

# Synthetic Aviation Turbine Fuel and Renewables

Test solutions for quality control, analysis and calibration



Stanhope-Seta specialise in the design and manufacture of laboratory test instruments that play a critical role in ensuring the quality, consistency and compliance of Synthetic Blend Components (SBC), Synthetic Aviation Turbine Fuel (SATF), Sustainable Aviation Fuel (SAF) and other renewable fuels. From its manufacturing base in the United Kingdom the company exports high quality instrumentation worldwide.

Seta's wide range of instruments are recognised as a benchmark for quality control in aviation and renewable fuels, delivering advanced performance, accuracy and reliability. The company is certified to ISO 9001 and ISO 14001, underscoring its commitment to quality and environmental responsibility.



In addition, Seta produces a comprehensive range of Reference Materials including Certified Reference Materials (CRMs), Multi Test Verification Materials (MTVMs) and Single Test Verification Materials (STVMs). Many of which are produced under ISO 17025 and ISO 17034 accreditation, ensuring reliable, traceable measurements essential for SBC, SATF, SAF development and deployment.

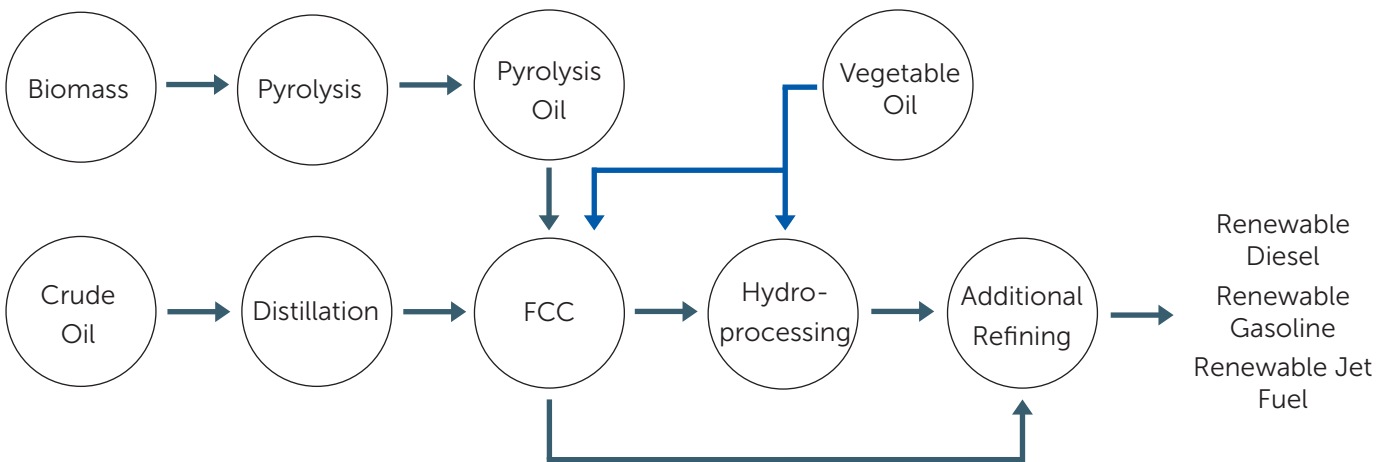


Stanhope-Seta is an active member of major standardisation bodies including ASTM, IP, ISO, BSI and CEN. By working closely with industry our research and design group actively contributes to test method development and product specifications.



Collectively, SBC, SATF, SAF and co-processing are recognised globally as the most effective ways to reduce aviation's carbon footprint without requiring major changes to aircraft or infrastructure. Policymakers, regulators and industry organisations have placed SAF at the heart of decarbonisation strategies, creating a framework that is driving both production and adoption.

Strong market and policy support underlines the importance of reliable, accurate testing solutions to ensure fuels meet the stringent performance and safety standards demanded for aviation use. Stanhope-Seta instruments, adopted by fuel producers and laboratories worldwide, are designed to give customers confidence in compliance with these evolving regulatory and market requirements.



## Expanding beyond SAF

Stanhope-Seta also provides testing solutions for renewable marine and road fuels, including methanol, ethanol, FAME biodiesel, diesel blends and gasoline alternatives. This ensures that customers working across different sectors of the renewable fuel landscape can rely on the same trusted precision, compliance and ease of use that define Stanhope-Seta instrumentation.



Application	Jet A-1 DefStan 91-091	Aviation Turbine Fuel ASTM D4054	Aviation Turbine Fuel ASTM D1655	Diesel EN 590	Diesel ASTM D975	Marine Fuel ISO 6583	Marine Fuel ISO 8217	Fuel Oil ASTM D396
<b>Cetane Number</b>		IP 617	ASTM D8183	IP 617; EN 17155	ASTM D8183			
<b>Dielectric</b>		IP 638						
<b>FAME Content</b>	ASTM D7797; IP 583		ASTM D7797; IP 583	ASTM D7963; ASTM D8274; IP 639	ASTM D7963; ASTM D8274; IP 639		ASTM D7963; ASTM D8274; IP 639	ASTM D7963; ASTM D8274; IP 639
<b>Flash Point</b>	ASTM D56; ASTM D93; ASTM D3828; ASTM D7236; IP 34; IP 170; IP 523; IP 534	ASTM D56; ASTM D93; ASTM D3828; ASTM D7236; IP 34; IP 170; IP 523; IP 534	ASTM D56; ASTM D3828; ASTM D7236; IP 170; IP 523; IP 534	EN ISO 2719	ASTM D93; ASTM D3828		EN ISO 2719	ASTM D93; ASTM D3828
<b>Particle Counting</b>	ASTM D7619; IP 565		ASTM D7619; IP 565	IP 630	ASTM D7619	IP 646		
<b>Unconverted Fatty Acids</b>	ASTM D7797; IP 583							
<b>Water Separation</b>	ASTM D8073; IP 624		ASTM D8073; IP 624					

