

# JFA-70Xi Jet Fuel Analyzer

for freeze point, viscosity and density

from Phase Technology

## BREAKING NEWS!

ASTM has updated D1655 jet fuel specification to include Phase Technology's ASTM D7945, as used in the JFA-70Xi jet fuel analyzer. Def-Stan 91-091 also includes D7945.

## Scientifically Designed for Workflow Optimization

- **SUPER FAST SPEED**  
Three different tests in less than 15 minutes.
- **ADVANCED VISCOSITY CAPABILITY**  
The only automatic method capable of testing jet fuel viscosity @ -40°C in addition to -20°C; temperature @12 cSt also calculated
- **APPROVED FOR JET FUEL CERTIFICATION**  
Fully compliant with ASTM D1655, the specification used for release of jet fuel
- **AUTOMATIC SAMPLE INPUT**  
No pipette required. New vial injection system loads sample automatically.
- **SELF CLEANING — NO SOLVENT REQUIRED**  
No messy clean up. Automatic flush cycle rinses and disposes of remaining sample.
- **NO EXTERNAL CHILLER**  
Quiet, cool, self-contained thermoelectric cooler; no hazardous liquid bath medium
- **NO BREAKABLE GLASSWARE**  
Internal capillary system eliminates need for fragile glass viscosity tubes
- **SUPERIOR PRECISION**  
Best measured repeatability and reproducibility of any automatic or manual method
- **ONE-TOUCH PRESET FAVORITES**  
Frequently-used test settings can be stored in the analyzer for quick access.
- **OPTIMIZED FOR QUALITY CONTROL**  
Automatic QC runs with built-in control charts.

## Freeze Point - Viscosity - Density

# The World's First 3-in-1 Jet Fuel Analyzer

Phase Technology does it again – another “first” for the petroleum industry.

Phase Technology's new JFA-70Xi jet fuel analyzer is the world's first and only instrument that performs three crucial tests in one unit—freeze point, viscosity and density. And, it does it all in less than 15 minutes!

## Automatic Sample Injection System

The JFA-70Xi features a new, side loaded automatic sample injection port. There's no longer a need to manually pipette. The analyzer always draws the precise amount of sample as required by the ASTM method.

The JFA is completely self-cleaning, without the need of solvents. Save time and hassle of cleaning, and avoid any risk of damage to the sample cup.

## Unsurpassed ASTM Precision

The JFA-70Xi's ASTM D7945 viscosity method exceeds D445 with repeatability of <0.20%.

And unlike other viscometers, with the JFA-70Xi there's no bulky external chiller needed.

Freeze point is tested according to ASTM D5972, the most precise method in the world, with zero bias and 99% contamination detection. Density measurement correlates to ASTM D4052.

## Trusted 70Xi Analyzer Design

The new JFA analyzer is built on the 70Xi series platform, so all the same time-saving, productivity-boosting features are included – programmable favorites, QC control charts, robust design, field-serviceability, and smart analyzer “intellinostics.”



**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*



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# JFA-70Xi Jet Fuel Analyzer

<b>TEST METHODS</b>	Freeze Point	ASTM D5972 (IP 435) ASTM D2386 (IP 16/ISO 3013) equivalent or better	
	Kinematic Viscosity	ASTM D7945 @ -20 °C, @ -40 °C and @ 12cSt ASTM D445 (IP 71/ISO 3104) equivalent or better	
	Density	ASTM D4052 (IP 365/ISO 12185) @ 15 °C correlation	
<b>STATED PRECISION: REPEATABILITY &amp; REPRODUCIBILITY</b>		Repeatability	Reproducibility
	Freeze Point	0.5 °C	0.8 °C
	Kinematic Viscosity	0.011cSt @ -20 °C 0.0018 X <sup>1.4</sup> cSt @ -40 °C 0.14°C @ 12cSt	0.021cSt @ -20 °C 0.0021 X <sup>1.4</sup> cSt @ -40 °C 0.17°C @ 12cSt
	Density	0.0001 g/mL	0.0005 g/mL
<b>BIAS</b>	0 (relative to ASTM manual methods)		
<b>CONTAMINATION DETECTION</b>	99% (highest measured value in ASTM study)		
<b>FREEZE POINT SAMPLE TEMPERATURE RANGE</b>	-80 °C to 70 °C		
<b>SYSTEM CLEANING</b>	Automatic flush cycle; no solvent required		
<b>TEST DURATION</b>	Freeze Point only	8 to 10 minutes	
	Viscosity & density combined	<10 minutes	
	Freeze viscosity & density combined	<15 minutes	
<b>REQUIRED OPERATOR TIME</b>	0.25 minutes		
<b>SAMPLE SIZE</b>	0.15 mL required for test minimum 20 mL including cleaning		
<b>DETECTION METHOD</b>	Patented Diffusive Light Scattering (DLS) technology for freeze point; horizontal capillary with motive force for KV		
<b>COOLING SYSTEM</b>	Integrated Peltier device cooling system		
<b>DISPLAY</b>	Full-color, touch-sensitive, 15" high resolution LCD touch screen		
<b>OUTPUTS</b>	(3) USB A ports for optional peripherals: flash drive, label printer, barcode scanner, keyboard, mouse; (1) USB B port (3) RS-232 serial ports for optional peripherals & networking: external computer, Phase Technology LTB diagnostic software; (1) dedicated Service port; (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		
<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>	Unit	Length x Width x Height 21.5 x 13.25 x 17.5 inches 54.6 x 33.7 x 44.5 cm	
	Boxed	29 x 23 x 19 inches 74 x 58 x 48 cm	
<b>WEIGHT</b>	Unit	53 lbs / 24 kg	
	Boxed	62 lbs / 28 kg	
<b>UTILITY REQUIREMENTS</b>	Electrical	90 – 260 VAC, 47 – 63 Hz 350 watts	
	External Cooler Bath	NONE	

## Applications

Freeze point, viscosity and density are three critical measurements for jet fuel. Freeze point affects fuel pumpability at low temperatures during flight. Viscosity has an effect on pumpability over the operating temperature range. Viscosity is important because it influences the droplet size and spray pattern of fuel that injected into the jet engines. It also affects pressure in the fuel system lines and the fuel pump. Density is a required measurement that is used in weight loading calculations for aircraft.

## Options

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

JFA-70Xi

Freeze point, viscosity, density for jet fuels

JFA-70Xi-AS

Freeze point, viscosity, density for jet fuels; with 48-position autosampler

JFA-70Xi-PC

Freeze point, viscosity, density for jet fuels; pour and cloud point for diesel fuels

JFA-70Xi-PC-AS

Freeze point, viscosity, density for jet fuels; pour and cloud point for diesel fuels; with 48-position autosampler

**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, Chevron*