



# Basic Guide and Interpretation Card for Fleetguard® FK36000 Portable Fuel Cleanliness Analysis Kit

## Basic Guide for FK36000

### Introduction

- **Sample Collection for the test-** The sample used for the test should be a representative of fuel delivery tank or vehicle or other device under consideration. Example: If the fuel is collected from a delivery tank make sure a sample is collected from the start and end or if collected from a bulk tank, make sure it is from the top and bottom of the bulk tank. If you are doing a 'before' and 'after' comparisons, especially if you have made changes to supply chain, make sure sample is collected at the same points for comparisons.
- The 2µm Fleetguard® SP72066 media patch is ideal for most applications in assessing the quality of unknown fuels. It is able to capture finer contaminants than most diesel filters.
- When using the 2 µm Fleetguard® SP72066 media patch with either the funnel adapter or siphon mode, 1 liter of fuel is required for each of the test.
- The 1µm Whatman® Np membrane requires an **additional 1 liter** of fuel and **must only use the funnel mode** since it is not compatible with the siphon function.
- The 1µm Whatman® Np membranes must be used to **assess fuels that pass the test with a 2µm patch**.
- **The 1µm membrane is required when analysis of contaminants is required. This requires prior arrangements with an outside laboratory.**
- The 1µm Whatman® membrane in funnel mode is intended for certain applications where fuel quality must be very high in order to achieve long service intervals.
- For either media, **1 liter of fuel is divided into 4 equal parts of approximately 250 ml each**, with the **time of flow** recorded for each amount as in detailed instructions.
- **For funnel mode**, each 250 ml is transferred to the funnel and vacuum of 17-20 mm of Hg is used to pass this fuel through the either 2µm or 1µm media. Time for each pour is recorded.
- **For Siphon mode**, the 2nd PC bottle is used to collect fuel and the assembly is set as directed to pass 1L fuel through the 2µm media, the PC bottles are graduated and thus help record time for each part of 250 ml.
- If fuel is clean, little time change will occur between equal amounts. For many fuels, the times should be less than 1 minute. However if first time is under 1 min followed by the second time of 2 minutes it begins to indicate dirty fuel but it is still recommended that the test be carried out until much longer times are seen to bring resolution to the test.
- If any of the 4 pours reaches 15 minutes, the test can be terminated as this would indicate that the fuel is of 'poor' quality. Under such situations, it is not necessary to continue testing.
- The first time may appear slower up to 2-3 minutes due to technique, viscosity, and temperature effects but if the times remain similar or constant (not increasing), it will still indicate a clean fuel.
- Some variability is expected between users; however, precise measurement of milliliters fuel, vacuum level, or seconds of time is not critical. Precision at the level of tens of seconds and up to a minute is all that is required. Users are looking for a significant increase in time of flow with consistent technique if the fuel quality is poor.

### Data Interpretation

- L of fuel is passed through a single Fleetguard® 2µm media (SP72066) 2µm media patch as 4 equal parts of approximately 250 ml each, with the time of flow recorded for each amount.

Patch Test Results using 2 µm media (SP72066) (all times in minutes)						
1 <sup>st</sup> 250 ml pour	2 <sup>nd</sup> 250 ml pour	3 <sup>rd</sup> 250 ml pour	4 <sup>th</sup> 250 ml pour	Result	Fuel Quality	Approximate ASTM D 2068 FBTN
15				Fail	Poor	8.01-30.00
6-10	10-15			Fail	Poor	5.01-8.00
<6	6-15			Fail	Poor	3.01-5.00
<2	2-5	5-10	10-15	Fail	Poor	2.51-3.00
<2	<2	2-10	10-15	Fail	Poor	2.01-2.50
<2	<2	<2	5-15	Fail	Moderate	1.51-2.00
<2	<2	<2	2-5	Pass	Clean	1.21-1.50
<2	<2	<2	<2	Pass	Clean	1.01-1.20

- Another 1L of fuel divided into 4 parts of 250 ml may be passed through a 1 µm patch with the time of flow recorded for each pour.

Patch Test Results using 1 µm Whatman Nuclepore membrane (all times in minutes)						
1 <sup>st</sup> 250 ml pour	2 <sup>nd</sup> 250 ml pour	3 <sup>rd</sup> 250 ml pour	4 <sup>th</sup> 250 ml pour	Result	Fuel Quality	Approximate ASTM D 2068 FBTN
>10				Fail	Poor	3.01-5.00
<5	5-15			Fail	Poor	2.51-3.00
<3	3-5	5-15		Fail	Poor	2.01-2.50
<3	<3	3-5	5-15	Fail	Moderate	1.51-2.00
<3	<3	<3	3-5	Pass	Clean	1.21-1.50
<3	<3	<3	<3	Pass	Clean	1.01-1.20

### Troubleshooting

Problem	Solution
Vacuum is not generated	<ul style="list-style-type: none"> <li>• Make sure the all the connections are sealed well. Check the rubber tube inlet valve in the hand held vacuum pump/the vacuum bottle/the funnel assembly.</li> <li>• The handle portion of the hand operated vacuum pump is easily removed and may benefit from adding a few drops of motor oil to the o-ring and flapper valve.</li> <li>• After many uses of this equipment it is possible some of the o-rings have become damaged or need replacement. Spares are included.</li> </ul>
Test is very slow or no flow	<ul style="list-style-type: none"> <li>• Make sure there is no slip or cover sheets in the filter holder with the filter media.</li> <li>• Make sure the media discs have not been double stacked in the filter holder.</li> <li>• Make sure the 1 µm membrane has not been used with the siphon adapter as it will easily air lock and no fuel will flow.</li> </ul>
Other	More information and details will become available at <a href="http://www.cumminsfiltration.com">www.cumminsfiltration.com</a>



Scan the QR code or visit <http://bit.ly/2i5GwcN> to learn more about this Fleetguard kit.



**Filtration**

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