

When The Going Gets Tough

The Tough **Go Further**

**ALL**

**BIODIESEL**

**IS NOT**

**THE SAME**

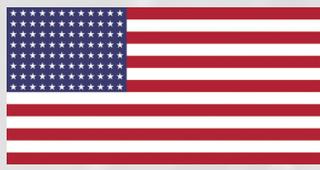
**EXPERIENCE**

**SUPERIOR**

**QUALITY**

MADE IN THE

**USA**



**BIODIESEL FUELS**

EXCEEDING THE STANDARD FOR DIESEL FUELS



Fuels | Lubricants | Knowledge | Service

# FS BIODIESEL

- ➔ Requires no engine modifications and is an easy transition from conventional diesel fuel.
- ➔ Reduces sulfur dioxide exhaust by up to 100%, since biodiesel contains essentially no sulfur.
- ➔ Significantly reduces particulate matter emissions by up to 47%.
- ➔ Reduces carbon monoxide by 48%.
- ➔ Reduces overall carbon dioxide emissions by up to 78% over petroleum diesel.
- ➔ Is biodegradable and nontoxic; can break down four times faster than conventional diesel fuel.
- ➔ Reduces unburned hydrocarbon emissions by up to 67%.
- ➔ Reduces dependence on foreign oil.
- ➔ Is the safest fuel to transport, handle, and store, with a minimum flash point of 200°F.
- ➔ Promotes cleaner air.
- ➔ Has excellent lubricity qualities.

## EXPERIENCE, QUALITY, AND PERFORMANCE MAKE FS THE BEST CHOICE FOR BIODIESEL.

### EXPERIENCE

You benefit from our experience. Since 1994, the FS System has been supplying and conducting field trials with biodiesel. Today, we are a national leader in the marketing and distribution of biodiesel blends. We have developed and adopted the best biodiesel handling, storage, and filtration practices in the industry. Our dedication to quality means you'll be using the very best biodiesel products available today.

### QUALITY

Diesel engine operators and drivers shouldn't have to worry about the quality of their fuel. That's why we've implemented a quality assurance program for our suppliers that exceeds American Society for Testing and Materials (ASTM) standards. To ensure consistent product quality, we only market biodiesel from BQ9000-certified manufacturers. You can rely on the superior quality of biodiesel blends from FS.

### PERFORMANCE

For an even better-performing fuel, we recommend blending biodiesel with our FS Diesalex® Gold premium diesel fuel. You'll experience enhanced operability with improved cold-starting characteristics, better fuel stability for longer storage, and cleaner injectors for improved fuel economy and power. Also, our cold-flow improver, SURE-FLO™, helps combat cold-temperature issues so you can avoid gelled fuel and plugged filters.

**We applaud our customers who already use homegrown fuels such as biodiesel. You can count on FS to set the standard as a leading fuel supplier, dedicated to quality and satisfying our customers' needs.**

# GROWMARK SPECIFICATION FOR BIODIESEL (B100/B99.9)

TEST DESCRIPTION	ASTM TEST METHOD	ASTM D6751	GROWMARK Required Specification
Calcium and Magnesium Combined	EN14538	5 ppm max	5 ppm max
Flash Point °C, min	D93	93 min	93 min
Alcohol Control (#1 or #2 must be met):			
1. Methanol Content, % vol	EN14110	0.2 max	0.2 max
2. Flash Point, °C Water & Sed., % vol, min	D93	130 min	130 min
Water & Sediment, % vol, max	D2709	0.05 max	0.025 max
Kinematic Viscosity @ 40°C, mm <sup>2</sup> /s	D445	1.9 – 6.0 min – max	1.9 – 6.0 min – max
Sulfated Ash, % mass, max	D874	0.02 max	0.02 max
Sulfur, % mass (ppm), max	D5453	0.0015 max	0.0015 max
Copper Strip Corrosion, max, 3 hr. @ 50°C	D130	No. 3 max	No. 1 max
Cetane Number, min	D613	47 min	47 min
Cloud Point °C	D2500	Report	Report
Summer ( <i>upon request only</i> )			12°C max
Winter			2°C max
Carbon Residue, % mass, max	D4530	0.05 max	0.05 max
Acid Number, mg KOH/g, max	D664	0.50 max	0.50 max
Free Glycerin, % mass, max	D6584	0.02 max	0.02 max
Total Glycerin, % mass, max	D6584	0.24 max	0.175 max
Monoglyceride Content, % mass, max	D6584		
Grade No. 1 (winter)		0.40 max	0.40 max
Grade No. 2 (summer)		n/a	0.40 max
Distillation Temperature, Atmospheric Equivalent Temperature 90% Recovered, °C, max	D1160	360 max	360 max
Sodium/Potassium, Combined ppm	EN14538	5 ppm max	5 ppm max
Oxidation Stability, hours	EN14112	3 hours min	5 hours min
Cold Soak Filtration Test, seconds	D7501		
Summer		200 max	200 max
Winter		360 max	200 max
Karl Fischer Water, % vol, max	D6304	n/a	300 ppm max
BQ 9000 Producer			Required

Subject to change without notice - Updated 3/2019.

## **FS - THE PEOPLE TO TAKE YOU FURTHER**

When it comes to the success of your operation, you can rely on your local FS Energy Specialists. They are uniquely qualified with the knowledge and expertise to help you improve profits, cut downtime and reduce maintenance expenses. So if you're looking for ways to enhance your profitability, count on the energy experts at FS to help you go further.



**fssystem.com**