Biofuel Analysis

Certified Reference Standards

AccuStandard®

ASTM, EN and IP standard test methods have been developed to monitor the properties of chemical impurities and physical properties for the application of testing biofuels and biofuel blends.

The source materials that are used to produce these fuels include plant oils, ethyl alcohol (usually from corn) and vegetable waste products.

AccuStandard offers:

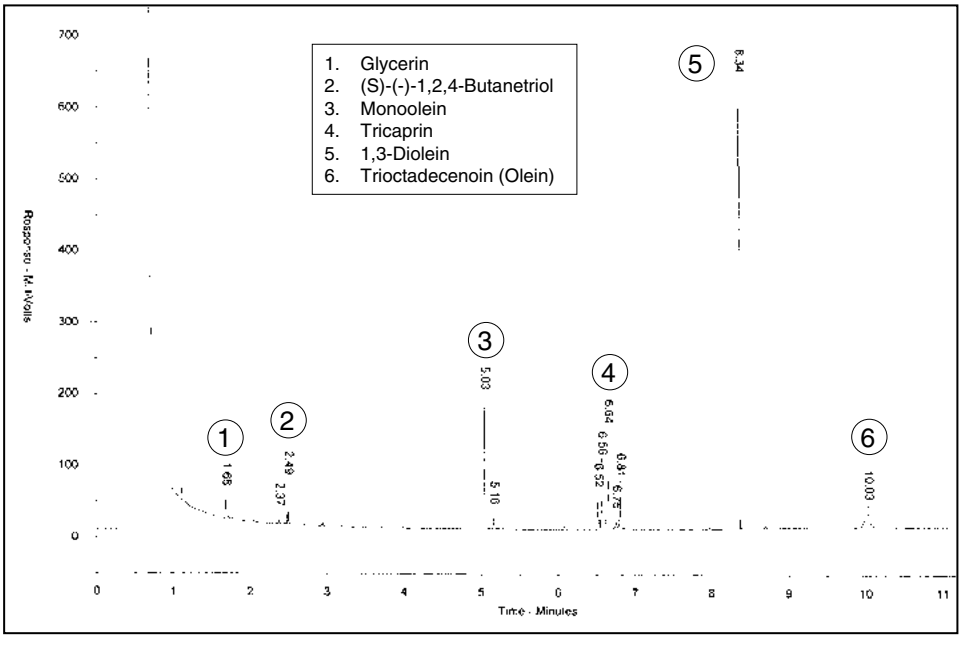
- Physical properties such as viscosity and flash point
- Chemical classes such as Glycerins, FAMEs and the Hydrocarbon fraction.
- All products are derived from ASTM, EN and IP Standard Methods
- New standard methods include, EN15779, EN12916 and IP391/07

Refinery and Consumer Grade Biofuels

Compound	Qty. / Conc.		Matrix	Cat. No.	Unit
Biofuel 20	0.5	mg/mL	Dichloromethane	**BF-FU-030-D**	2 mL
	20	mg/mL	Dichloromethane	**BF-FU-030-D-40X**	2 mL
Biofuel 100 (Consumer grade)	0.5	mg/mL	Dichloromethane	**BF-FU-029-D**	2 mL
	20	mg/mL	Dichloromethane	**BF-FU-029-40X**	2 mL
Biofuel 100	0.5	mg/mL	Dichloromethane	**BF-FU-032-D**	2 mL
	20	mg/mL	Dichloromethane	**BF-FU-032-D-40X**	2 mL

ASTM D6584 / EN14105 Free and Total Glycerin in Biodiesel by GC

Compound	Qty. / Conc.		Matrix	Cat. No.	Unit
Glycerin	0.5	mg/mL	Pyridine	**BF-D-6584-01**	2 mL
Monoolein	5	mg/mL	Pyridine	**BF-D-6584-02**	2 mL
1,3-Diolein	5	mg/mL	Pyridine	**BF-D-6584-03**	2 mL
Triolein	5	mg/mL	Pyridine	**BF-D-6584-04**	2 mL
(S)-(-)-1,2,4-Butanetriol	1	mg/mL	Pyridine	**BF-D-6584-05-IS**	5 mL
Tricaprin	8	mg/mL	Pyridine	**BF-D-6584-06**	5 mL
MSTFA	5	mL	Neat	**BF-D-6584-07N**	5 mL
SET of 7 above compounds				**BF-D-6584-SET**	**7 units**
Mix of above compounds, on right (MSTFA separate)					



ASTM D6584 Mixture

BF-D-6584-MIX **1 mL**

At stated conc. in Pyridine 6 comps.