Bio-Heating Fuels EN 14213	FAME EN 14214	Bio-Fuel Blend Stock B20 ASTM D7467	Bio-Fuel Blend Stock B100 ASTM D6751	Instrument	Seta Reference Number
	IP 617; EN 17155	ASTM D8183	ASTM D8183	AFIDA AFIDA Verification Fluid 40 mL (pack of 4) AFIDA PRF Calibration Set 40 mL (pack of 7)	SA6000-0 SA6009-0 SA6002-0
				JetDC JetDC Cyclohexane Certified Reference Material	88500-0 88505-0
ASTM D8274; IP 639		ASTM D8274; IP 639		SetaCheck BioDiesel FIJI Instruments  FIJI Verification Material 15 mg/kg 200 mL FIJI Verification Material 30 mg/kg 100 mL FIJI Verification Material 50 mg/kg 200 mL FIJI Verification Material 100 mg/kg 100 mL FIJI Verification Material 150 mg/kg 200 mL FIJI Verification Material 400 mg/kg 100 mL FIJI Verification Material 900 mg/kg 100 mL  SETA-CRM FAME B7 200 mL SETA-CRM FAME B15 200 mL SETA-CRM FAME B25 200 mL SETA-CRM FAME B30 200 mL SETA-CRM FAME B40 200 mL SETA-CRM FAME B60 200 mL SETA-CRM FAME B80 200 mL	SA5550-0 SetaCheck  SA5000-2 - FIJI Jet SA5100-0 - FIJI Distillates SA5200-0 - FIJI Multi Fuel  SETA-0112-0001 SETA-0112-0004 SETA-0112-0002 SETA-0112-0005 SETA-0112-0003 SETA-0112-0006 SETA-0112-0007  SETA-0112-0030 SETA-0112-0031 SETA-0112-0032 SETA-0112-0033 SETA-0112-0034 SETA-0112-0055 SETA-0112-0056
EN ISO 3679; 2719; IP 523; IP 524	EN ISO 3679; 2719; IP 523; IP 524	ASTM D93; ASTM D3828; ASTM D56	ASTM D93; ASTM D3828	Pensky-Martens Setaflash Series 3 range Setaflash Seires 8 range  SETA-CRM Small Scale Flash Point 75 °C 50 mL SETA-CRM Small Scale Flash Point 192 °C 50 mL SETA-CRM Pensky-Martens Flash Point 77 °C 100 mL (pack of 3) SETA-CRM Pensky-Martens Flash Point 140-150 °C 100 mL (pack of 3) SETA-CRM Pensky-Martens Flash Point 225 °C 100 mL (pack of 3)	35000-0 Series 3 Series 8  99878-3 99879-0 SETA-0412-0051 SETA-0412-0052 SETA-0412-0053
		ASTM D7619		AvCount3 AvCount Calibration Material 'a' 250 mL SETA-CRM AvCount Verification Material 250 mL AvCount Calibration Material 'd' 250 mL	SA1100-0 SA1001-0 SA1006-0 SA1121-0
				FIJI Instruments  FIJI Verification Material 15 mg/kg 200 mL FIJI Verification Material 30 mg/kg 100 mL FIJI Verification Material 50 mg/kg 200 mL FIJI Verification Material 100 mg/kg 100 mL FIJI Verification Material 150 mg/kg 200 mL FIJI Verification Material 400 mg/kg 100 mL FIJI Verification Material 900 mg/kg 100 mL	SA5000-2 - FIJI Jet SA5200-0 - FIJI Multi Fuel  SETA-0112-0001 SETA-0112-0004 SETA-0112-0002 SETA-0112-0005 SETA-0112-0003 SETA-0112-0006 SETA-0112-0007
				WSI Analyser WSI Reference Material Fluid Base 500 mL WSI Dispersing Agent 10 mL	SA9000-0 SA9004-0 SA9005-0

## Terminology

B7	A biofuel blend of 7% biodiesel and 93% conventional petroleum diesel
Conventional Blending Component	Blending streams derived from hydrocarbons that come from conventional sources such as crude oil, natural gas liquid condensates, heavy oil, shale oil and oil sands
Co-processing	The act of refining hydrocarbons from permitted sources with conventional hydrocarbons in accordance with the requirements of Annex A1.2.2 in specification D1655
E5	An ethanol blend of 5% ethanol and 95% conventional petroleum gasoline
E10	An ethanol blend of 10% ethanol and 90% conventional petroleum gasoline
FAME	Fatty Acid Methyl Esters. Biodiesel produced from vegetable oils or animal fats, blended into diesel
FIJI	FAME In Jet Instrument
HVO	Hydrotreated Vegetable Oil
SAF	Sustainable Aviation Fuel. Aviation turbine fuel containing synthesized hydrocarbons derived from sustainable feedstocks and processes
SATF	Synthetic Aviation Turbine Fuel. Aviation turbine fuel containing synthesized hydrocarbons
SBC	Synthetic Blending Component. Synthesized hydrocarbons that meet the requirements of one of the annexes in ASTM D7566 standard specification

## Specifications

ASTM D396	Standard Specification for Fuel Oils
ASTM D975	Standard Specification for Diesel Fuel Oils , biodiesel, biodiesel blend, diesel, fuel oil, petroleum and petroleum products
ASTM D1655	Standard Specification for Aviation Turbine Fuels This is a specification for Jet A and Jet A-1, detailing all the requirements for the final fuel, and this includes co-processing, which is where alternative feedstocks, other than crude oil, are used to reduce the carbon footprint. Approved alternative feedstocks and acceptable processes are stated and feedstocks typically come from waste vegetable and animal fats industries. To confirm that all the feedstock has been turned into jet fuel during co-processing FIJI (ASTM D7797 / IP 583) is used.
ASTM D4054	Standard Practice for Evaluation of New Aviation Turbine Fuels and Fuel Additives This practice provides procedures for developing data for use in research reports for new aviation turbine fuels; changes to existing aviation turbine fuels and new aviation turbine fuel additives. These research reports are intended to support the development of new specifications or revisions for these products. Additionally, this practice has been used to assess the effect of incidental materials on jet fuel properties and performance. One common use is to develop the Research Reports required for Synthetic Blend Components in preparation to be added to ASTM D7566. Test methods included in D4054 include dielectric constant (relative permittivity) by the JetDC IP 638 and ICN (Indicated Cetane Number) ASTM D8183 / IP 617 by AFIDA along with Small Scale Setaflash (ASTM D3828) and PM-93 (ASTM D93) for flash point
ASTM D6751	Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels
ASTM D7467	Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)
ASTM D7566	Standard Specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons This is a specification for the manufacture of aviation turbine fuel containing conventional and synthetic blending components. The synthetic blend components (SBC's) are specified individually through Annex's. Each SBC which has an Annex is permitted to be blended with conventional Jet fuel in order to make Jet A or Jet A-1 meeting ASTM D1655. The amount of SBC blended depends on the particular SBC, currently up to a maximum of 50%. It is important to note that the final fuel, after blending with SBC, and passing the Table 1 tests, is then approved and sold as Jet A or Jet A-1 meeting D1655 or DEFSTAN 91-091 and can be designated and used as such. A 100% synthetic specification is being developed and is likely to be added to ASTM D7566, it will contain additional property test requirements like dielectric constant (relative permittivity) by IP 638 and ICN (Indicated Cetane Number) ASTM D8183 / IP 617.
ASTM D7826	Standard Guide for Evaluation of New Aviation Gasolines and New Aviation Gasoline Additives
DEF STAN 91-091	Turbine Fuel, Kerosene Type, Jet A1; NATO Code: F-35; Joint Service Designation: AVTUR This is a specification for Jet A and Jet A-1, detailing all the requirements for the final fuel, and this includes co-processing, which is where alternative feedstocks, other than crude oil, are used to reduce the carbon footprint. Approved alternative feedstocks and acceptable processes are stated and feedstocks typically come from waste vegetable and animal fats industries. To confirm that all the feedstock has been turned into jet fuel during co-processing FIJI (ASTM D7797 / IP 583) is used.
EN 590	Automotive fuels - Diesel - Requirements and test methods
EN 14213	Heating fuels - Fatty acid methyl esters (FAME) - Requirements and test methods
EN 14214	Automotive fuels. Fatty acid methyl esters (FAME) for diesel engines - Requirements and test methods
ISO 6583	Methanol as a fuel for marine applications — General requirements and specifications
ISO 8217	Fuel Standard for marine distillate fuels and for marine residual fuels

