



# 70X Series Autosampler Analyzer Systems for Cold Flow Properties from Phase Technology

## Scientifically Designed for Workflow Optimization

- Batch processing – load and go!
- Unlimited flexibility – change sample order without stopping current test run. Perfect for shifting, “need-this-now” priorities.
- Task consolidation – reduced need for manual intervention, frees up staff resources
- High-throughput sequencing – avoid bottlenecks in workflow
- Self cleaning – automatic rinse and flush
- Less operator involvement – greatly reduced chance of user-introduced error
- Automation for fewer data entry errors – optional bar code reader input
- Streamlined, accurate data throughput and reporting processes – integrated networking and optional LIMS system output
- Full-color, touch-sensitive, high resolution touch screen – monitor test progress, phase plots and results; program and change sample order
- Fastest speed of any automatic or manual method: test results in just 5-20 minutes
- Best measured precision (repeatability and reproducibility) of any automatic or manual method
- **FOR LUBE OILS: Sample Heater Block with Integrated Wash Station** Sample vial heater block to specially pre-heat viscous samples; automatic cleaning with heptane solvent

Pour Point - Cloud Point - Freeze Point

## Increase Lab Efficiency & Productivity

All the inherent benefits of the 70X lab analyzer – precision, speed and ease-of-use – integrated with an automated sample handler and our dedicated process control software.

Phase Technology's 70X Series Autosampler Analyzer Systems give you unmatched versatility and performance as they provide unattended operation for round-the-clock sample analysis.

### Solutions to Optimize Workflow

Our 48-station autosampler lets lab personnel run multiple samples without the need to individually pipette, set and verify analyzer options or wait for test results.

**Increase efficiency** – a 70X autosampler system frees up personnel to perform other critical lab tasks.

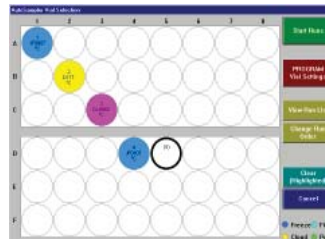
**Reduce user bias** – cross contamination and other human errors are removed from the test process.

**Process improvement** – automation eliminates many unnecessary, time-consuming steps.

**Gain better control** – working methods are standardized with readily available audit trails.

### ASTM Methods

All 70X Series Autosampler Analyzer Systems meet and comply with ASTM International methods for pour, cloud and freeze point: ASTM D5949, D5773 and D5972.



70X screen displays fully programmable 48-position vial selection and positioning. Samples are identified by ID number and color-coded by type. User selects sequence on-screen – no need to physically touch samples.

**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*



11168 Hammersmith Gate Richmond, B.C. Canada V7A 5H8 604.241.9568  
www.phase-technology.com

# 70X Series Autosampler Analyzers

<b>TEST METHODS</b>	Pour Point	ASTM D5949 ASTM D97 (IP 15/ISO 3016) equivalent or better	
	Cloud Point	ASTM D5773 (IP 446) ASTM D2500 (IP 219/ISO 3015) equivalent	
	Freeze Point	ASTM D5972 (IP 435) ASTM D2386 (IP 16/ISO 3013) equivalent	
<b>STATED PRECISION: REPEATABILITY &amp; REPRODUCIBILITY</b>		Repeatability	Reproducibility
	Pour Point	1.6 °C	3.2 °C
	Cloud Point	1.3 °C	2.5 °C
	Freeze Point	0.5 °C	0.8 °C
<b>BIAS</b>	0 (relative to ASTM manual methods)		
<b>CONTAMINATION DETECTION</b>	99% (highest measured value in ASTM study)		
<b>SAMPLE TEMPERATURE RANGE</b>	-75 °C to 50 °C		
<b>TEST RESOLUTION</b>	0.1 °C		
<b>TEST DURATION</b>	Pour Point	8 to 20 minutes	
	Cloud Point	5 to 8 minutes	
	Freeze Point	8 to 10 minutes	
<b>SAMPLE SIZE</b>	High-precision metering pump ensures exactly 0.15 mL (ASTM method)		
<b>DETECTION METHOD</b>	Patented Diffusive Light Scattering (DLS) technology		
<b>COOLING SYSTEM</b>	Integrated Peltier device cooling system		
<b>SAMPLE PRE-HEATING</b>	sample vial heater block (APA-70X & APC-70X only)		
<b>DISPLAY</b>	Full-color, touch-sensitive, 10.4" high resolution LCD touch screen		
<b>OUTPUTS</b>	(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)		
<b>TEMPERATURE MEASUREMENT</b>	°C or °F (User selectable)		
<b>ALERTS</b>	Buzzer for alarms warnings and prompts (User selectable)		
<b>INTERNAL MEMORY</b>	Storage up to 5000 test runs (minimum)		
<b>AMBIENT OPERATING ROOM TEMPERATURE</b>	10 to 30 °C (50 to 86 °F) Extremes not recommended		
<b>DIMENSIONS (W x D x H)</b>	Analyzer Unit	10 x 21 x 12 inches 27 x 54 x 31 cm	
	Autosampler	10.4 x 16.4 x 17 inches 26.5 x 41.5 x 43.5 cm	
<b>WEIGHT</b>	Analyzer Unit	46 lbs (21 kg)	
	Autosampler	22 lbs (10 kg)	

## Applications

Phase Technology 70X Autosampler Analyzer Systems test a wide range of petroleum and biofuels including:

- Diesel fuel
- Jet fuel
- Finished lubricants
- Base oil
- Bright stock
- Distillate fuel
- Gas oil
- Biofuels & biodiesels
- PAO & synthetic lubes
- Engine & gear oils
- Automatic transmission fluids

## Options

Phase Technology 70X Series Autosampler Analyzer Systems give you complete flexibility – choose the test options you need for a customized solution.

Available configurations include:

- APA-70X Lube Oil Pour Point
- APC-70X Lube Oil Pour & Cloud Point
- CPA-70XAS Fuels Only Cloud Point
- FPA-70XAS Fuels Only Freeze Point
- PSA-70XAS Fuels Only Pour, Cloud & Freeze Point
- PCA-70XAS Fuels Only Pour & Cloud Point
- PFA-70XAS Fuels Only Freeze & Pour Point
- FCA-70XAS Fuels Only Freeze & Cloud Point

Additional options may be available on request.

**We call our Phase Technology analyzers “The Dynamic Duo.” We have both a PPA-70X and an APA-70X. Our lab tests a wide range of lube samples; some are much more viscous than the others. We use the APA to test our heaviest samples because of the auto clean capability. The APA eliminates any potential bias or error due to improper cell cleaning. We use the PPA for our more regular samples to enable even faster analysis. Either way, we get exceptionally quick pour point analyses comparable to both rotational or tilt methods, but in much less time.**

*Paul Grives, SE/SW Quality Implementation Manager, ExxonMobil*