GRAINCO FS, Inc.

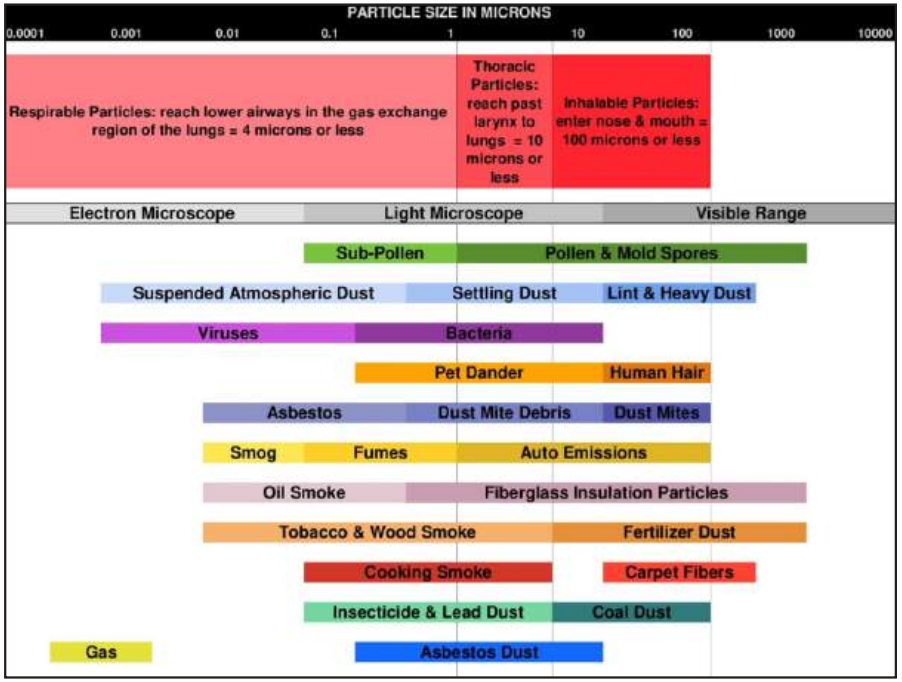
FILTRATION GUIDE

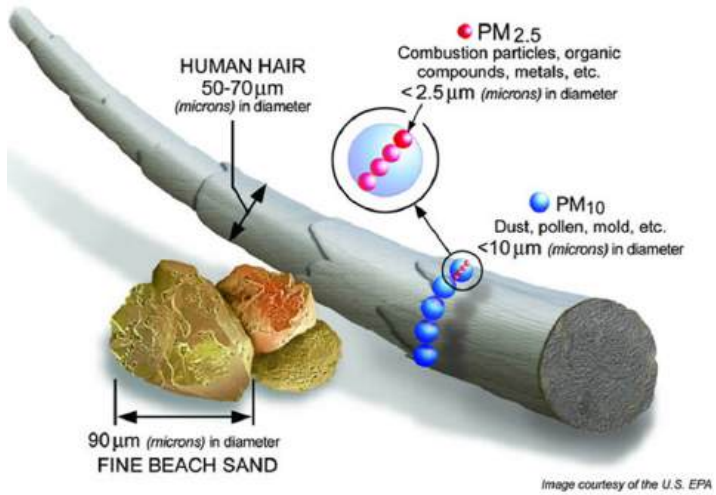
IMPORTANCE OF FILTRATION

Replacing tank filters is one of the simplest but most important things you can do to prevent plugged filters on combines, trucks, tractors, or other equipment. As the fuel is pumped in, sediment is loosened and is ultimately pumped out. Filtration at the tank can help prevent dirt, water, and organic debris from reaching your equipment, but it is often overlooked.

Today's cleaner, more efficient engines come with tighter tolerances and the need for smaller-micron filtration. Industry-leading equipment manufacturers have engineered High Pressure Common Rail (HPCR) engines with fuel filtration requirements as low as 2 microns. Worse yet, fuel filters can be extremely expensive.