## Test Methods

ASTM D93	Standard Test Methods for Flash-Point by Pensky-Martens Closed Cup Tester
ASTM D3828	Standard Test Methods for Flash Point by Small Scale Closed Tester
ASTM D6378	Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)
ASTM D7619	Standard Test Method for Sizing and Counting Particles in Light and Middle Distillate Fuels, by Automatic Particle Counter
ASTM D7797	Standard Test Method for Determination of the Fatty Acid Methyl Esters Content of Aviation Turbine Fuel Using Flow Analysis by Fourier Transform Infrared Spectroscopy—Rapid Screening Method
ASTM D7963	Standard Test Method for Determination of Contamination Level of Fatty Acid Methyl Esters in Middle Distillate and Residual Fuels Using Flow Analysis by Fourier Transform Infrared Spectroscopy—Rapid Screening Method
ASTM D8073	Standard Test Method for Determination of Water Separation Characteristics of Aviation Turbine Fuel by Small Scale Water Separation Instrument
ASTM D8183	Standard Test Method for Determination of Indicated Cetane Number (ICN) of Diesel Fuel Oils using a Constant Volume Combustion Chamber—Reference Fuels Calibration Method
ASTM D8274	Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil by Portable Rapid Mid-Infrared Analyzer
EN 17155	Liquid petroleum products - determination of indicated cetane number (ICN) of middle distillate fuels - primary reference fuels calibration method using a constant volume combustion chamber
IP 34	Determination of flash point - Pensky - Martens closed cup method (ISO 2719:2002)
IP 565	Determination of the level of cleanliness of aviation turbine fuels – portable automatic particle counter method
IP 583	Determination of the fatty acid methyl esters content of aviation turbine fuel using flow analysis by Fourier transform infrared spectroscopy – Rapid screening method
IP 617	Determination of generic cetane number (ICN) of fuels using a constant volume combustion chamber: primary reference fuels calibration (PRFC) method
IP 619	Liquid petroleum products – Vapour pressure – Part 3: Determination of vapour pressure and calculated dry vapour pressure equivalent (DVPE) (Triple Expansion Method)
IP 624	Determination of water separation characteristics of aviation turbine fuel by small scale water separation instrument
IP 630	Determination of the concentration of dispersed particles in diesel fuel – Automatic Particle Counter (APC) Light Obscuration Method
IP 638	Determination of relative permittivity (dielectric constant) of aviation fuels, small scale automated temperature scanning method
IP 639	Determination of biodiesel (fatty acid methyl esters) content in middle distillates by portable rapid mid-infrared analyzer
IP 646	Determination of the concentration of dispersed particles in marine methanol fuel – Automatic Particle Counter (APC) Light Obscuration Method

## Setaflash® Series 3 Small Scale Flash Point Testing

ASTM D3278; ASTM D3828; ASTM D4206; ASTM D7236; ASTM D8174; E502; IP 523; IP 534; IP 602; ISO 3679; ISO 3680 (obs); ISO 9038; EPA 1020 B; CLP Regulations

The versatile range of Setaflash® Series 3 instruments are ideal for use in the laboratory, production line or for portable test applications.

- Test time of under 2 minutes
- Small sample size, 2 or 4 mL
- Portable, lightweight, compact design
- Suitable for unknown samples using ramp mode
- Automatic flash detection
- Automatic barometric correction
- Full touch screen display



	Series 3 Closed Cup (30000-3)	Series 3e High Temperature (30020-0)
Temperature range	Ambient to 300 °C	Ambient to 300 °C
Ignitor	Gas	Electric
Cup material	Aluminium	Aluminium
Ramp rate	up to 6 °C/min	up to 6 °C/min
Heating/cooling method	Cartridge	Cartridge
Results download	USB	USB
Size (HxWxD) / Weight	19.5x29.5x14 cm / 3 kg	19.5x29.5x14 cm / 3 kg

## Setaflash® Series 8 Small Scale Flash Point Testing

ASTM D3278; ASTM D3828; ASTM D7236; ASTM D8174; E502; IP 523; IP 534; ISO 3679; ISO 3680 (obs); EPA 1020 B; CLP Regulations

The Setaflash® Series 8 is an automated closed cup flash point tester with enhanced functionality over a wide temperature range.

- Automatic dipping and flash detection
- Electric ignitor (gas option available)
- Test time of under 2 minutes
- Small sample size, 2 or 4 mL
- Suitable for unknown samples using ramp mode
- Automatic barometric pressure correction
- Full touch screen display



Series 8 High Temperature (82000-2)	
Temperature range	Ambient to 300 °C
Cup material	Aluminium
Ramp rate	up to 10 °C/min
Heating/cooling method	Ceramic hot plate and fan
Results download	USB/RJ45
Size (HxWxD) / Weight	30x34x38 cm / 8 kg

## PM-93 Pensky-Martens Closed Cup Flash Point Tester (35000-2)

ASTM D93; D8175; IP 34; ISO 2719 Procedures A, B and C

The Seta PM-93 provides operators with high level functionality combined with class leading ease of use, robustness and safety.



- Fully automated testing
- Seta 'Turbo Cool' for the fastest test turn-around
- Fully automated raising and lowering of lid
- Press and Go Instant test
- Gas or Electric ignition
- Seta button showing instant status
- One-touch lid and shutter servicing
- Optical fire detection
- Automatic safety check on fire extinguisher
- Ultra low energy use – the lowest CO<sub>2</sub> footprint
- Control and monitor from any device
- Unique user defined profiles
- 500,000 test results and 8" colour touchscreen
- LIMS, network, USB and serial connectivity

Cooling	Intergrated Seta Turbo Cool
Ignition system	Electric hot-wire or gas flame
Flash detection	Optical and Thermal
Heating rate	Fast heating mode (>10 °C/min) and standard rate; 5.5 °C/min; 3 °C/min; 1.3 °C/min; 1 °C/min
Temperature range	Ambient +5 to 410 °C (Ambient +41 to 752 °F)
Barometric pressure correction	Automatic correction with built-in pressure sensor
Fire detection	Optical
Size (HxWxD) / Weight	42x25x57 cm / 19 kg



**Expertise & Reliability** - The latest instrument combines unrivalled levels of automation with ease of use, safety, speed, reliability and operating efficiency – and it builds on Seta's 90 years of expertise in flashpoint measurement.