Glycerol	0.5 mg/mL
Monoolein	5 mg/mL
1,3-Diolein	5 mg/mL
Trioctadecenoin (Olein)	5 mg/mL
(S)-(-)-1,2,4-Butanetriol	1 mg/mL
Tricaprin	8 mg/mL

Note: MSTFA (**BF-D-6584-07N**) can be ordered separately.

Solution I

EN-14105-01 **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	250
Diolein	50
Triolein	50
Glycerol	5
Tricaprin	8

Solution II

EN-14105-02 **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	600
Diolein	200
Triolein	150
Glycerol	20
Tricaprin	800

Solution III

EN-14105-03 **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	950
Diolein	350
Triolein	300
Glycerol	35
Tricaprin	800

Solution IV

EN-14105-04 **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	1250
Diolein	500
Triolein	400
Glycerol	50
Tricaprin	800

EN14103 Fatty Acid Methyl Esters (FAMEs)

The methyl esters in the mixture are those derived from typical glycerides present in biomass sources.

Soy & Corn

BF-SOY-ME	100 mg
16:0 Palmitate	6% Wt.
18:0 Stearate	3% Wt.
20:0 Arachidate	3% Wt.
18:1 Oleate	35% Wt.
18:2 Linoleate	50% Wt.
18:3 Linolenate	3% Wt.

Rapeseed Oil

BF-RAP-ME	100 mg
14:0 Myristate	1% Wt.
16:0 Palmitate	4% Wt.
18:0 Stearate	3% Wt.
20:0 Arachidate	3% Wt.
22:0 Behenate	3% Wt.
24:0 Lignocerate	3% Wt.
18:1 Oleate	60% Wt.
22:1 Erucate	5% Wt.
18:2 Linoleate	12% Wt.
18:3 Linolenate	5% Wt.
20:1 Eicosenoate	1% Wt.

Palm Kernel

BF-PALM-ME	100 mg
8:0 Caprylate	7% Wt.
10:0 Caprate	5% Wt.
12:0 Laurate	48% Wt.
14:0 Myristate	15% Wt.
16:0 Palmitate	7% Wt.
18:0 Stearate	3% Wt.
18:1 Oleate	12% Wt.
18:2 Linoleate	3% Wt.

Beef Tallow & Palm Oil

BF-BT-ME	100 mg
14:0 Myristate	2% Wt.
16:0 Palmitate	30% Wt.
16:1 Palmitoleate	3% Wt.
18:0 Stearate	14% Wt.
18:1 Oleate	41% Wt.
18:2 Linoleate	7% Wt.
18:3 Linolenate	3% Wt.

Percent Methanol Calibration Standard Set (EN14110)

BF-MEOH-SET **5 x 1 mL**

BF-MEOH-1X (100 µg/g)
BF-MEOH-5X (500 µg/g)
BF-MEOH-10X (1000 µg/g)
BF-MEOH-25X (2500 µg/g)
BF-MEOH-50X (5000 µg/g)

Methanol in Water

Technical Note

Individual mixes packaged under nitrogen for stability.

EN15779 Polyunsaturated Fatty Acid Methyl Esters (PUFAMEs)

NEW

PUFAMEs

EN-15779 **1 mL**
At stated (0.25 %w/v) conc. in Heptane 4 comps.

Docosahexaenoic acid methyl ester
cis-7,10,13,16,19-Docosapentaenoic acid methyl ester
Arachidonic acid methyl ester
Eicosapentaenoic acid

Internal Standard

EN-15779-IS **1 mL**
1.0 mg/mL in Heptane 4 comps.

