70X Series Laboratory Analyzers
for Cold Flow Properties
from Phase Technology

Scientifically Designed for Workflow Optimization

- Best measured precision (repeatability and reproducibility) of any automatic or manual method
- Fastest speed of any automatic or manual method: test results in just 8-20 minutes
- Full-color, touch-sensitive, 10.4” high resolution LCD touch screen
- Quick set up time, intuitive and easy to understand on-screen prompts
- Capable of any user programmable resolution to 0.1°C
- Unsurpassed detection of contamination in jet fuels
- Rapid cooling and quick heating of samples
- Compact design – easy to move around your lab or fit into areas with little space
- NEW! Ethernet-Ready
  Ethernet port available for connecting to LIMS or internal computer networks
- NEW! USB Drive Connectivity
  Provides quick export of analyzer data to a portable flash drive and use of USB peripherals.
- NEW! Buzzer Alarm Alert
  Can be set to beep to indicate warnings, alarms and prompts
- NEW! Large Format Results
  Optional pop-up window displays test results in larger, easy-to-read font

Pour Point - Cloud Point - Freeze Point

Phase Technology’s 70X significantly increases lab productivity and improves profitability by providing quick, precise results.

ASTM Methods

Phase Technology users can be confident that their test results accurately meet and comply with ASTM International standards for pour, cloud and freeze point: ASTM D5949, D5773 and D5972.

Innovative Design – Intuitive Interface

Phase Technology leads the industry with the world’s first and only automatic pour, cloud and freeze point analyzer – all in a single unit.

User-friendly features include a full-color LCD touch screen for easy, quick entry of all test functions. The screen also displays valuable test result data, graphics and phase plots.

NEW! FAVORITES Feature

Frequently-used test settings can now be stored in the analyzer for quick access.

With the single push of a button, lab operators can efficiently perform tests in significantly less time.

No longer do you need to repeatedly program multiple settings for each test run.

Favorites can be created, organized, sorted or deleted as you desire.

Preset the run mode, sample type, temperature mode, and estimated result for workflow optimization.

"It’s important for us to maintain consistent quality at every point of the refining process. That’s why we use Phase Technology analyzers throughout our company in various locations. Our business depends upon the accuracy of the results. For reliability, Phase Technology is our instrument of choice."

Louis A. Delgado, Lab Manager, Valero Energy Corporation

70X screen displays real-time test results and phase plot, showing temperature change and signal strength as test progresses. The graphic visual information helps users better understand anomalous behavior.

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# Technical Specifications

## 70X Series Laboratory Analyzers

### TEST METHODS

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Test Methods</th>
<th>Equivalent or Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pour Point</td>
<td>ASTM D5949 (IP 15 / ISO 3016) Equivalent</td>
<td></td>
</tr>
<tr>
<td>Cloud Point</td>
<td>ASTM D5773 (IP 446)</td>
<td></td>
</tr>
<tr>
<td>Freeze Point</td>
<td>ASTM D5972 (IP 435)</td>
<td></td>
</tr>
</tbody>
</table>

### STATED PRECISION:

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Repeatability</th>
<th>Reproducibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pour Point</td>
<td>1.6 ºC</td>
<td>3.2 ºC</td>
</tr>
<tr>
<td>Cloud Point</td>
<td>1.3 ºC</td>
<td>2.5 ºC</td>
</tr>
<tr>
<td>Freeze Point</td>
<td>0.5 ºC</td>
<td>0.8 ºC</td>
</tr>
</tbody>
</table>

### TEST METHODS - OPTIONS

- PSA-70X: Pour, Cloud & Freeze Point
- PPA-70X: Pour Point
- CPA-70X: Cloud Point
- FPA-70X: Freeze Point
- PCA-70X: Pour & Cloud Point
- PFA-70X: Pour & Freeze Point
- FCA-70X: Freeze & Cloud Point
- GPA-70X: Single function specialty analyzer for gel, titer, antifreeze, or solid point

### BIAS

- 0 (relative to ASTM manual methods)

### CONTAMINATION DETECTION

- 99% (highest measured value in ASTM study)

### SAMPLE TEMPERATURE RANGE

-75 ºC to 50 ºC

### TEST RESOLUTION

- 0.1 ºC

### TEST DURATION

- Pour Point: 8 to 20 minutes
- Cloud Point: 5 to 8 minutes
- Freeze Point: 8 to 10 minutes

### REQUIRED OPERATOR TIME

- 0.5 minutes

### SAMPLE SIZE

- 0.15 mL

### DETECTION METHOD

- Patented Diffusive Light Scattering (DLS) technology

### COOLING SYSTEM

- Integrated Peltier device cooling system

### DISPLAY

- Full-color, touch-sensitive, 10.4" high resolution LCD touch screen

### OUTPUTS

- (3) USB ports for optional peripherals: flash drive, label printer, barcode scanner, keyboard, mouse;
- (3) RS-232 serial ports for optional peripherals & networking: external computer, Phase Technology LTB diagnostic software;
- (1) 10/100Base-T Ethernet (RJ45) port for networking: LIMS, local area network (LAN)

### TEMPERATURE MEASUREMENT

- ºC or ºF (User selectable)

### ALERTS

- Buzzer for alarms warnings and prompts (User selectable)

### INTERNAL MEMORY

- Storage up to 5000 test runs (minimum)

### AMBIENT OPERATING ROOM TEMPERATURE

- 10 to 30 ºC (50 to 86 ºF)
- Extremes not recommended

### DIMENSIONS (W x D x H)

<table>
<thead>
<tr>
<th>Unit</th>
<th>10 x 21 x 12 inches</th>
<th>27 x 54 x 31 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxed</td>
<td>29 x 18 x 16 inches</td>
<td>74 x 46 x 41 cm</td>
</tr>
</tbody>
</table>

### WEIGHT

<table>
<thead>
<tr>
<th>Unit</th>
<th>46 lbs (21 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxed</td>
<td>55 lbs (25 kg)</td>
</tr>
</tbody>
</table>

## Applications

Phase Technology 70X analyzers test a wide range of petroleum, biofuel and other products including:

- Diesel fuel
- Jet fuel
- Finished lubricants
- Base oil
- Bright stock
- Distillate fuel
- Gas oil
- Biofuels & biodiesels
- Black oil
- Crude oil
- Engine coolant (antifreeze)
- PAO & synthetic lubricants
- Engine & gear oils
- Automatic transmission fluids
- Food oils & fats
- Surfactants & gels

## Options

Phase Technology 70X series analyzers give you complete flexibility – choose the test options you need for a customized solution. Available configurations include:

- PSA-70X: Pour, Cloud & Freeze Point
- PPA-70X: Pour Point
- CPA-70X: Cloud Point
- FPA-70X: Freeze Point
- PCA-70X: Pour & Cloud Point
- PFA-70X: Pour & Freeze Point
- FCA-70X: Freeze & Cloud Point
- GPA-70X: Single function specialty analyzer for gel, titer, antifreeze, or solid point

Additional options such as antifreeze, black and crude oils are available.

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Our Phase Technology analyzer is a real time-saver. The combination of automation and the easy-to-understand color touch-screen adds to our lab's overall efficiency. Thomas C. Bell, Specialist – Manufacturing and Lab Support, Americas Technical Support, Global Lubricants, Chevron