**Safety** - This includes the automated optical fire extinguisher system, with constant monitoring of the inert gas supply, in full compliance with ISO 2719 Annex B, and an automatic cup lock detection system ensuring testing can only commence if the cup is secured.

**Operation** - With a rapid turn-around time between tests, thanks to the new Seta 'Turbo Cool' cooling system, you can process more samples per day. A new quick release shutter system, combined with an integrated block PRT and flash detector system makes servicing the instrument exceptionally quick and easy.

**Efficiency** - The new PM-93 is the most energy efficient instrument in its class with 40% less energy consumption and a potential saving of 150 kg of CO<sub>2</sub> per year of operation over similar D93 instruments.

### UKAS Certified Reference Materials

Pensky-Martens CRM Standards:	Nominal Value:	Volume:	ISO 17034
SETA-0412-0051	75 °C	100 mL Pack of 3	✓
SETA-0412-0052	140 °C	100 mL Pack of 3	✓
SETA-0412-0053	225 °C	100 mL Pack of 3	✓



## Seta JetDC (88500-0)

IP 638; ASTM D4054

The Seta JetDC measures the dielectric constant density and temperature relationship of aviation fuel to predict behaviour in aircraft gauging systems.

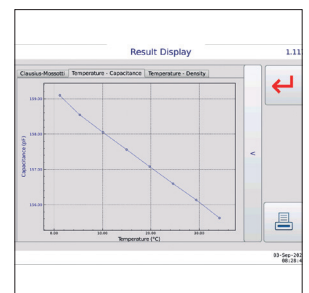
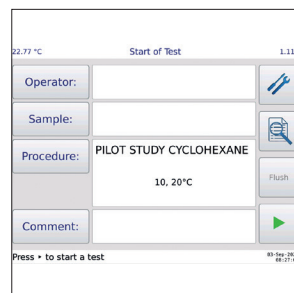
- Automated temperature scanning method
- Rapid test (30 minutes per temperature)
- Integrated apparatus with density
- Automated measurement
- Large touchscreen
- Low temperature option with chiller

SAF is produced through one of many different processes, using different feedstock such as used cooking oil, syngas, fats, vegetable oils, greases, sugars and alcohols as specified in ASTM D7566. SAFs are required to be approved for use through a standardised testing process, following ASTM D4054, which requires dielectric constant.

Due to a subtle difference in the molecular make up of a traditional Jet Fuel and SAF, there can be a difference in the dielectric constant. Dielectric constant is used by aircraft gauging systems as part of the mechanism to determine how much fuel is on board the aircraft. Aircraft fuel gauge accuracy relies on the dielectric constant properties to be similar across jet fuel batches.



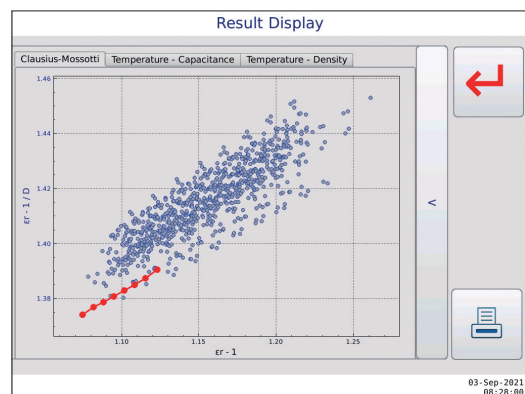
Dielectric constant ( $\kappa$ ) measurement range	1.0 to 2.5
Density range ( $\text{kg/m}^3$ )	1 to 900
Control temperature	0 °C to 40 °C
Power	110/240 V, 50/60 Hz, 300 W
Size (HxWxD) / Weight	40x26x34 cm / 15 kg



### Standardisation

An Energy Institute Task Group has developed a new standard test, IP 638, specifically for aviation fuel which addresses the technology and needs gap of the existing method, ASTM D924 which was identified in CRC report AV-29-20.

IP 638 Determination of Relative Permittivity (Dielectric Constant) of Aviation Fuel, Small Scale Automated Temperature Scanning Method was approved and published in 2023 with full precision. It was developed from proposed method IP PM-FC.



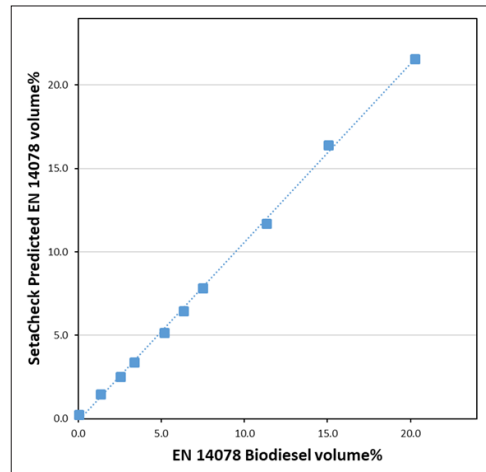
## SetaCheck® Biodiesel Plus (SA5550-0)

ASTM D8274 (Type 1); IP 639

SetaCheck Biodiesel is a handheld instrument designed to provide fast, accurate and repeatable on-site measurement of biodiesel content in diesel fuel blends.

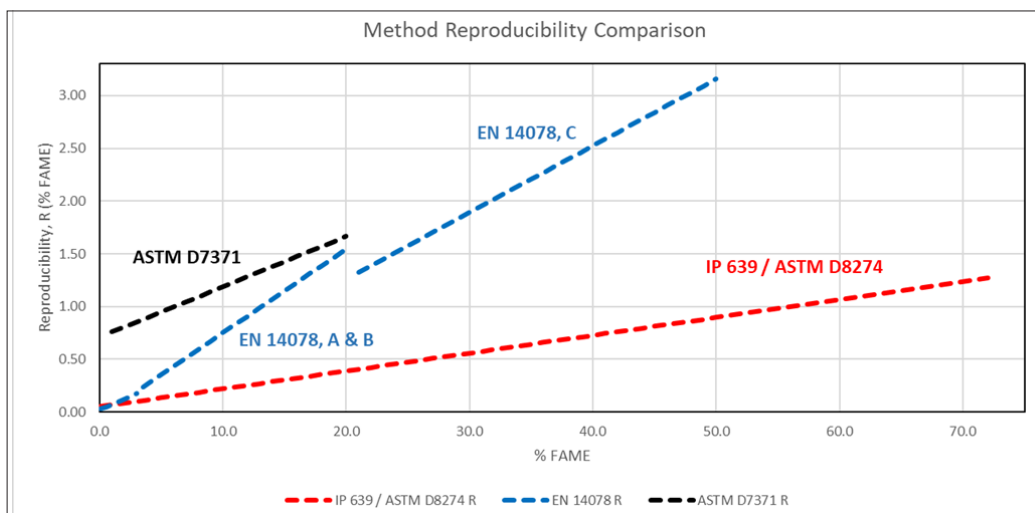
Whilst FAME is widely used in road diesel (e.g., B7), it is strictly limited to below 50 mg/kg (ppm) in aviation fuels under ASTM D1655 and DEF STAN 91-091. Even small levels of cross-contamination from biodiesel can affect jet fuel thermal stability, freezing point and filter performance.