However, the retail cost of a 2-micron FS Bio-Power storage tank filter is approximately $40.00. Not only is it cheaper to replace a tank filter, but the chances of plugging the fuel filter on your equipment is greatly reduced. Filtration at the tank with a 2-micron FS Bio-Power filter ensures the fuel entering your equipment is clean. It's great insurance that your equipment will keep running, and you'll avoid the additional cost of replacing expensive filters.





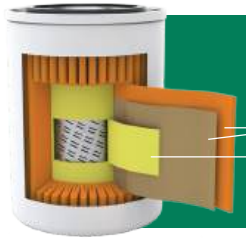
OUR FILTER MEDIAS

TODAY'S FUELS REQUIRE MORE THAN A "ONE-FILTER-FITS-ALL" SOLUTION

We build our medias to meet the specific needs of the various fuels you filter, ensuring optimal protection against fuel contamination no matter what fuel you're filtering.

Detect Water & Remove Particulate

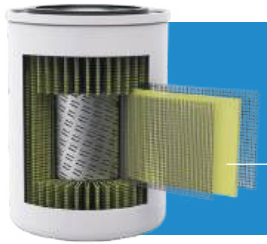
These filters capture particulate ***and*** detect excess water. When water-contaminated fuel passes through the filter, the media swells and restricts flow to notify the operator that water is present and action is required.



Multi-Fuel®

For Gasoline and Ethanol Blends up to 25%

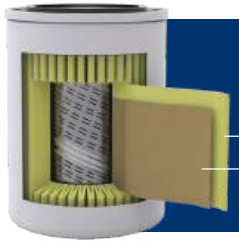
- Proprietary Microglass-Cellulose hybrid pleat pack
- Advanced water ***and*** phase separation detection material between two Microglass layers restricts flow when water is detected.



Hydroglass®

For Gasoline, Diesel/ULSD and Biodiesel Blends up to 20%, and 100% Biodiesel

- Advanced water detection material between two Microglass layers restricts flow when water is detected.



Hydrosorb®

For Gasoline, Diesel, and ULSD

- Proprietary Microglass-Cellulose hybrid pleat pack
- Water detection material between Microglass-Cellulose laminate restricts flow when water is detected.

Remove Particulate

When contaminates such as dirt, rust, and microbial growth (non-liquid contamination) pass through the filter, the media captures the particulate.

Microglass

For Gasoline and Ethanol Blends up to 25%, Diesel/ULSD and Biodiesel Blends up to 20%, and 100% Biodiesel

- Spun bond synthetic material for support and filter media protection
- Coated steel wire for strength and rigidity
- Wet laid synthetic fibers

Cellulose

For Gasoline and Ethanol Blends up to 25%, Diesel, and ULSD

- Resin bound plant-based fiber material

Ultimate Defense

When you see the Ultimate Defense label (or the shield), you're seeing the best media we offer. Filters with this label all contain at least one layer of Microglass media. Compared to Cellulose, Microglass's synthetic fibers generally provide increased retention, lower clean filter differential pressure, and less resistance to fluid flow.

SELECTING A FILTER
FOR YOUR APPLICATION

Selecting a Media

What to consider when choosing a media:

Fuel type: Each fuel type has distinct properties that influence its filtration requirements.

Water contamination: Water is the largest threat to your fuel supply. We recommend using water-detecting medias in almost every situation.

Performance: Some of our medias provide more protection than others. Look for the Ultimate Defense label (or the shield) to ensure you are getting maximum performance from your filter.