Methyl tricosanoate

Fatty Acid Ethyl Esters (FAEEs)

Ethyl Esters in Soy & Corn

BF-SOY-EE	100 mg
16:0 Ethyl palmitate	6% Wt.
18:0 Ethyl stearate	3% Wt.
20:0 Ethyl arachidate	3% Wt.
18:1 Ethyl oleate	35% Wt.
18:2 Ethyl linoleate	50% Wt.
18:3 Ethyl linolenate	3% Wt.

Ethyl Esters in Rapeseed Oil

BF-RAP-EE	100 mg
14:0 Ethyl myristate	1% Wt.
16:0 Ethyl palmitate	4% Wt.
18:0 Ethyl stearate	3% Wt.
20:0 Ethyl arachidate	3% Wt.
22:0 Ethyl behenate	3% Wt.
24:0 Ethyl lignocerate	3% Wt.
18:1 Ethyl oleate	60% Wt.
22:1 Ethyl erucate	5% Wt.
18:2 Ethyl linoleate	12% Wt.
18:3 Ethyl linolenate	5% Wt.
20:1 Ethyl eicosenoate	1% Wt.

Ethyl Esters in Palm Kernel Oil

BF-PALM-EE	100 mg
8:0 Ethyl caprylate	7% Wt.
10:0 Ethyl caprate	5% Wt.
12:0 Ethyl laurate	48% Wt.
14:0 Ethyl myristate	15% Wt.
16:0 Ethyl palmitate	7% Wt.
18:0 Ethyl stearate	3% Wt.
18:1 Ethyl oleate	12% Wt.
18:2 Ethyl linoleate	3% Wt.

Ethyl Esters in Beef Tallow

BF-BT-EE	100 mg
14:0 Ethyl myristate	2% Wt.
16:0 Ethyl palmitate	30% Wt.
16:1 Ethyl palmitoleate	3% Wt.
18:0 Ethyl stearate	14% Wt.
18:1 Ethyl oleate	41% Wt.
18:2 Ethyl linoleate	7% Wt.
18:3 Ethyl linolenate	3% Wt.

A field of rapeseed

FAEEs Compounds

Neats (100 mg) Solutions (10 mg/mL conc. in Hexane)

Compound	Cat. No.	Unit
Ethyl palmitate (16:0)	**FAEE-006N**	100 mg
	FAEE-006S	1 mL
Ethyl stearate (18:0)	**FAEE-007N**	100 mg
	FAEE-007S	1 mL
Ethyl arachidate (20:0)	**FAEE-008N**	100 mg
	FAEE-008S	1 mL
Ethyl oleate (18:1)	**FAEE-014N**	100 mg
	FAEE-014S	1 mL
Ethyl linoleate (18:2)	**FAEE-012N**	100 mg
	FAEE-012S	1 mL
Ethyl linolenate (18:3)	**FAEE-016N**	100 mg
	FAEE-016S	1 mL
Ethyl myristate (14:0)	**FAEE-005N**	100 mg
	FAEE-005S	1 mL
Ethyl behenate (22:0)	**FAEE-009N**	100 mg
	FAEE-009S	1 mL
Ethyl lignocerate (24:0)	**FAEE-010N**	100 mg
	FAEE-010S	1 mL
Ethyl erucate (22:1)	**FAEE-011N**	100 mg
	FAEE-011S	1 mL
Ethyl caprylate (8:0)	**FAEE-002N**	100 mg
	FAEE-002S	1 mL
Ethyl caprate (10:0)	**FAEE-003N**	100 mg
	FAEE-003S	1 mL
Ethyl laurate (12:0)	**FAEE-004N**	100 mg
	FAEE-004S	1 mL
Ethyl palmitoleate (16:1)	**FAEE-001N**	100 mg
	FAEE-001S	1 mL
Ethyl nervonate (24:1)	**FAEE-013N**	100 mg
	FAEE-013S	1 mL
Ethyl heptadecanoate (17:0)	**FAEE-015N**	100 mg
	FAEE-015S	1 mL
Ethyl linolenate (gamma) (18:3)	**FAEE-020N**	100 mg
	FAEE-020S	1 mL

EN15721 Ethanol Impurities

Ethanol Impurities Solution A

EN-15721-A **1 mL**
1% w/w each in Ethanol 10 comps.