- Samples measured directly
- Correlates with EN 14078 and ASTM D7371
- Unique Mid-IR technology
- Simple to use
- Bright, backlit screen displays the Biodiesel concentration (% by volume)
- User calibration available via PC software
- 9:1 Dilution mode available for high biodiesel concentrations



SetaCheck Biodiesel Plus versus EN 14078

Range	0.1% to 80%
Operating temperature	5 - 40 °C
Test duration	Less than 1 minute
Sample volume	2 mL
Power supply	Rechargeable Lithium Ion battery
Size (HxWxD) / Weight	36x15x20 cm / 1 kg



SetaCheck Biodiesel Plus, precision versus other methods

## SetaCheck® Ethanol (SA7500-0)

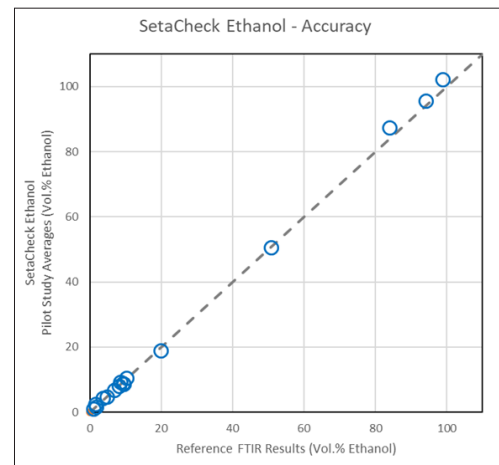
The SetaCheck Ethanol is a portable handheld instrument designed to provide an in-situ measurement of the ethanol content in a gasoline-ethanol fuel blend.

While ethanol is widely used in road fuels (e.g., E5 and E10 petrol blends), it is not permitted in aviation fuels. Ensuring ethanol-free Jet A-1 and SAF is therefore a critical step in quality assurance.



- Portable handheld and easy to use
- 0.1 % to 100 % measurement range
- Less than 10 mL of sample required
- Automatic temperature measurement
- Rapid test time
- Operates on rechargeable battery
- Large colour display with capacitive touchscreen

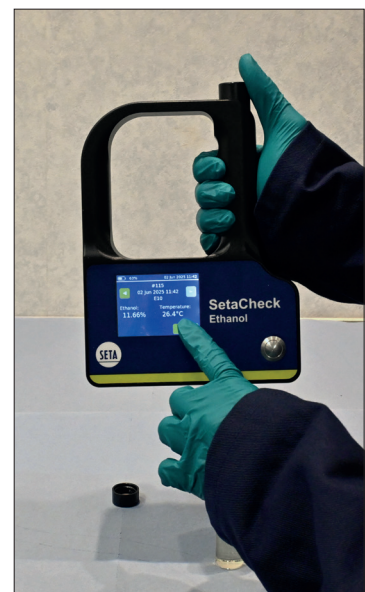
Range	0.1 to 100 % by volume
Operating temperature	10 to 30°C
Test duration	Less than 1 minute
Minimum sample volume	2 mL
Power	Rechargeable lithium ion battery
Size (H x W x D) / Weight	36 x 15 x 20 cm / 1 kg



1) Take sample



2) Press measure



3) Test complete

## FIJI FAME Measurement

ASTM D7797; ASTM D7963; IP 583  
ASTM D396; ASTM D975; ASTM D1655; ASTM D7467;  
Defence Standard 91-091; EN 590; EN 14213; ISO 8217

The FIJI FAME Analysers offers full compliance with industry approved methods for rapid and easy checks on parts per million levels of fatty acid methyl ester (FAME) content in fuels, C8 to C22.

- Analysis time 20 minutes
- Certified range 10-150 mg/kg FAME in AVTUR
- Measuring range 0-1000 mg/kg in AVTUR
- Certified range 20 mg/kg to 50% in Distillate and Residual fuels
- Approved for co-processing
- Fully automatic
- Suitable for untrained operators
- No cleaning solvents required
- No pre-sample preparation required
- 50 mL sample volume

**FIJI FAME in Jet (SA5000-2)**

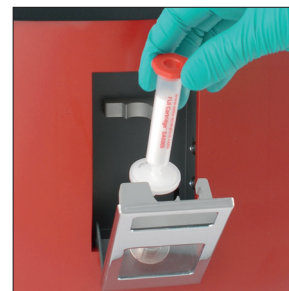
**FIJI FAME in Middle Distillate & Residual Fuel (SA5100-0)**

**FIJI FAME MultiFuel (SA5200-0)**

Sample size	50 mL
Connectivity	2 x USB
User interface	Colour touch screen
Power supply	50 W
Size (HxWxD) / Weight	55x38x42 cm / 27 kg

FAME is a key component of biodiesel, but its presence in aviation fuels is tightly controlled due to risks of filter blocking, freezing issues and incompatibility with aircraft systems. FIJI provides compliance assurance by verifying that Jet A-1 and SAF blends meet the FAME limits defined in ASTM D1655 and DEFSTAN 91-091. Also applicable to middle distillates, residual fuels and marine diesel where higher FAME levels are permitted.

FIJI uniquely uses state of the art FTIR (Fourier Transform Infra-Red Spectroscopy) technology coupled with a patented sample preparation system. FIJI can be used as a lab or field based screening tool. Rapid screening of fuels using the FIJI technique avoids the need for both expensive and complex analytical tests, and can prevent costly delays when releasing jet fuel.



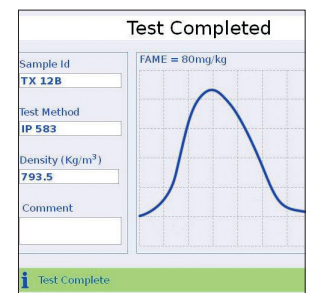
1) Load cartridge



2) Place sample



3) Press GO



4) Test completed

### UKAS Certified Reference Materials

FAME CRM Standards:	Nominal Value:	Volume:	ISO 17034
SETA-0112-0004	30 mg/kg	100 mL	✓
SETA-0112-0005	100 mg/kg	100 mL	✓



## AFIDA (SA6000-0)

ASTM D8183; IP 617; EN 17155  
 ASTM D975; ASTM D1655; ASTM D4054; ASTM D6751; ASTM D7467; EN 590; EN 14214



AFIDA provides a fully automated determination of the Indicated Cetane Number (ICN) of diesel and diesel related fuels.

