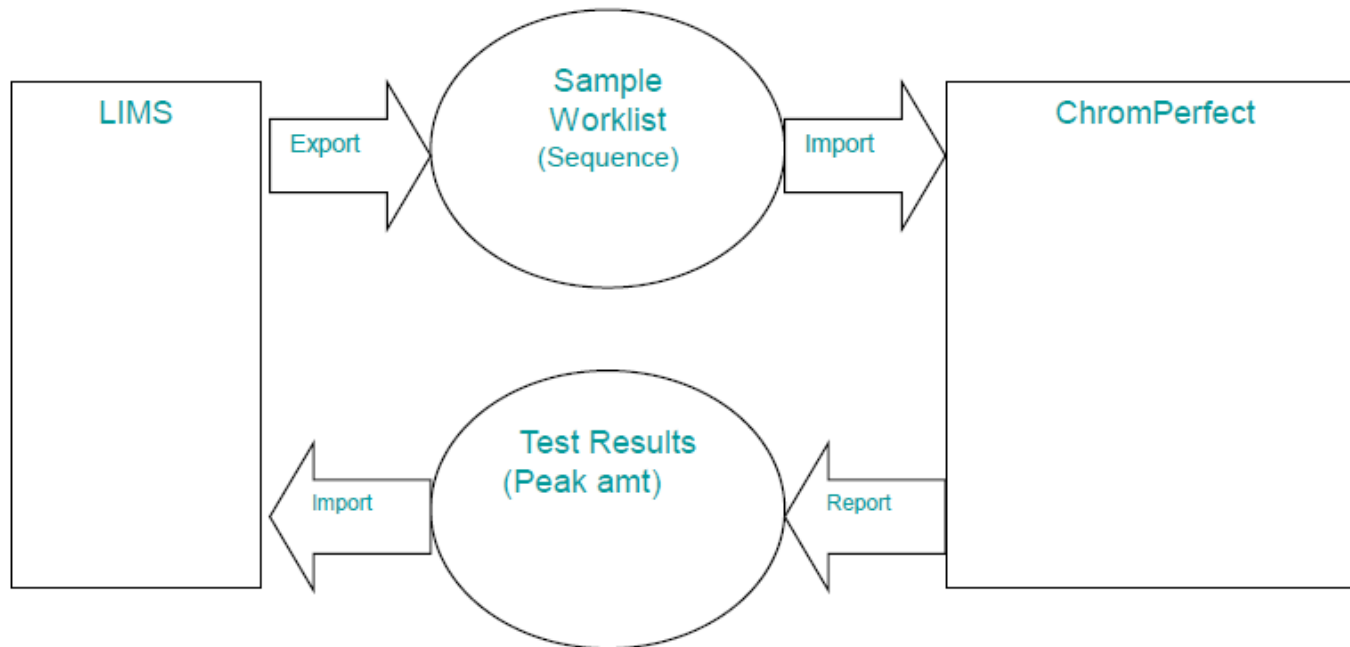
- Integration algorithms
- Data handling reporting
- Instrument control
- Interface with LIMS systems



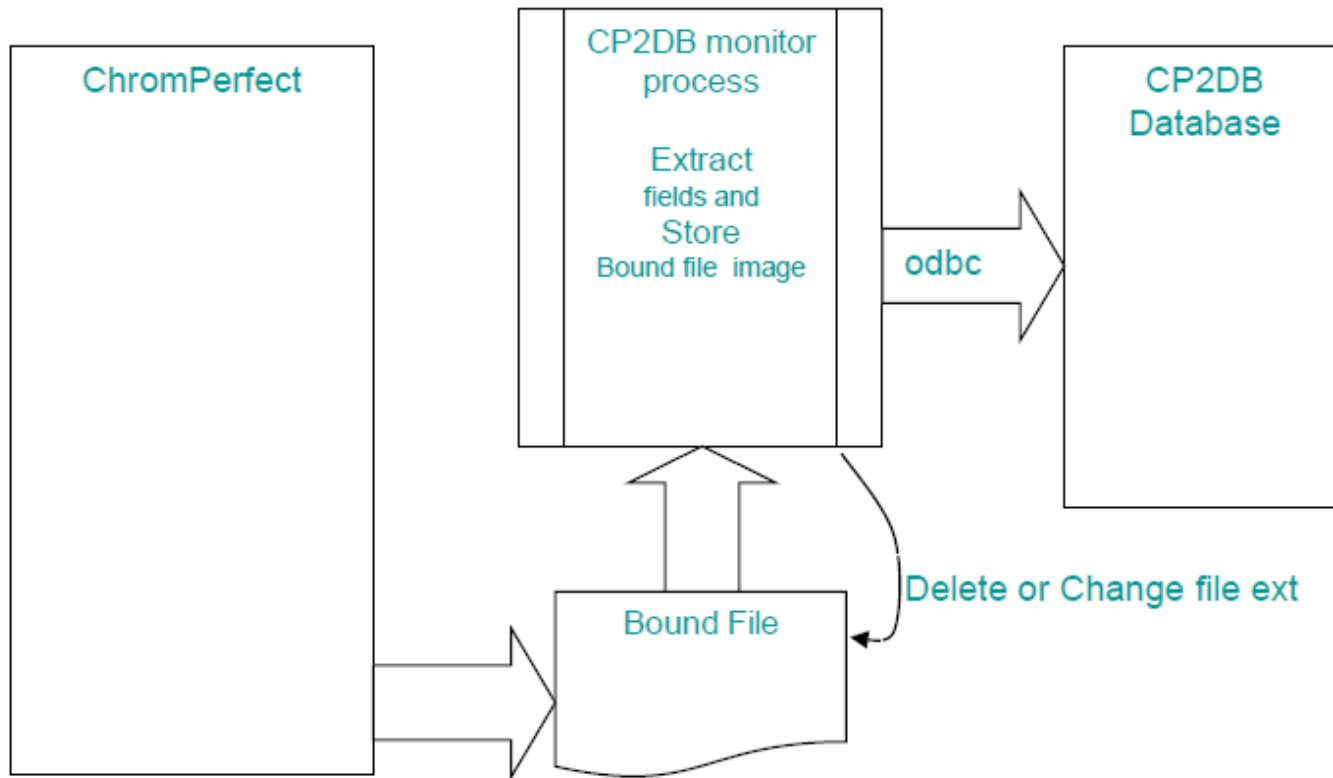
Distribution of Control

- Centrally located Instrument Server
- Client workstations placed anywhere
- Instruments controlled from LIMS to LAB

LIMS Sequence Interface



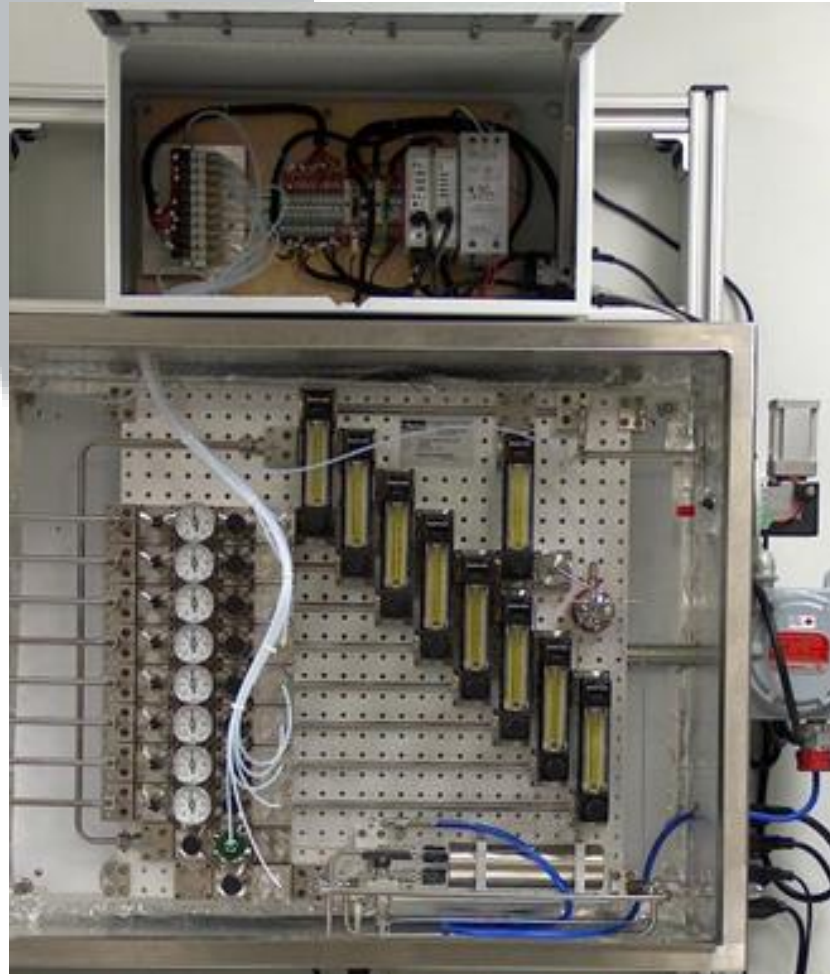
Information Transmitted



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Process Sample Systems

Nessi



Customized
Solutions

Common Technology Employed

- Balance and use existing infrastructure
- Local at site processing
- Remote control
- Highly secure

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Common User Interface



Chrom Perfect Data Acquisition on GEORGESCHREINER [SingleUser-]

File Plot View Tools Window Help Edit

	Instrument Name	Status	Owner's Name	Claiming Station	Controlling Station	Control	Show Plot	Ref. Plot	Show Meter	Auto Integ	Auto Proc	Data Directory	Printer	ID
1	Digital Data (FID)	Ready				Claim	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	C:\CPData	HP Photosmart	1
2	Tigre III HHCA (TCD)	Off Line				Claim	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C:\CPData	HP Photosmart	2
3	Tigre III HHC B (TCD)	Off Line				Claim	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C:\CPData	HP Officejet Pro	3
4	Calidus GC (FID)	Off Line				Claim	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	C:\CPData	HP Officejet Pro	4

Chrom Perfect Data Acquisition on GEORGESCHREINER [SingleUser-]

File Plot View Tools Window Help Edit

	Instrument	Control	Detector	Status	Sample Name	Raw File	Method File	et ho	Calib. File	Run Time	Response	Sequence File	qu an	Seq. #	Vial #	Relays	R
1 A	Digital Data		FID	Ready	Cal	1309291812A	ATEST.MET	.O.		13.99			.O.	0	0		
2 A	Tigre III HHC		TCD	Off Line	test		ATEST.MET	.O.		0			.O.	0	0		
3 A	Tigre III HHC		TCD	Off Line	test		ATEST.MET	.O.		0			.O.	0	0		
4 A	Calidus GC		FID	Off Line				.O.					.O.				