Use these factors and the chart below to select the media that's right for your application:

	Remove Particulate & Detect Water	Remove Particulate
Straight Gasoline	HYDROSORB, HYDROGLASS, MULTI-FUEL	CELLULOSE, MICROGLASS
Ethanol Blends up to 25%	MULTI-FUEL	CELLULOSE, MICROGLASS
Ethanol Blends up to 85%		MICROGLASS *WITH "HA" IN MODEL #*
Diesel/ULSD	HYDROSORB, HYDROGLASS	CELLULOSE, MICROGLASS
Biodiesel Blends up to 100%	HYDROGLASS	MICROGLASS

ULTIMATE DEFENSE

Selecting a Series

Flow rate, maximum pressure conditions, and thread size (on existing installations) all influence the filter series you choose. Once you've determined these factors, use the chart below to select a series:

Series/Model	Max Flow*	Max PSI
200, 250, 260, 300, 400, 450, 475	25 GPM (94.6 LPM)	50 (3.4 BAR)
800, 800SL	40 GPM (151.4 LPM) 80 GPM (302.8 LPM) if using Dual Head Adaptor	50 (3.4 BAR)
Centurions	Depending on Adaptor: 30 GPM (113.6 LPM), 60 GPM (227.1 LPM), or 90 GPM (340.7 LPM)	50 (3.4 BAR)
Vikings	Depending on Model: 120 (454.2 LPM), 150 GPM (567.8 LPM), 300 GPM (1135.6 LPM), or 500 GPM (1892.7 LPM)	150 (10.3 BAR)

*These rates assume good conditions and moderate temperatures.

Remember that the filter isn't the only thing that affects flow...

Using a 35 GPM pump and an 800 series filter does not guarantee you will get 35 GPM out of the nozzle at all times. Other variables that can restrict flow include:

- Excessive or undersized plumbing
- Low temperatures (cold temperatures can lead to reduced flow in some fuels due to changes in viscosity)
- Filter nearing the end of its useful life, meaning that it is clogged with contamination (water, particulate, etc.)

If you anticipate low temperatures and/or a flow rate at or near the maximum rate for a given filter series, we recommend moving up to the next series.

ULTIMATE DEFENSE

THE PROTECTION YOUR FUEL & EQUIPMENT NEED

We all know that today's equipment and engines are more advanced (and more expensive) than ever before. What you may not realize is that they also require cleaner fuel than ever before. Additionally, the use of additives and fuel blends (biodiesel, ULSD, etc.) further increases the need for advanced protection. Basic filtration just doesn't cut it—your fuel and equipment need more.

That's why we always recommend using Ultimate Defense media whenever possible. Our Ultimate Defense medias all contain at least one layer of Microglass, which consists of synthetic fibers that are smaller in size and more uniform in diameter than the natural fibers of Cellulose. This generally means increased retention, lower clean filter differential pressure, and less resistance to fluid flow. In other words, these filters are better equipped to provide the advanced protection that today's fuels and equipment require.

READING OUR LABEL

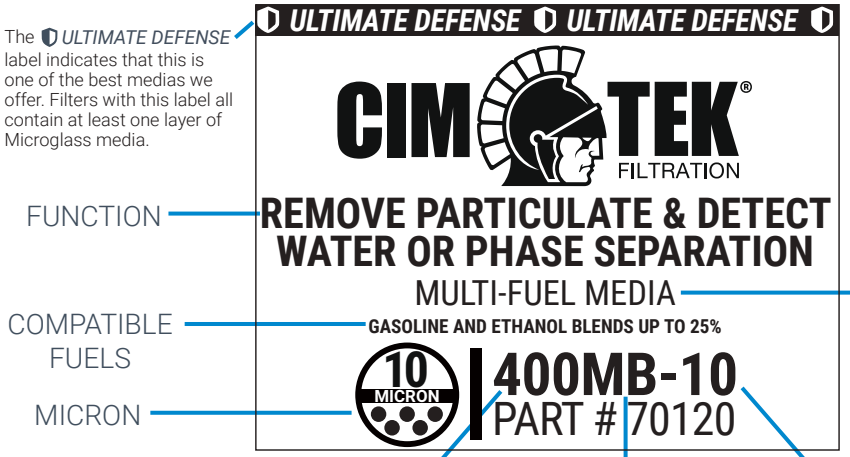
Our labels help you quickly identify everything you need to know about our filters. Use the guide below to understand every element of the filter label.