- Indicated Cetane Number by CVCC\*
- Highly automated with auto sampler
- Reference Fuel Calibration
- No bias correction to engine values
- Excellent precision to minimise giveaway
- Easy to use, suitable for 24/7 operation
- Load and go

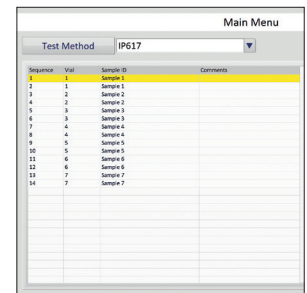


\*Constant Volume Combustion Chamber

Carousel capacity	36 samples
Range for ICN	35 - 85
Chamber temperature	580 °C
Chamber pressure	17.5 bar
Injection pressure	1000 bar
Compressed air	20.9 ± 0.5 % O <sub>2</sub>
Sample volume	Approx 40 ml for analysis and cleaning
Warm up time	Approx 45 mins
Analysis time	Approx 25 min per sample
Size (HxWxD) / Weight	80x130x60 cm / 160 kg (100 kg excluding platform)

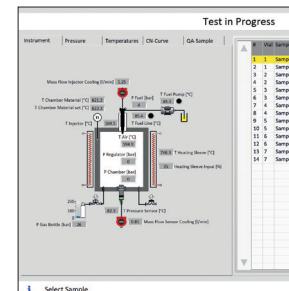


1) Place sample in carousel and select location

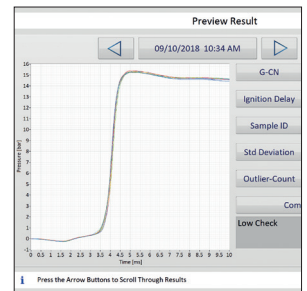


2) Select test sequence and press go

Renewable distillate-type SAFs (e.g., HVO, synthetic diesel) need to meet cetane requirements when used in diesel engines and their blend behaviour can affect ignition quality, AFIDA helps evaluate SAF blend components.



3) Monitor instrument status, pressure, temperature or CN curve during test



4) View results

## Seta AvCount3 (SA1100-0)

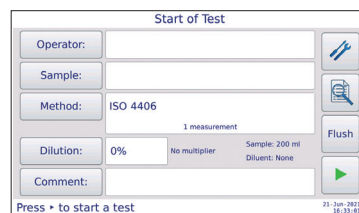
IP 565; IP 630; IP 646; ASTM D7619

ASTM D975; Defence Standard 91-091; EN 590; ASTM D1655; ASTM D7467; ISO 6583

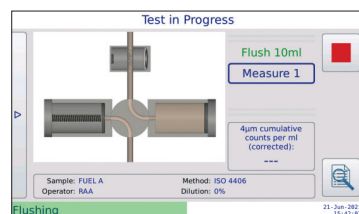
The AvCount3 is a compact bench-top automatic particle counter, used to measure the size and distribution of particles and water droplets in light and middle distillate fuels, including aviation fuel and kerosine, biodiesel, methanol, low viscosity oils and hydraulic oils.

Cleanliness and purity are critical for the safe performance of aviation fuels and renewable fuel blends. Contaminants like fine particles can cause filter blockage, erosion, corrosion, or even damage to fuel delivery systems, injectors, and combustion chambers.

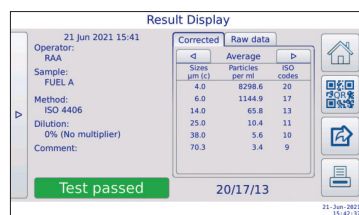
- ISO 11171 calibration
- Cumulative counts/ml
- ISO 4406 Cleanliness Codes
- Colour touch screen
- Dilution ratio calculation
- Real time display of test progress
- User programmable
- Under 3 minute test time (IP 565)
- LIMS, network and VNC connectivity
- Programmable alarm limits
- User and sample identification
- 14 embedded test methods
- Integrated printer
- 500,000 test memory
- In-field verification and calibration



1) Enter operator and sample details, select method, press ►



2) Test begins, instrument sequences are detailed



3) Final result displays either numerically or graphically

Counts per measurement (max)	60,000
Sample viscosity (max)	68 mm <sup>2</sup> /s
Test methods	14 embedded, user programmable
Number of measuring channels	16
Results	500,000 measurements internal, unlimited on PC Print via internal printer, export to LIMS, USB or QR code
Sample temperature range	0 to 70 °C
Connectivity	RJ45 Ethernet or USB
Power supply	100 – 240 Vac, 50/60 Hz auto-sensing universal power supply
Size (HxWxD) / Weight	37x23x27 cm / 6 kg

## Water Separation Instrument (WSI) (SA9000-0)

ASTM D8073; IP 624

ASTM D1655; Defence Standard 91-091

The WSI measures how effectively a fuel sample releases entrained and emulsified water when pumped through a water coalescing filter.

Poor water separation can lead to filter blockage, microbial growth, corrosion and fuel system failures, especially critical in aircraft systems.

SAF and renewable blend components often include ester-based additives or static dissipater additives (SDA) which affect water coalescence. The WSI is designed with filter media that is less sensitive to weak surfactants and responsive to ester-based additives, so measurements are more reliable even in complex blend scenarios.



- Substantial cost saving per test
- Fully automated sample handling
- Simple operation for non-chemists
- Patented Ultra Sonic Mixer
- 10 minute test duration
- Minimal operator time required (under 3 minutes)
- Sonic mixing sequences providing consistent water droplet size and stable emulsion
- Featuring an API/EI 1581 5th edition filter material
- High resolution optical water detector measuring to <1ppm water concentration



- WSI Replacement Filters (pack of 50) SA9001-008
- Used in conjunction with the Filter Assembly Tool SA9015-0
- 2 year shelf life from date of manufacture



- WSI Pre-assembled Filter (pack of 100) SA9001-006
- Load and go
- 2 year shelf life from date of manufacture

Measurement range	5-100 Water Separation Index (WSI)
Temperature range	18 °C to 29 °C
Sample size	230 mL
Power	Universal, AC 85-264 Vac, 50-60 Hz
Outputs	USB, digital display
Size (HxWxD) / Weight	38x31x35 cm / 8 kg

WSI RM Standards:	Range:	Volume:
SA9004-0	97.5 to 100 Water Separation Index	100 mL