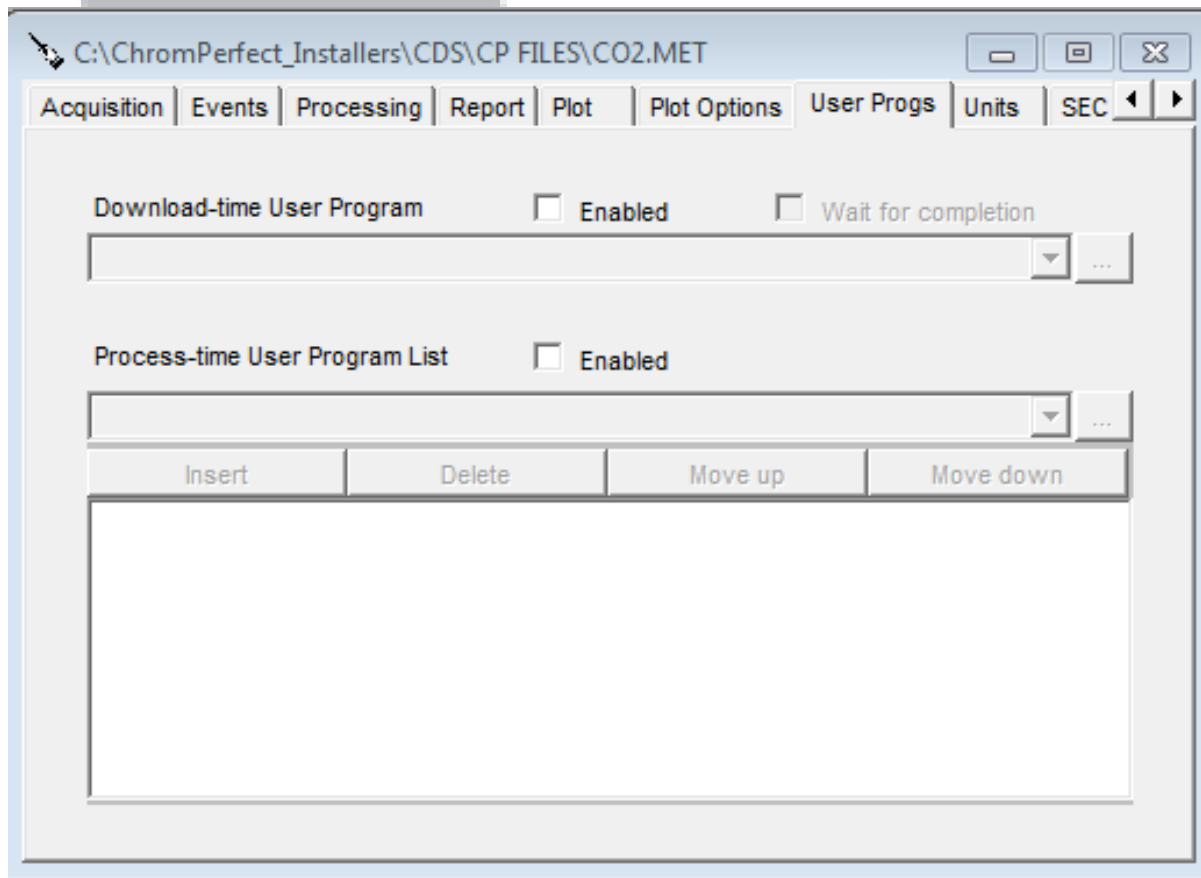
Long Arm of the Laboratory

- Sampling Stays Local
- Testing of Process Cleaning Procedures
- Monitoring of Workplace Atmosphere
- Local Chemical Reaction Monitoring
- Processing of Water streams
- Wireless connectivity for Legacy Instruments

Alarms from Analytical Results

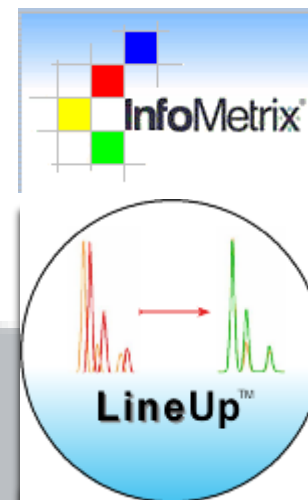
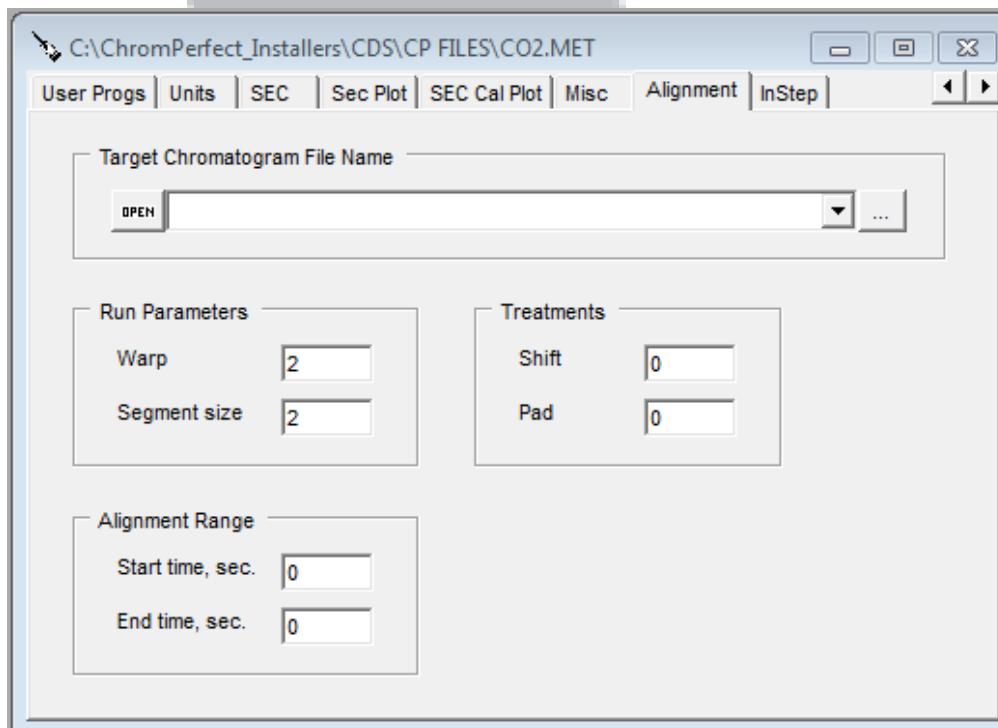
Name	R.T.	Missing peak?	Amount	Out of limit?	Area %	Over FV1?	Skew	Over UF1?
propanol	0.30	OK	0.74	OK	21.155	OK	1.002	OK
n-butanol	0.40	OK	1.00	OK	18.501	OK	0.999	OK
s-butanol	0.44	OK	0.50	OK	14.052	OK	1.010	OK
i-butanol	0.48	OK	0.84	OK	17.560	OK	1.002	OK
hexanol	0.70	OK	0.32	OK	16.795	OK	1.007	OK
heptanol	0.74	OK	0.58	OK	11.936	OK	0.999	OK