The color tells you what the filter does

MULTI-FUEL	HYDROGLASS	HYDROSORB	MICROGLASS	CELLULOSE
Remove particulate & detect water or phase separation	Remove particulate & detect water	Remove particulate & detect water	Remove particulate	Remove particulate
ULTIMATE DEFENSE	ULTIMATE DEFENSE		ULTIMATE DEFENSE	

The label gives you all the details

The *ULTIMATE DEFENSE* label indicates that this is one of the best medias we offer. Filters with this label all contain at least one layer of Microglass media.



FUNCTION

COMPATIBLE FUELS

MICRON

MEDIA

SERIES

MG= MICROGLASS
HS= HYDROSORB
HG= HYDROGLASS
MB= MULTI-FUEL
HA= HIGH ALCOHOL
WM= WIRE MESH

MICRON

www.graincofs.com

SPIN ON FILTERS

250Series

7.13"

3.75"

Thread:
1⅜"-12 [or] 1"-12

Max Flow:
25 GPM (94.6 LPM)

Micron Options:

Media Options:

CELLULOSE

260Series

8.75"

3.75"

Thread:
1⅜"-12 [or] 1"-12

Max Flow:
25 GPM (94.6 LPM)

Micron Options:

Media Options:

HYDROGLASS
HYDROSORB
MICROGLASS

300Series

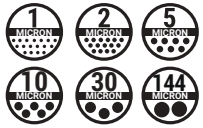
5.38"

3.75"

Thread: 1"-12

Max Flow:
25 GPM (94.6 LPM)

Micron Options:



Media Options:

HYDROGLASS
HYDROSORB
MICROGLASS

400Series

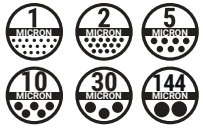
5.31"

3.75"

Thread: 1½"-16

Max Flow:
25 GPM (94.6 LPM)

Micron Options:



Media Options:

HYDROGLASS
HYDROSORB
MICROGLASS

800Series

10.94"

5.06"

Thread: 1½"-16

Max Flow:
40 GPM (151.4 LPM)

Micron Options:

Media Options:

HYDROGLASS
HYDROSORB
MICROGLASS

TAKE YOUR TOTAL FUEL SOLUTION FURTHER
WITH DIESELEX GOLD

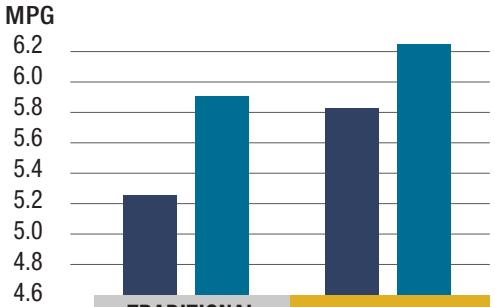
RESTORES AND INCREASES HORSEPOWER

Loss of power is a common occurrence with traditional #2 Ultra Low Sulfur Diesel (ULSD) in today's modern engines. Dieselex Gold recovers power loss from traditional #2 ULSD.

- Resists breakdown under engine stress
- Reduces and removes carbon deposits
- Improves fuel delivery and combustion
- Recovers and restores lost horsepower

KEEPS ENGINES RUNNING LIKE NEW

Dieselex Gold is formulated to reduce downtime and increase operability and efficiency.



	TRADITIONAL #2 ULSD	DIESELEX GOLD
OVERALL MPG	5.25	5.82
MOVING MPG	5.91	6.25

PROVIDES TOTAL FUEL SYSTEM PROTECTION

Our focus on protection begins with your fuel storage tanks and ends with your emissions. This focus is what we call **Total Fuel System Protection**.

- Guards against thermal and oxidative fuel breakdown
- Keeps storage and equipment tanks dryer
- Protects moving parts from wear and damage
- Cleans and disperses particles to reduce emissions

Dieselex® Gold
Power ◆ Efficiency ◆ Protection

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