## SETA-CRM Small Scale Flash Point

- 50 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Non-hazardous hydrocarbon with a certified value provided for a single test method
- Characterised using a network of competent laboratories to provide international traceability
- Use this standard to cross-check instrument performance and to assist in operator training with a typical material
- Small pack size to avoid cross-contamination and help meet verification requirements for audited laboratories and those which comply with ISO 17025
- 3 year shelf life from manufacture



Part Number:	Test Method:	Nominal Value:	Amount/Test:	Volume:	ISO 17034
99878-3	ASTM D3278; D3828; IP 523; ISO 3679	75 °C	2 mL	50 mL	✓
99879-0	ASTM D3278; D3828; IP 523; ISO 3679	192 °C	2 mL	50 mL	

## SETA-CRM Pensky-Martens Flash Point

- 100 mL pack of 3
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Non-hazardous hydrocarbon with certified values provided for multiple test methods
- An alternative stable CRM for users running either Procedure B or C, as per ASTM D93-25; Annex 4 (A4.5)
- Characterised using a network of competent laboratories to provide international traceability
- Use this standard to cross-check instrument performance and to assist in operator training with a typical material
- Small pack size to avoid cross-contamination and help meet verification requirements for audited laboratories and those which comply with ISO 17025
- 3 year shelf life from manufacture



Part Number:	Test Method:	Nominal Value:	Amount/Test:	Volume:	ISO 17034
SETA-0412-0051	ASTM D93; EN ISO 2719	77 °C	75 mL	100 mL pack of 3	✓
SETA-0412-0052	ASTM D93; EN ISO 2719	140-150 °C	75 mL	100 mL pack of 3	✓
SETA-0412-0053	ASTM D93; EN ISO 2719	225 °C	75 mL	100 mL pack of 3	✓

## FIJI IP 583 and ASTM D7797 Calibration Material Set (SETA-0114-0017)

- 100 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- A set of five hydrocarbon samples containing a known concentration of FAME, with certified values
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use these standards to calibrate the Seta FIJI Analyser (FAME in Jet SA5000-2)
- 2 year shelf life from date of manufacture



Test Method:	Nominal Value:	Amount/Test:	ISO 17034
ASTM D7797; IP 583	30, 75, 100, 125, 150 mg/kg	50 mL	✓

## FIJI Verification Material

- 100 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Hydrocarbon containing a known concentration of FAME with a certified value
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use this standard to verify test method performance
- Suitable for use with Seta FIJI Analysers (FAME in Jet SA5000-2, FAME in Distillate and Residual Fuels SA5100-0, FAME in MultiFuels SA5200-0)
- 2 year shelf life from date of manufacture



Part Number:	Test Method:	Nominal Value:	Volume:	ISO 17034
SETA-0112-0001	ASTM D7797; D7963; IP 583	15 mg/kg	100 mL	✓
SETA-0112-0004	ASTM D7797; D7963; IP 583	30 mg/kg	100 mL	✓
SETA-0112-0002	ASTM D7797; D7963; IP 583	50 mg/kg	100 mL	✓
SETA-0112-0005	ASTM D7797; D7963; IP 583	100 mg/kg	100 mL	✓
SETA-0112-0003	ASTM D7797; D7963; IP 583	150 mg/kg	100 mL	✓
SETA-0112-0006	ASTM D7963	400 mg/kg	100 mL	✓
SETA-0112-0007	ASTM D7963	900 mg/kg	100 mL	✓

## FIJI ASTM D7963 Calibration Material Set (SETA-0114-0018)

- 100 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- A set of nine hydrocarbon samples containing a known concentration of FAME, with certified values
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use these standards to calibrate the Seta FIJI Analysers (FAME in Distillate and Residual Fuels SA5100-0, FAME in MultiFuels SA5200-0)
- 2 year shelf life from date of manufacture



Test Method:	Nominal Value:	Amount/Test:	ISO 17034
ASTM D7963	30, 75, 100, 125, 150, 300, 500, 800, 1000 mg/kg	50 mL	✓

## FIJI DRG Range Extender Diluent

- 500 mL
- Produced in general accordance with the principles of ISO 17034 and ISO 33405 with documentation compliant to ISO 33401
- FAME free hydrocarbon meeting the requirements in ASTM D7963 Annex B and IP 631
- Use to dilute samples which are more than 1000 mg/kg
- Suitable for use with Seta FIJI Analysers (FAME in Distillate and Residual Fuels SA5100-0, FAME in MultiFuels SA5200-0)



Part Number:	Test Method:	Volume:
SA5028-0	ASTM D7963	500 mL
SA5029-0	ASTM D7963	5 L
SA5030-0	ASTM D7963	20 L

## SetaCheck FAME Verification Set (SA5502-0)

- 60 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- A set of four hydrocarbon samples containing known concentrations of FAME with certified values
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use these standards to verify test method performance
- Suitable for use with SetaCheck Biodiesel and SetaCheck Biodiesel Plus (SA5500-0 & SA5550-0)
- 2 year shelf life from date of manufacture



Test Method:	Nominal Value:	Amount/Test:	ISO 17034
ASTM D8274; IP 639	0.5, 5.0, 20, 40 %	2 mL	✓

## SETA-CRM FAME

- 250 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Hydrocarbon containing a known concentration of FAME with a certified value
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use this standard to verify test method performance
- Suitable for use with SetaCheck Biodiesel (SA5500-0)
- 2 year shelf life from date of manufacture



Part Number:	Test Method:	Range:	Amount/Test:	ISO 17034
SETA-0112-0030	ASTM D8274	7%	2 mL	✓
SETA-0112-0031	ASTM D8274	15%	2 mL	✓
SETA-0112-0032	ASTM D8274	25%	2 mL	✓
SETA-0112-0033	ASTM D8274	30%	2 mL	✓
SETA-0112-0034	ASTM D8274	40%	2 mL	✓
SETA-0112-0055	ASTM D8274	60%	2 mL	✓
SETA-0112-0056	ASTM D8274	80%	2 mL	✓

## SetaCheck FAME Calibration Set

- 15 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- A set of hydrocarbon samples containing a known concentration of FAME, with certified values
- Produced accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use these standards to calibrate the SetaCheck Biodiesel (SA5500-0) and SetaCheck Biodiesel Plus (SA5550-0)
- 2 year shelf life from date of manufacture



Part Number:	Test Method:	Nominal Value:	Amount/Test:	ISO 17034
SA5501-0	ASTM D8274	0, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 30, 40%	2 mL	✓
SA5551-0	ASTM D8274	0, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 30, 40, 60, 80%	2 mL	✓

## SetaCheck Ethanol Calibration Set (SA7501-0)

- 100 mL
- Produced in general accordance with the principles of ISO 17034 and ISO 33405 with documentation compliant to ISO 33401
- Use these standards to calibrate the SetaCheck Ethanol (SA7500-0)