Flexible Programming



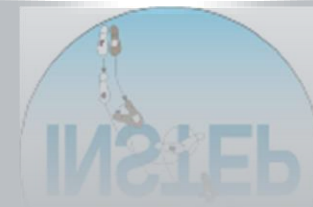
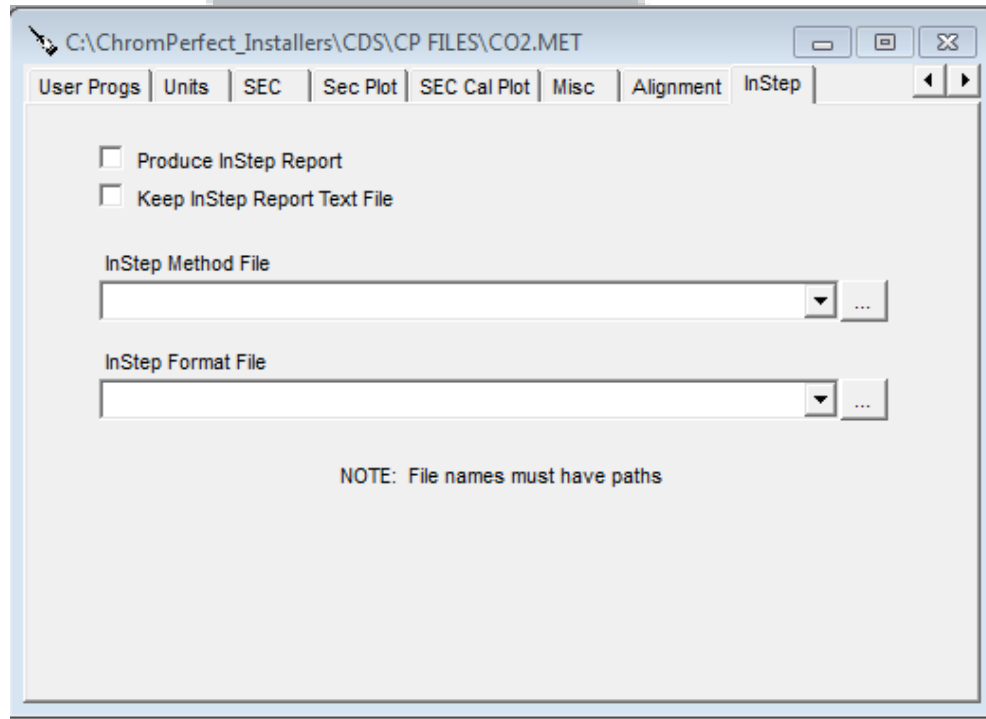
Chemometrics

- Direct Integration of InfoMetrix LineUp Software



Chemometrics

- Direct Integration of InfoMetrix InStep Software





ANALYZER CONTROL UNITS

- **GENERAL TOOL BETWEEN
PLANT AND LABORATORY**
- **LEARNING CURVE SHORTENED
SIGNIFICANTLY**
- **EASY CHANGE CONTROL**

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COMBINE ELEMENTS OF ACQUISITION AND ANALYSIS

The screenshot displays the Chrom Perfect File Editor interface, divided into four main panels:

- Component List Panel:** A table listing components with their retention times and window widths.
- Detector Settings Panel:** Configuration for two detectors, including temperature, hydrogen pressure, and air pressure.
- Chromatogram Processing Panel:** Options for smoothing, baseline subtraction, and peak detection.
- Report Layout Panel:** Configuration for the report's structure, including headers, footers, and table content.

Component List Data:

In Plot	Component Name	Retention Time, min.	Window Width, min.	Ref. Comp. #	Proxy Comp. #	Group #	Low Alarm
1	PEN	1.536	0.1	0	0	0	0
2	n-HEX	2.204	0.1	0	0	0	0
3	Benzene	2.689	0.1	0	0	0	0
4	cy-HEX	3.09	0.1	0	0	0	0
5	n-Heptane	3.357	0.1	0	0	0	0
6	Toluene	4.125	0.1	0	0	0	0
7	n-octane	4.542	0.1	0	0	0	0
8	m,p-xylene	6.096	0.1	0	0	0	0
9	o-xylene	6.413	0.1	0	0	0	0
10	p-benzene	7.164	0.1	0	0	0	0

Detector Settings:

Parameter	Detector #1	Detector #2
Temperature, deg. C	250	350
Hydrogen pressure	25	26
Air pressure (ignite)	10	13
Air pressure (run)	25	26

Chromatogram Processing:

- Type of Smoothing: None
- Smoothing Time (sec): 0
- Subtract Baseline Chromatogram:
- Initial peak detect threshold: -4
- Initial peak width, minutes: 0.1
- Calibration File Name: Atest.cal

Report Layout:

- Layout Width: Page Width, Report Width
- Orientation: Portrait, Landscape
- Report width in: []

Version = 2 Format: CP32 Modified on 10/15/2013 6:20:08 AM test

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COMMUNICATE TO THE UNIVERSE

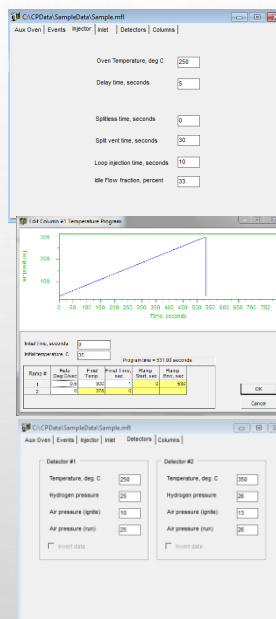
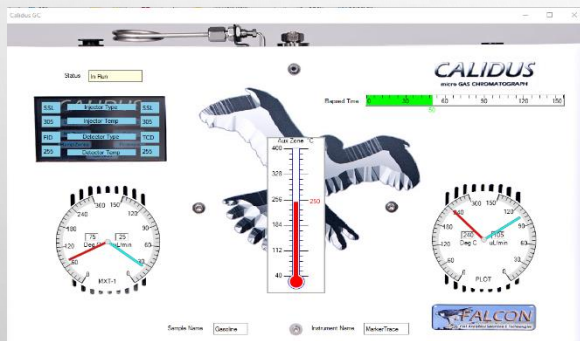
- MAKE DATA AVAILABLE TO ALL CUSTOMERS
- CREATE STANDARD FILE TYPES ON THE FLY
- E-MAIL REPORTS AND PLOTS
- EVALUATE AND PRODUCE ALARMS
- CONVERSE WITH SCADA

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SYMMETRIC INSTRUMENT CONTROL

THE ANALYZER INSTRUMENT IN THE PLANT OR AT THE SAMPLE SITE

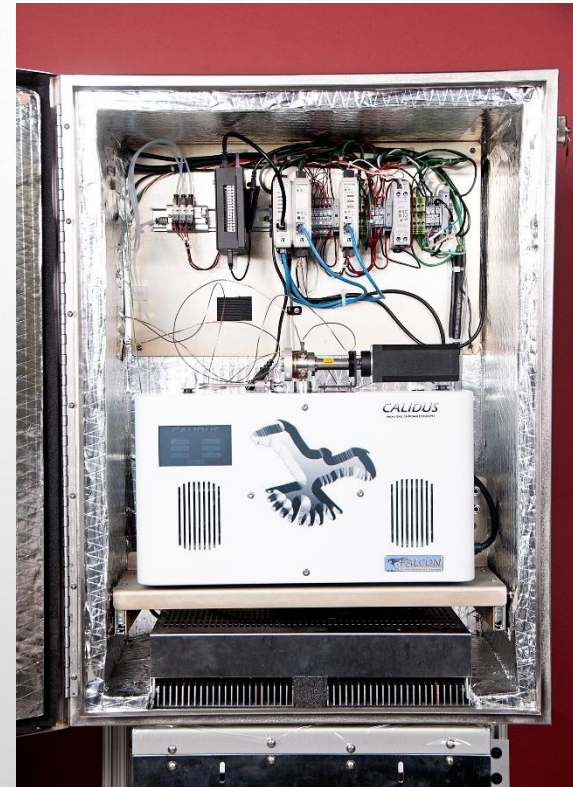
THE ANALYTICAL INSTRUMENT IN THE LABORATORY