Methanol	2-Butanol
Acetaldehyde	1-Butanol
3-Methyl-1-butanol	1-Propanol
2-Methyl-1-butanol	Ethyl acetate
2-Methyl-1-propanol	Acetal

Internal Standard Solution A

EN-15721-A-IS **1 mL**
1 % w/w in Ethanol

3-Propanol

EN15721 Solution A Set

EN-15721-A-SET **2 x 1 mL**

EN-15721-A and **EN-15721-A-IS**

IP391/07 Aromatic Hydrocarbon/FAME Test Method for Diesel and Petro/Biodiesel

NEW

IP-391/07-01 **5 mL**
At stated (µg/mL) conc. in n-Heptane 7 comps.

Cyclohexane	10,000
Dodecylbenzene	1,000
o-Xylene	5,000
Hexamethylbenzene	1,000
Naphthalene	1,000
Dibenzothiophene	500
9-Methylanthracene	500

IP-391/07-02 **5 mL**
At stated (µg/mL) conc. in n-Heptane 6 comps.

Palmitic acid methyl ester	800
Stearic acid methyl ester	800
Methyl cis-9-octadecenoate	800
Linoleic acid methyl ester	800
Chrysene	400
Linolenic acid methyl ester	800

Test Method Set

IP-391/07-SET **2 x 5 mL**

IP-391/07-01
IP-391/07-02

IP585 FAME in Aviation Turbine Fuel

NEW

IP-585-BCS **1 mL**
1,000 µg/g each in n-Dodecane 6 comps.

Palmitic acid methyl ester
Heptadecoaoic acid methyl ester
Stearic acid methyl ester
Methyl cis-9-octadecenoate
Linoleic acid methyl ester
Linolenic acid methyl ester

Internal Standard

IP-585-IS **1 mL**
1,000 mg/kg in n-Dodecane

Methyl heptadecanoate-d33

EN12916 Hydrocarbons in Biofuel

NEW

EN-12916-SET **4 x 1 mL**
At stated (mg/mL) conc. in Heptane 3 comps.

	EN-12916-01	EN-12916-02	EN-12916-03	EN-12916-04
o-Xylene (1,2-Dimethylbenzene)	40	10	2.5	0.5
Fluorene	20	10	2.5	0.2
Phenanthrene	4.0	2.0	0.5	0.1

Physical Standards

Compound			Matrix	Cat. No.	Unit
ASTM D2500					
Cloud Point	-16	˚C *	B5	**BF-D-2500-B5-250ML**	250 mL
	-14	˚C *	B20	**BF-D-2500-B20-250ML**	250 mL
	-1	˚C *	B100	**BF-D-2500-B100-250ML**	250 mL
ASTM D93 / EN ISO 3679					
Flash Point	60	˚C *		**BF-D-93-60C-250ML**	250 mL
	65	˚C *		**BF-D-93-65C-250ML**	250 mL
	140	˚C *		**BF-D-93-140C-250ML**	250 mL
ASTM D4951 / EN14107					
Phosphorus Content	0.001	% Wt.	B100	**BF-D-4951-B100**	100 g
ASTM D6304 / EN ISO 12937					
(KF) Water Content	60	µg/g	Anisole	**BF-KF-0.6X-5ML-VAP**	10 x 5 mL
	100	µg/g	Anisole	**BF-KF-1X-5ML-VAP**	10 x 5 mL
	1000	µg/g	Anisole	**BF-KF-10X-5ML-VAP**	10 x 5 mL
	5000	µg/g	Anisole	**BF-KF-50X-5ML-VAP**	10 x 5 mL
ASTM D6751 / UOP 391 / EN14108 / EN14109					
Sodium / Potassium	100	ppm	B100	**BF-UOP-391-B100**	100 g
EN 14538					
Calcium / Magnesium	100	ppm	B100	**BF-14538-B100**	100 g

* These are nominal values and the actual value will be recorded on the certificate.