Nominal Value:	Volume:
Cyclohexane 99.5%	100 mL

## SetaCheck Ethanol Verification Set (SA7502-0)

- 100 mL
- Produced in general accordance with the principles of ISO 17034 and ISO 33405 with documentation compliant to ISO 33401
- Use these standards to verify test method performance
- Suitable for use with SetaCheck Ethanol (SA7500-0)



Nominal Value:	Volume:
E0, E3, E10, E20 & E85	100 mL

## JetDC Cyclohexane Certified Reference Material (88505-0)

- 500 mL
- Produced in general accordance with the principles of ISO 17034 and ISO 33405 with documentation compliant to ISO 33401
- Cyclohexane - with certified values provided for multiple test methods
- Characterised by using a reference method in a single laboratory
- Use this standard to verify test method performance
- Suitable for use with the JetDC (88500-0)



Test Method:	Range:	Amount/Test:
IP 638	2.023 to 2.025	150 mL
ASTM D4052	777.0 to 780.0 kg/m <sup>3</sup>	5 mL

## SETA-CRM AvCount Verification Material (SA1006-0)

- 250 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Refined hydrocarbon containing NIST RM 8631x test dust with certified values
- Characterised by using a reference method and apparatus with NIST SRM 2806a and 2806d calibration in a single laboratory.
- 2806b values are available upon request
- Use this standard to verify test method performance
- Suitable for use with particle counters calibrated in accordance with ISO 11171
- 2 year shelf life from date of manufacture



Test Method:	Sizes Reported:	Amount/Test:	ISO 17034
ASTM D7619; IP 565; IP 630	4 $\mu\text{m(c)}$ , 6 $\mu\text{m(c)}$ , 14 $\mu\text{m(c)}$	80 mL	✓

## AvCount Calibration Material 'd' (SA1121-0)

- 250 mL
- Produced under ISO 17034 UKAS accreditation and ISO 33405 with documentation compliant to ISO 33401
- Refined hydrocarbon containing NIST RM 8631x test dust with certified values
- Characterised by using a reference method and apparatus with NIST SRM 2806d calibration in a single laboratory
- Use this standard to calibrate particle counters in accordance with ISO 11171
- 2 year shelf life from date of manufacture



Test Method:	Sizes Reported:	Amount/Test:	ISO 17034
ASTM D7619; IP 565; ISO 11171	4 $\mu\text{m(c)}$ , 6 $\mu\text{m(c)}$ , 14 $\mu\text{m(c)}$ , 21 $\mu\text{m(c)}$ , 25 $\mu\text{m(c)}$ , 30 $\mu\text{m(c)}$	80 mL	✓

## AvCount Calibration Material 'a' (SA1001-0)

- 250 mL
- Produced in general accordance with the principles of ISO 17034 and ISO 33405 with documentation compliant to ISO 33401
- Refined hydrocarbon containing NIST RM 8631x test dust with certified values
- Characterised by using a reference method and apparatus with NIST SRM 2806a calibration in a single laboratory
- Use this standard to calibrate particle counters in accordance with ISO 11171
- 2 year shelf life from date of manufacture



Test Method:	Sizes Reported:	Amount/Test:
ASTM D7619; IP 565; ISO 11171	4 $\mu\text{m(c)}$ , 6 $\mu\text{m(c)}$ , 14 $\mu\text{m(c)}$	80 mL

## AFIDA Verification Fluid (SA6009-0)

- 40 mL pack of 4
- Produced in general accordance with the principles of ISO 17034
- A volumetric blend of n-hexadecane and 1-methylnaphthalene with a certified value
- Produced by accurately determining the volumes of ingredients at 20 °C
- Use this standard to verify test method performance
- Suitable for use with the AFIDA - Indicated Cetane Number Analyser (SA6000-0)



Test Method:	Indicated Cetane Number:	Amount/Test:
ASTM D8183; IP 617; EN 17155	51	40 mL

## AFIDA Primary Reference Fluid Calibration Set (SA6002-0)

- 40 mL pack of 7
- Produced in general accordance with the principles of ISO 17034
- A set of seven volumetric blends of n-hexadecane and 1-methylnaphthalene with certified values covering the range 35 to 85 Indicated Cetane Number (ICN)
- Produced by accurately determining the volumes of ingredients at 20 °C
- Use these standards to calibrate the AFIDA
- Suitable for use with the AFIDA - Indicated Cetane Number Analyser (SA6000-0)



Test Method:	Certified Value:	Amount/Test:
ASTM D8183; IP 617; EN 17155	35, 40, 46, 53, 60, 70, 85 ICN	40 mL

## WSI Reference Material Fluid Base (SA9004-0)

- 500 mL
- Produced in general accordance with the principles of ISO 17034
- Reference Fluid Base - surfactant-free aviation turbine fuel
- Produced in accordance with IP 624 Annex B and ASTM D8073 Appendix X1
- Use this material directly and to make reference fluids to cross-check test method performance
- Suitable for use with the WSI Analyser (SA9000-0)



Test Method:	Range:	Amount/Test:
ASTM D8073; IP 624	97.5 to 100 Water Separation Index	220 ± 10 mL

## WSI Dispersing Agent (SA9005-0)

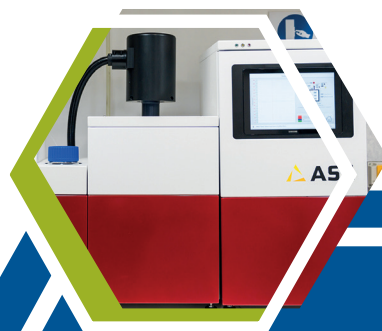
- 10 mL
- Produced in general accordance with the principles of ISO 17034
- Dispersing Agent - Toluene solution containing 1 mg/mL of solid (100% dry) bis-2-ethylhexyl sodium sulfosuccinate
- Produced by accurately determining the mass of ingredients using a balance certified by an ISO 17025 accredited laboratory
- Use this material directly and to make reference fluids to cross-check test method performance
- Suitable for use with the WSI Analyser (SA9000-0)



Test Method:	Amount/Test:
ASTM D8073; IP 624	0.008 mL (0.4 mL/L)

Worldwide service and support is available through Stanhope-Seta's network of experienced and trained representatives.

To find your nearest representative, visit [www.stanhope-seta.co.uk/local-representative/](http://www.stanhope-seta.co.uk/local-representative/)



## Contact Us

Stanhope-Seta  
London Street  
Chertsey  
Surrey  
KT16 8AP  
UK

t: +44 (0) 1932 564391  
e: [sales@stanhope-seta.co.uk](mailto:sales@stanhope-seta.co.uk)

[www.stanhope-seta.co.uk](http://www.stanhope-seta.co.uk)  
[www.seta-crm.co.uk](http://www.seta-crm.co.uk)