SAMPLING CONTROL

AUTOMATED SAMPLE STREAMS

- OFF THE SHELF DEVICES
- CUSTOM CONFIGURED



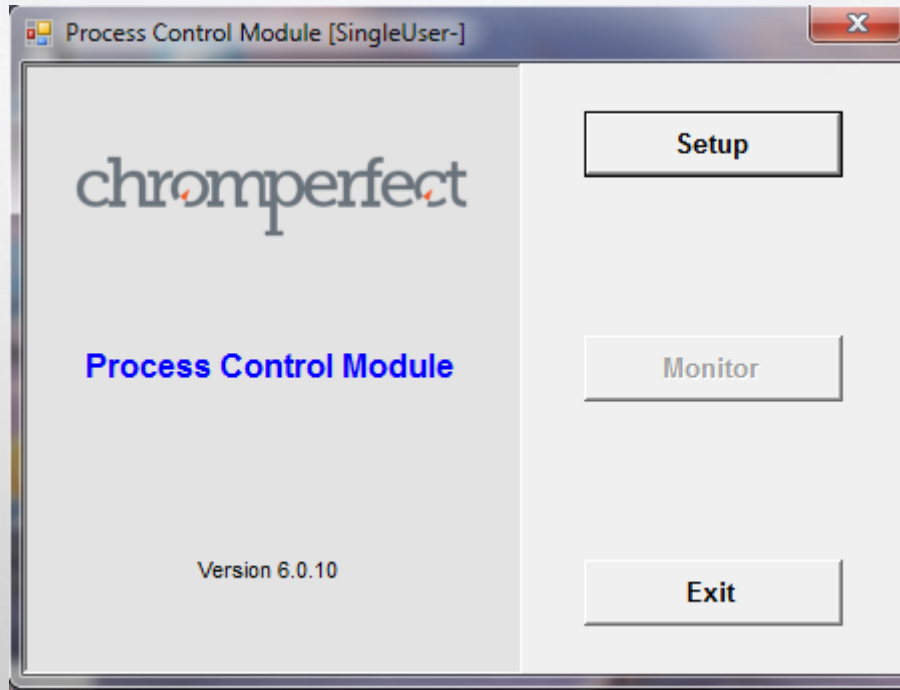


LABORATORY TO PLANT

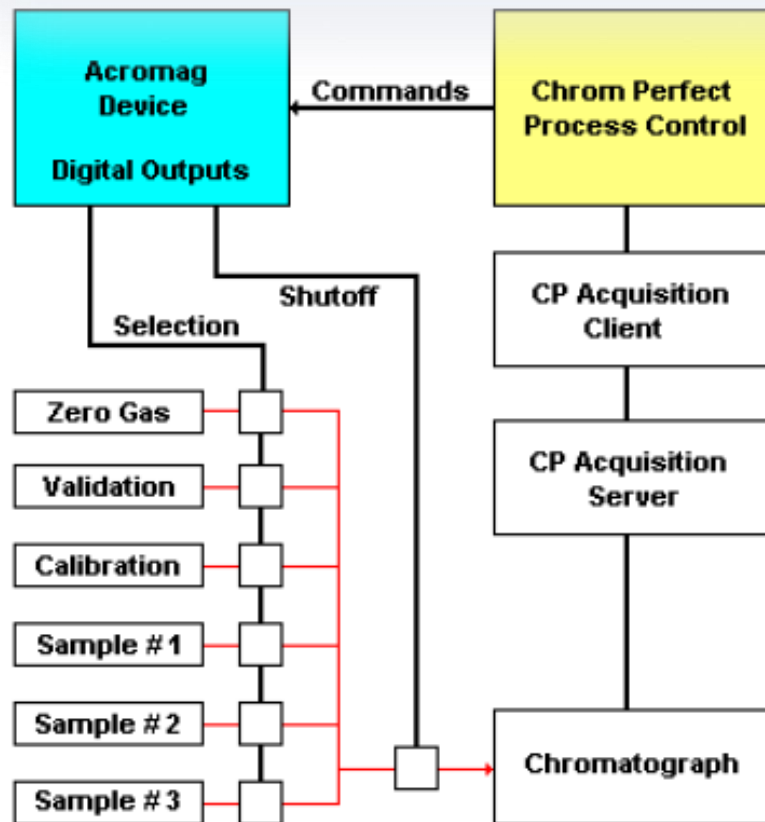
- ANALYTICAL METHODS
- FILE COMPATIBILITY
- RESULT CORRELATION
- CHROMPERFECT PROCESS CONTROL

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process control 



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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

Instrument Name: Digital Data

Injection Delay Time, sec.: 2

Recovery Delay Time, sec.: 4

Message Background Color: White

OK Cancel

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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

	Model	IP Address
Digital VO "A" (required)	983EN	192.168.20.101
Digital VO "B" (optional)	951EN	192.168.20.102
RTD Module (optional)	966EN-6006	192.168.20.103

OK Cancel

I/O Gear Configuration

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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

Zero Gas Stream Port Number	A1	<input type="checkbox"/>		Maintenance Mode Port Number	A4	<input type="checkbox"/>	
Shutoff Valve Port Number	None	<input type="checkbox"/>		Priority Stream Port Number	A5	<input type="checkbox"/>	
Shutoff Valve Duration, sec.	1	<input checked="" type="checkbox"/>	Use MFL file	Priority Stream Number	B0		
Heater Control Port Number	A2	<input type="checkbox"/>					
Cooler Control Port Number	A3	<input type="checkbox"/>					

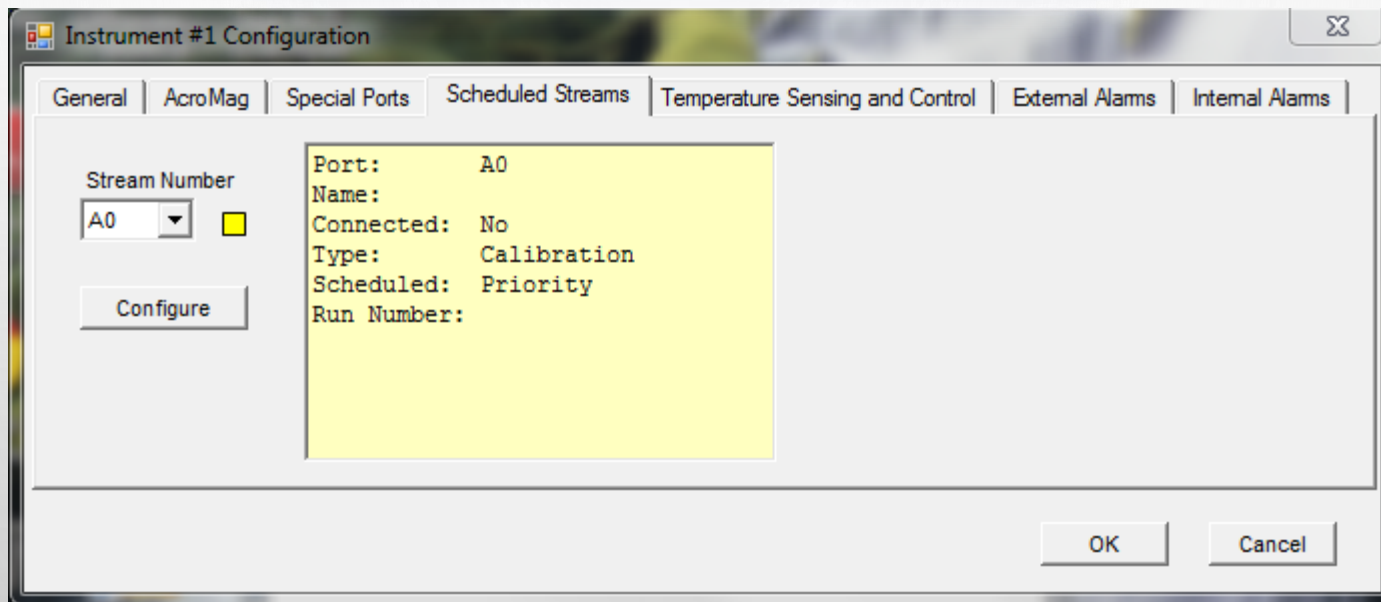
OK Cancel

Specialized Ports

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Scheduled Stream Configuration

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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

RTD Port Number (Main)	0	(Backup)	1
Upper Alarm Limit	65	HR Addr	200
Lower Alarm Limit	35		

Controller ON

Upper Threshold (cool ON) 55

Lower Threshold (heat ON) 45

Refractory Time, min. 1

OK Cancel

Analyzer Enclosure Conditions

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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

	Port Number	HR Addr	Function
Alarm A	B1	101	Validation
Alarm B	B2	102	Calibration
Alarm C	None	0	
Alarm D	None	0	

OK Cancel

External Alarms from SCADA

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Instrument #1 Configuration

General | AcroMag | Special Ports | Scheduled Streams | Temperature Sensing and Control | External Alarms | Internal Alarms

HR Address

Out-Of-Service Flag	<input type="text" value="104"/>
Calibration / Validation Flag	<input type="text" value="105"/>