Cloud Point

ASTM D6751 & ASTM D5453 Sulfur as Di-n-butyl sulfide in Biodiesel

Sulfur in Biodiesel 5%

ppm (µg/g)	% Wt.	Cat. No.	Unit
0	0	**BF-5453-B5-BL**	100 mL
5	0.0005	**BF-5453-B5-5X-SET**	2 x 100 mL
10	0.001	**BF-5453-B5-10X-SET**	2 x 100 mL
15	0.0015	**BF-5453-B5-15X-SET**	2 x 100 mL
30	0.003	**BF-5453-B5-30X**	100 mL
50	0.005	**BF-5453-B5-50X**	100 mL
75	0.0075	**BF-5453-B5-75X**	100 mL
100	0.01	**BF-5453-B5-100X**	100 mL
200	0.02	**BF-5453-B5-200X**	100 mL
500	0.05	**BF-5453-B5-500X**	100 mL

Sulfur in Biodiesel 100%

ppm (µg/g)	% Wt.	Cat. No.	Unit
0	0	**BF-5453-B100-BL**	100 mL
5	0.0005	**BF-5453-B100-5X-SET**	2 x 100 mL
10	0.001	**BF-5453-B100-10X-SET**	2 x 100 mL
15	0.0015	**BF-5453-B100-15X-SET**	2 x 100 mL
30	0.003	**BF-5453-B100-30X**	100 mL
50	0.005	**BF-5453-B100-50X**	100 mL
75	0.0075	**BF-5453-B100-75X**	100 mL
100	0.01	**BF-5453-B100-100X**	100 mL
200	0.02	**BF-5453-B100-200X**	100 mL
500	0.05	**BF-5453-B100-500X**	100 mL

Sulfur in Biodiesel 20%

0	0	**BF-5453-B20-BL**	100 mL
5	0.0005	**BF-5453-B20-5X-SET**	2 x 100 mL
10	0.001	**BF-5453-B20-10X-SET**	2 x 100 mL
15	0.0015	**BF-5453-B20-15X-SET**	2 x 100 mL
30	0.003	**BF-5453-B20-30X**	100 mL
50	0.005	**BF-5453-B20-50X**	100 mL
75	0.0075	**BF-5453-B20-75X**	100 mL
100	0.01	**BF-5453-B20-100X**	100 mL
200	0.02	**BF-5453-B20-200X**	100 mL
500	0.05	**BF-5453-B20-500X**	100 mL

Note: 10,000 ppm = 1% Wt.

Biofuel Blank

B100

BF-WM-B100-BL-1 **100 g**
BF-WM-B100-BL-5 **500 g**

Technical Note

The 5, 10 and 15 ppm sulfurs are supplied as a set including a blank. We suggest using the blank for analysis to compensate for matrix interferences, such as low levels of native sulfur.

EN14214 Wear Metals

Each is 100 grams at 500 µg/g concentration.

Compound	Matrix	Cat. No.	100 grams
Aluminum	B100	**BF-WM-B100-01-0.5X**	
Calcium	B100	**BF-WM-B100-09-0.5X**	
Chromium	B100	**BF-WM-B100-13-0.5X**	
Copper	B100	**BF-WM-B100-15-0.5X**	
Iron	B100	**BF-WM-B100-27-0.5X**	
Lead	B100	**BF-WM-B100-29-0.5X**	
Magnesium	B100	**BF-WM-B100-32-0.5X**	
Phosphorus	B100	**BF-WM-B100-41-0.5X**	
Potassium	B100	**BF-WM-B100-43-0.5X**	
Sodium	B100	**BF-WM-B100-54-0.5X**	
Zinc	B100	**BF-WM-B100-70-0.5X**	

Biofuel Metals Mix

Multi-Element Biofuel Standard

BF-WM-B100-MIX **100 g**
200 µg/g each in B100 5 comps.

Ca (Calcium)
K (Potassium)
Mg (Magnesium)
Na (Sodium)
P (Phosphorus)

Custom Formulations

Available upon request.

Please contact us

AccuStandard®

ISO Guide 34:2009 • ISO/IEC 17025:2005 • ISO 9001:2008

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