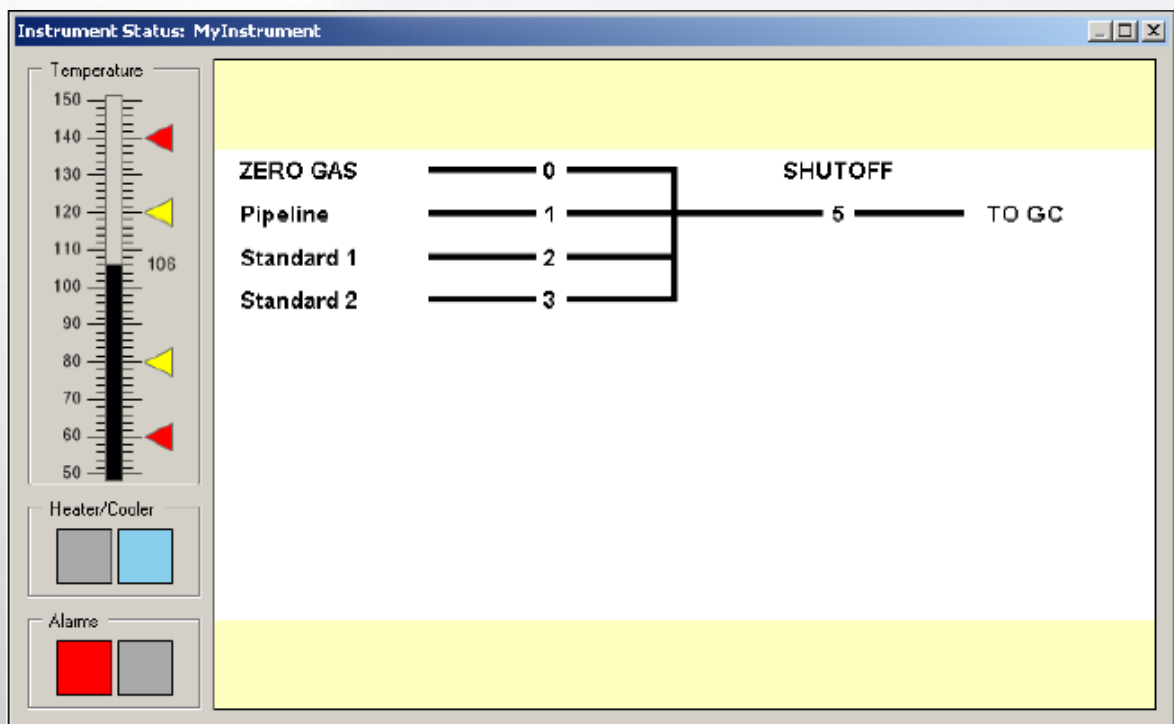
OK Cancel

Internal Alarms visible to SCADA

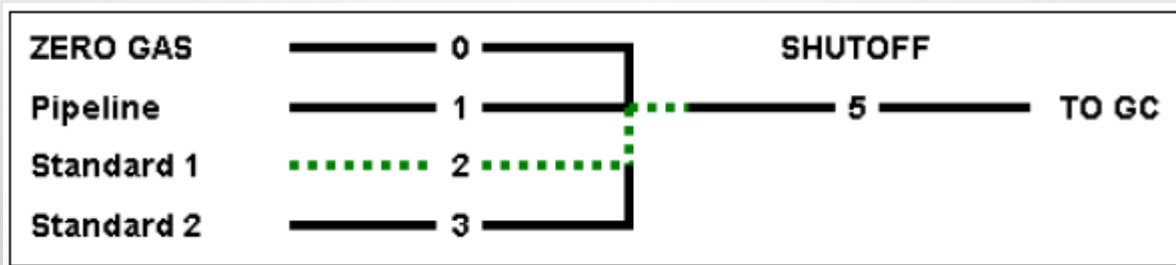
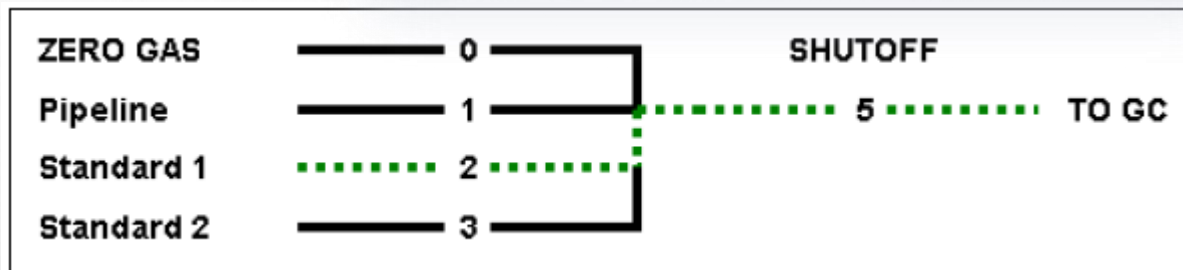
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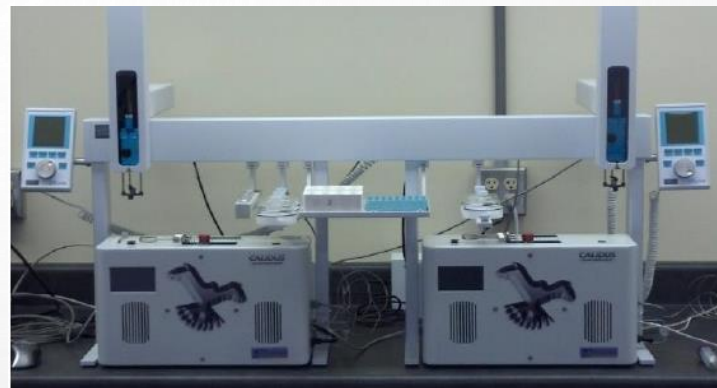


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PLANT AND LABORATORY



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9/2016



Extending The Reach of Chromatography Data

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MarkerTrace

- ❖ Specific SOP for application of Specific Testing
- ❖ Creation of the Analyzer Controller Unit, the ACU

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- This is a “Joint Venture” of Instruments and Software
- Consideration of Users that are commissioned for the Project
- The application of revolutionary, unique instrumentation

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- Highly Trained Scientists Begin the Process
- Convert the Identified Requirement into a Chromatographic Solution
 - Method Development
 - Keeping an Eye on Logistics for the Environment of Deployment
- Highly Trained Technicians
 - Need not have a “Science” background
 - Trained to adhere to tasks outlined in Software



Anatomy of the Software Solution

- Begins with a Highly Reliable Instrument
- Chromperfect Marker Trace designed around Calidus
- Micro and Fast Gas Chromatography
- Many Deployment Options
 - Laboratory Environment
 - Mobile Implementation

Determination of the “Product”

- The Product is the Result of the Entire Process
- Software and Hardware are Only the Vehicle
- The ACU is developed from the Product Down
 - Result Report
 - Method to Get the Result
 - Instrument to Run the Method
 - Software to Knit the Pieces Together
- Software is a Flexible and Dynamic

The Problem Before Us

- Detection of Fraud in Fuels, Spirits, Fragrances, Flavors, and More
- Tools for Enforcement Agencies and Govt's
- Reliable Data on a Mobile Basis
- Defined and Strick SOP
- Detection at Low Levels



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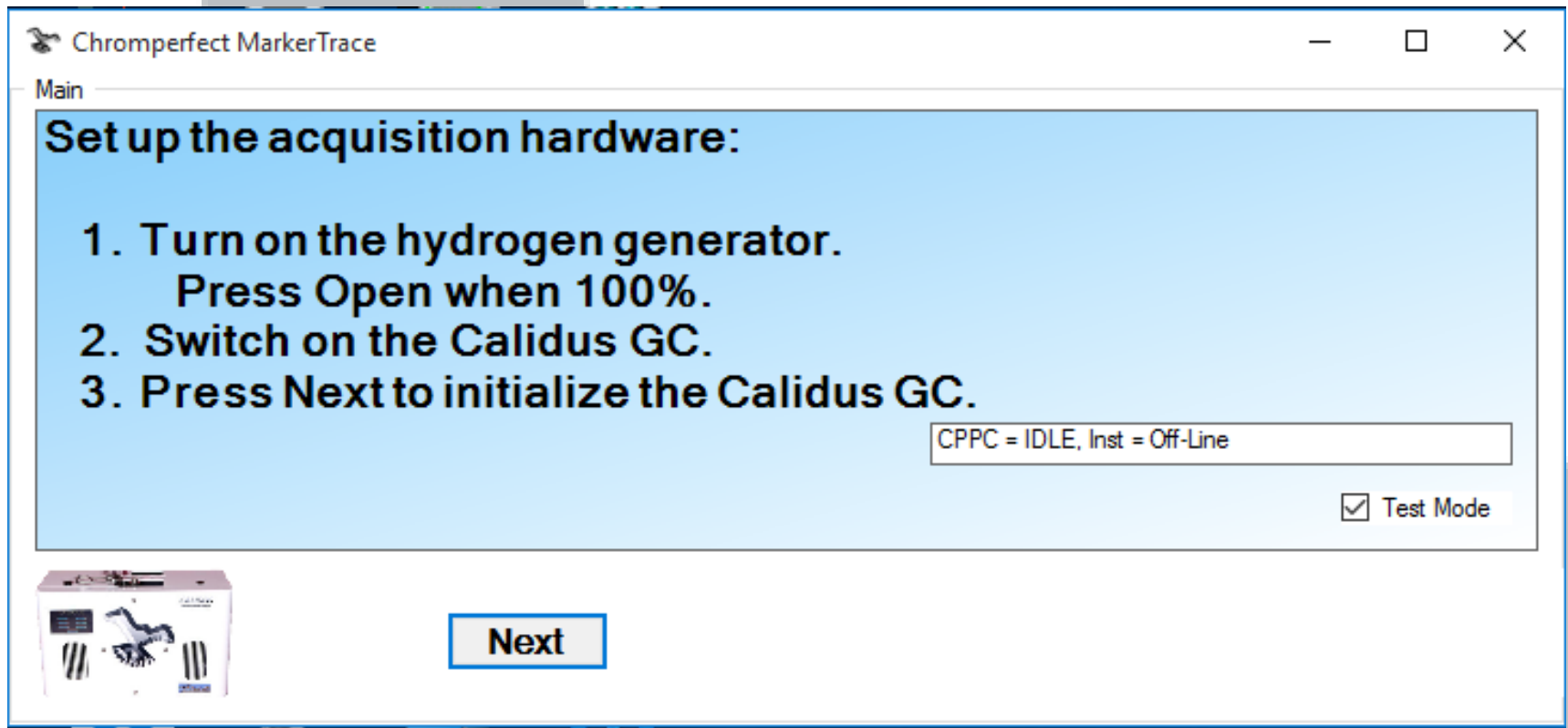
A Look At the ACU

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MarkerTrace

10/9/2016

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Startup



The screenshot shows the 'Chromperfect MarkerTrace' software window. The title bar includes the application name and standard window controls (minimize, maximize, close). Below the title bar is a 'Main' tab. The main content area has a light blue background and contains the following text:

Set up the acquisition hardware:

- 1. Turn on the hydrogen generator.
Press Open when 100%.**
- 2. Switch on the Calidus GC.**
- 3. Press Next to initialize the Calidus GC.**

At the bottom right of the blue area, there is a status box containing the text 'CPPC = IDLE, Inst = Off-Line' and a checked checkbox labeled 'Test Mode'. Below the blue area, there is a small image of a Calidus GC instrument on the left and a 'Next' button in the center.

Initialize the ACU System

The screenshot displays the Chromperfect MarkerTrace software interface, which is used for initializing the ACU system. The main window, titled "Chromperfect MarkerTrace", shows a blue background with the following text:

Initializing the Calidus GC.
Press the start trigger when told to do so.
***** Press the start trigger now. *****

Below the text, there is a status bar that reads "CPPC = WAITSTART, Inst = Ready to Go" and a checkbox labeled "Test Mode" which is checked. A small icon of the Calidus GC instrument is visible in the bottom left corner of the main window.

The "Process Control Monitor" window is also visible, showing a log of events:

```
10/20/15 22:40:12 SCHEDULED: Sample stream #A5 (Priority) <STARTUP>
10/20/15 22:40:15 Downloading Method file <C:\CPData\MarkerTrace\MarkerTraceSU.mt>
10/20/15 22:40:19 Selecting sample stream #A5
```

The "Process Log" window shows the following entry:

```
10/20/15 22:40:12 STARTED: STARTUP
```

The bottom section of the interface contains various controls and status information:

- Copy to Clipboard
- Display only messages from selected instrument
- Ignore Acromag errors
- Show Display
- Running since: 10/20/2015 10:38:15 PM
- Current Time: 10:41:02 PM
- Selected Instrument: Calidus Digital Data
- Monitor Status: Starting acquisition
- Instrument Status: Ready to Go
- Last RTD reading: N/A
- Buttons: Enable Streams, Abort Sequence, Dismiss Alarm
- Color-coded status indicators: a row of 10 squares, with the 7th square highlighted in yellow.
- Buttons: Copy to Clipboard, Clear Process Log

Preparing a Clean Analyzer

The screenshot displays two windows from the Chromperfect software. The top window, titled "Chromperfect MarkerTrace", has a light blue background and contains the following text: "Preparing for an initialization blank run.", "Press the start trigger when told to do so.", and "*** Press the start trigger to run the blank. ***". Below the text is a status bar showing "CPPC = WAITSTART, Inst = Ready to Go" and a checked "Test Mode" checkbox. The bottom window, titled "Process Control Monitor", shows a log of events: "10/20/15 22:42:20 SCHEDULED: Sample stream #A1 (Priority) <BLANK>", "10/20/15 22:42:23 Downloading Method file <C:\CPData\MarkerTrace\MarkerTraceB_A.met>", and "10/20/15 22:42:26 Selecting sample stream #A1". To the right of the log is a "Process Log" section with tabs for "Process Log" and "Error Log", containing the following entries: "10/20/15 22:40:12 STARTED: STARTUP", "10/20/15 22:42:13 COMPLETED: STARTUP", and "10/20/15 22:42:20 STARTED: BLANK". At the bottom of the "Process Control Monitor" window, there are several controls: "Copy to Clipboard", "Ignore Acromag errors", "Show Display", "Running since" (10/20/2015 10:38:15 PM), "Current Time" (10:42:58 PM, 22:42:58), "Display only messages from selected instrument" (unchecked), "Selected Instrument" (Calidus Digital Data), "Monitor Status" (Starting acquisition), "Instrument Status" (Ready to Go), "Last RTD reading" (N/A), "Enable Streams", "Abort Sequence", "Dismiss Alarm", and a row of colored indicator lights.

Ready for Testing

The screenshot displays the Chromperfect MarkerTrace software interface, which is divided into several sections:

- Main Panel:** A large blue area with the text "Calidus is initialized and ready for injections. Choose the type of run, or press Quit to shut down the GC." Below this, a status box shows "CPPC = IDLE, Inst = Ready to Go" and a checked "Test Mode" option.
- Chromperfect Acquisition:** A row of buttons for "Quit", "Blank", "Calibration", "Sample", and "Validation".
- Process Control Monitor:** A log window showing a sequence of events from 10/20/15 22:42:20 to 22:44:06, including "SCHEDULED: Sample stream #A1 (Priority) <BLANK>", "Downloading Method file", "Selecting sample stream #A1", "Start of run detected", "End of run detected", and "Processing Raw file" for two files.
- Process Log / Error Log:** A window showing a log of events from 10/20/15 22:40:12 to 22:44:06, including "STARTED: STARTUP", "COMPLETED: STARTUP", "STARTED: BLANK", "No run started in 1 minutes", "Run starts have resumed", and "COMPLETED: BLANK".
- Control Panel:** Includes a "Copy to Clipboard" button, a "Display only messages from selected instrument" checkbox, a "Selected Instrument" dropdown menu (set to "Calidus Digital Data"), "Monitor Status" (Waiting for next scheduled sampling), "Instrument Status" (Ready to Go), "Last RTD reading" (N/A), "Enable Streams", "Abort Sequence", and "Dismiss Alarm" buttons. There are also two rows of status indicator lights.
- Timing Information:** "Running since" (10/20/2015 10:38:15 PM) and "Current Time" (10:44:43 PM, 22:44:43).

Calibration

The screenshot displays the Chromperfect software interface, which is divided into several windows:

- Chromperfect MarkerTrace (Main):** A blue instruction box titled "Prepare for a calibration injection." with the following steps:
 1. Wash the syringe with the calibration standard.
 2. Load the appropriate volume on the MicroShot.
 3. Wipe the needle.
 4. Make the injection when told to do so.Below the instructions, it shows "CPPC = WAITSTART, Inst = Ready to Go" and a "Test Mode" checkbox which is checked. A "Back" button is located at the bottom left of this window.
- Chrom Perfect Data Acquisition on GEORGESCHREINER [SingleUser-]:** A window showing a table of instrument status and sample information.

	Instrument	Control	Detector	Status	Sample Name	Raw File	Method File
1 A	Calidus Digital		FID	Ready	CALIBRATIO	1510202245_C_A.0001.R	MarkerTraceC_A.met
1 B				Ready	CALIBRATIO	1510202245_C_B.0001.R	MarkerTraceC_B.met
2 A	FID Digital			Ready	Test	TestOneNote.0002.RAW	ATEST.MET
- Process Control Monitor:** A window showing a log of system events.

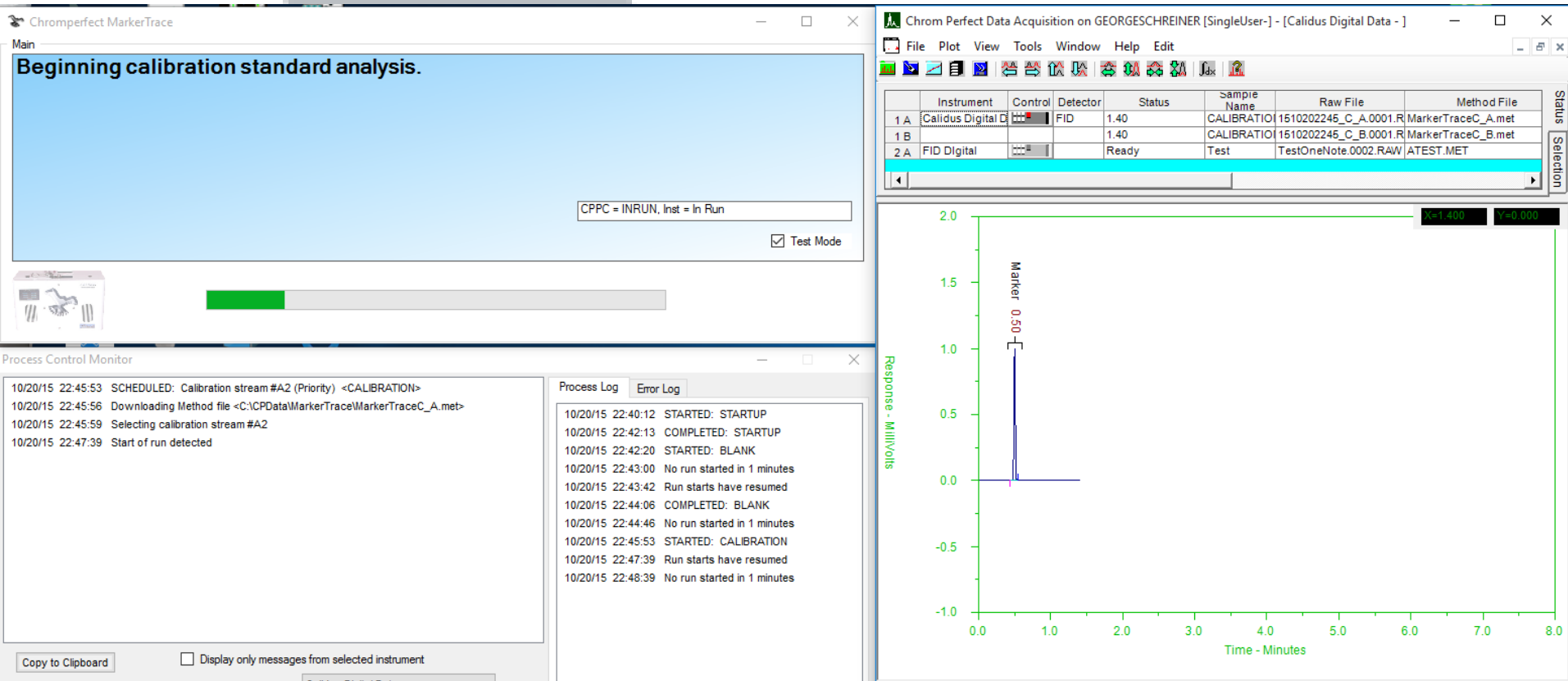
Process Log

```
10/20/15 22:45:53 SCHEDULED: Calibration stream #A2 (Priority) <CALIBRATION>
10/20/15 22:45:56 Downloading Method file <C:\CPData\MarkerTrace\MarkerTraceC_A.met>
10/20/15 22:45:59 Selecting calibration stream #A2
```

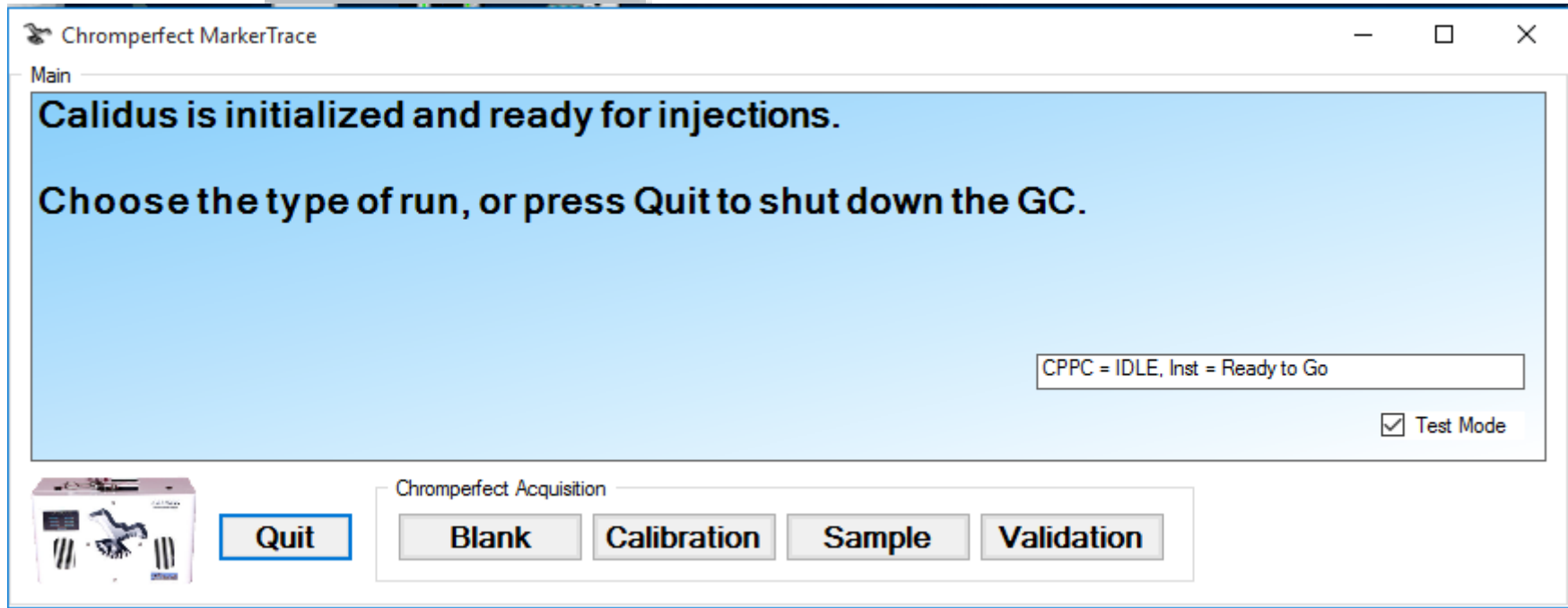
Error Log

```
10/20/15 22:40:12 STARTED: STARTUP
10/20/15 22:42:13 COMPLETED: STARTUP
10/20/15 22:42:20 STARTED: BLANK
10/20/15 22:43:00 No run started in 1 minutes
10/20/15 22:43:42 Run starts have resumed
10/20/15 22:44:06 COMPLETED: BLANK
10/20/15 22:44:46 No run started in 1 minutes
10/20/15 22:45:53 STARTED: CALIBRATION
```

Blending Three Techniques



ACU Ready for Sample Unknown



Preparing a Test Sample

chromperfect Marker Trace

Operator

Date

PASS	Blank	Pass/Fail	<input type="text" value="No Peaks"/>	<input type="text" value="No Marker"/>	<input type="button" value="Run"/>	<input type="button" value="Abort"/>	<input type="button" value="Repeat Blank"/>			
	Marker	<input type="text" value="Q24"/>	Method	<input type="text" value="GC"/>	Product	<input type="text" value="Diesel"/>				
PASS	Calibration	Std Amount	<input type="text" value="2.0"/>	QC	<input type="text" value="5.0"/>	Result	<input type="text" value="2.2"/>	<input type="button" value="Restart"/>	<input type="button" value="Run"/>	<input type="button" value="Abort"/>
FAIL	Validation	Amount	<input type="text" value="1.0"/>	QC	<input type="text" value="5.0"/>	Result	<input type="text" value="1.1"/>	<input type="button" value="Run"/>	<input type="button" value="Abort"/>	

Sample Testing

Sample Source	<input type="radio"/> Refinery	<input type="radio"/> Retail	<input checked="" type="radio"/> Distribution	<input type="radio"/> Food/Beverage	<input type="radio"/> Off Road	<input type="radio"/> Transportation	
Location	<input type="text" value="Houston, TX"/>		Owner/Operator	<input type="text" value="Acme Fuel #123"/>			
GPS	<input type="text" value="41.01325"/> ° N <input type="text" value="85.00469"/> ° W		Marker Limit	<input type="text" value="2.5 ppm"/>	<input type="button" value="Run"/>	<input type="button" value="Abort"/>	<input type="button" value="New"/>
			Marker Amount	<input type="text" value="In Run"/>			

Detailed Instructions Adhere to the Developed SOP

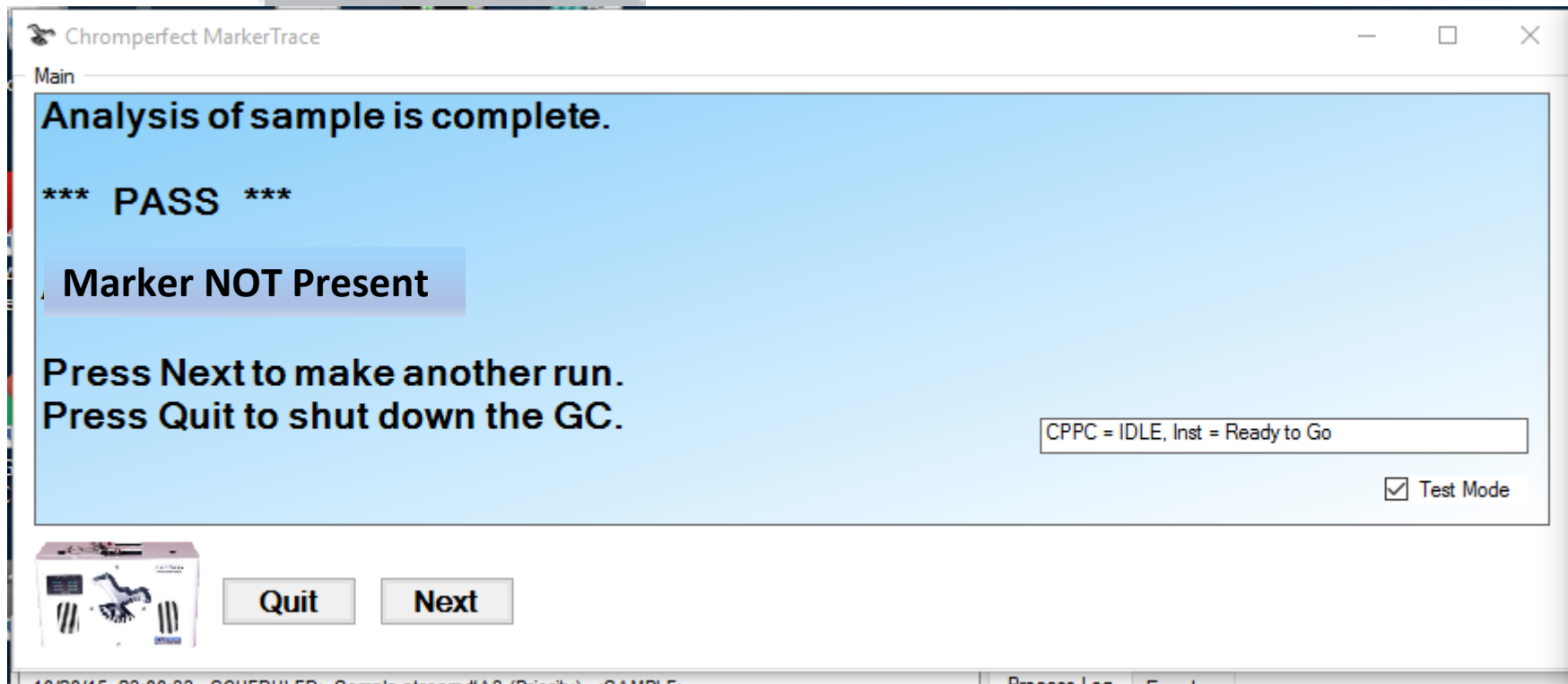
The screenshot displays the Chromperfect software interface, divided into several sections:

- Main Panel:** Contains instructions for sample injection:
 1. Wash the syringe with the sample.
 2. Load the appropriate volume on the MicroShot.
 3. Wipe the needle.
 4. Make the injection when told to do so.Below the instructions, it says: ***** Make the injection now. ***** and shows a status box: `CPPC = WAITSTART, Inst = Ready to Go` with a **Test Mode** checkbox.
- Table:** A table with columns: Instrument, Control, Detector, Status, Sample Name, Raw File, Method File.

	Instrument	Control	Detector	Status	Sample Name	Raw File	Method File
1 A	Calidus Digital		FID	Ready	SAMPLE	1510202300_S_A.0001.R	MarkerTraceS_A.met
1 B				Ready	SAMPLE	1510202300_S_B.0001.R	MarkerTraceS_B.met
2 A	FID Digital			Ready	Test	TestOneNote.0002.RAW	ATEST.MET
- Log Panel:** Shows a Process Log with the following entries:

```
10/20/15 23:00:33 SCHEDULED: Sample stream #A3 (Priority) <SAMPLE>
10/20/15 23:00:36 Downloading Method file <C:\CPData\MarkerTrace\MarkerTraceS_A.met>
10/20/15 23:00:39 Selecting sample stream #A3
10/20/15 22:40:12 STARTED: STARTUP
10/20/15 22:42:13 COMPLETED: STARTUP
10/20/15 22:42:20 STARTED: BLANK
10/20/15 22:43:00 No run started in 1 minutes
10/20/15 22:43:42 Run starts have resumed
10/20/15 22:44:06 COMPLETED: BLANK
10/20/15 22:44:46 No run started in 1 minutes
10/20/15 22:45:53 STARTED: CALIBRATION
10/20/15 22:47:39 Run starts have resumed
10/20/15 22:48:39 No run started in 1 minutes
10/20/15 22:49:57 COMPLETED: CALIBRATION
10/20/15 23:00:33 STARTED: SAMPLE
```
- Buttons:** A **Back** button is visible in the main panel.

Automatic Results Real Time



Automatic Results Real Time

The screenshot displays the Chromperfect MarkerTrace software interface. The main window shows a blue message box with the following text: "Analysis of sample is complete.", "*** FAIL ***", "Marker Present", "Press Next to make another run.", and "Press Quit to shut down the GC." Below this message are "Quit" and "Next" buttons. A status bar at the bottom right of the message box indicates "CPPC = IDLE, Inst = Ready to Go" and a checked "Test Mode" option.

The bottom section of the interface is divided into two panes. The left pane shows a log of events:

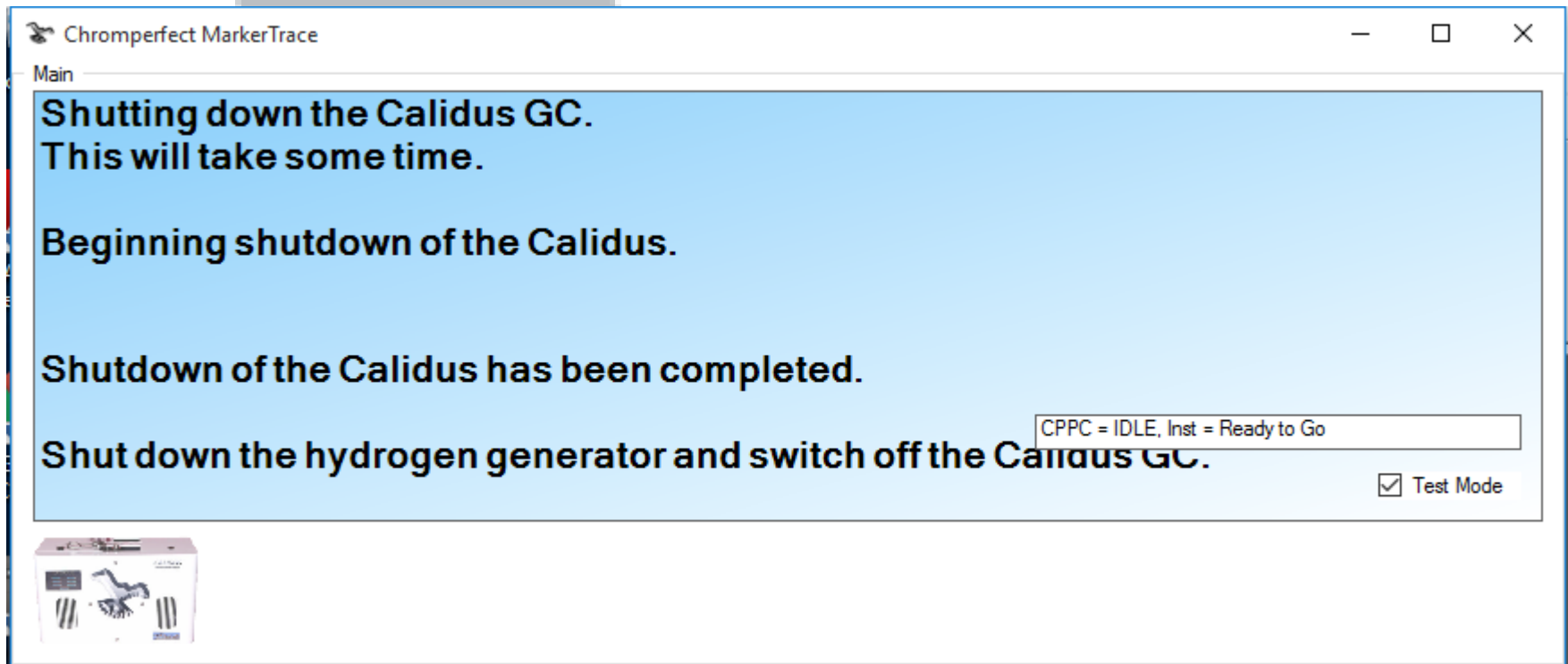
- 10/20/15 23:03:54 SCHEDULED: Sample stream #A3 (Priority) <SAMPLE>
- 10/20/15 23:03:57 Downloading Method file <C:\CPData\MarkerTrace\MarkerTraceS_A.met>
- 10/20/15 23:04:00 Selecting sample stream #A3
- 10/20/15 23:04:09 Start of run detected
- 10/20/15 23:05:34 End of run detected
- 10/20/15 23:05:41 Processing Raw file <C:\CPData\MarkerTrace\Data\1510202303_S_A.0001.RAW>
- 10/20/15 23:05:41 Processing Raw file <C:\CPData\MarkerTrace\Data\1510202303_S_B.0001.RAW>
- 10/20/15 23:05:42 DONE with this stream. Made 1 injections, acquired 2 Raw files

The right pane shows a "Process Log" with the following entries:

- 10/20/15 22:40:12 STARTED: STARTUP
- 10/20/15 22:42:13 COMPLETED: STARTUP
- 10/20/15 22:42:20 STARTED: BLANK
- 10/20/15 22:43:00 No run started in 1 minutes
- 10/20/15 22:43:42 Run starts have resumed
- 10/20/15 22:44:06 COMPLETED: BLANK
- 10/20/15 22:44:46 No run started in 1 minutes
- 10/20/15 22:45:53 STARTED: CALIBRATION
- 10/20/15 22:47:39 Run starts have resumed
- 10/20/15 22:48:39 No run started in 1 minutes
- 10/20/15 22:49:57 COMPLETED: CALIBRATION
- 10/20/15 23:00:33 STARTED: SAMPLE
- 10/20/15 23:01:39 Run starts have resumed
- 10/20/15 23:02:00 COMPLETED: SAMPLE
- 10/20/15 23:02:41 No run started in 1 minutes
- 10/20/15 23:03:54 STARTED: SAMPLE
- 10/20/15 23:04:09 Run starts have resumed
- 10/20/15 23:05:09 No run started in 1 minutes
- 10/20/15 23:05:42 COMPLETED: SAMPLE

Below the logs, there are control options: "Copy to Clipboard", "Ignore Acromag errors", "Show Display", "Display only messages from selected instrument", "Selected Instrument" (set to Calidus Digital Data), "Monitor Status" (Waiting for next scheduled sampling), "Instrument Status" (Ready to Go), "Last RTD reading" (N/A), "Enable Streams", "Abort Sequence", "Dismiss Alarm", "Running since" (10/20/2015 10:38:15 PM), "Current Time" (11:06:07 PM 23:06:07), and "Clear Process Log".

ACU Completion Control



The screenshot shows the Chromperfect MarkerTrace software interface. The window title is "Chromperfect MarkerTrace". The main content area is a light blue box with the following text:

**Shutting down the Calidus GC.
This will take some time.**

Beginning shutdown of the Calidus.

Shutdown of the Calidus has been completed.

Shut down the hydrogen generator and switch off the Calidus GC.

CPPC = IDLE, Inst = Ready to Go

Test Mode

In the bottom left corner, there is a small icon of a piece of laboratory equipment, likely the Calidus GC.

The Future Will Need More ACU Units

- Software to meet new Challenges
- Distributed and Centralized Software
- Centralized Computing



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MarkerTrace

chromperfect
natural gas 

chromperfect 
modbus

chromperfect 
process control

The logo for Chromperfect, featuring the word "chromperfect" in a dark grey, lowercase, sans-serif font. The letter "o" is stylized with a red triangle pointing upwards and to the right, and the letter "e" is stylized with a red triangle pointing upwards and to the left. The logo is positioned in the top left corner of the slide.

chromperfect

The text "Thank You" is centered on the slide in a large, bold, black, sans-serif font. It is positioned in the middle of the slide, overlapping a large, light grey, curved shape that resembles a stylized letter 'C' or a thick arc. The background is white, and there is a red triangle in the top right corner, which is part of the Chromperfect logo.

Thank You

10/9/2016

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