

THE CLARIFIER

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Velcon Filters, Inc. Recommends Discontinuing The Use Of Water Absorbing Cartridges With Pre-Mixed Fuel Containing Anti-Icing Additives

Background on the Use of Anti-Icing Additives with Water Absorbing Cartridges

Since 1997, Velcon Filters, Inc. has recommended that operators who use pre-mixed fuel with anti-icing additives (DiEGME, FIZZY®, Prist®) prior to filtration should use caution when using water absorbing cartridges (also known as monitors). Velcon has issued a number of service bulletins and articles in its newsletter "The Clarifier" addressing the performance and operation of water absorbing cartridges when anti-icing additive is present in the fuel. The following recommendations have been consistently provided:

1. Drain vessel daily
2. Changeout at 15 psid
3. Inject anti-icing additives after filtration whenever possible

In 2001 Velcon added the following caution statement to all of Velcon's water absorbing cartridge and vessel data sheets and installation instructions.

*****CAUTION*****

In fuels containing anti-icing additive (Di-EGME, FSII, Prist®), stagnant water bottoms can absorb large amounts of the anti-icing additive. This water/FSII solution can disarm water-absorbing elements allowing water to pass downstream. Daily draining of the monitor vessel and of water bottoms upstream of the elements is IMPERATIVE.
Also, changeout @ 15 psid.

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What's New at Velcon

Velcon Filters, Inc. has been busy developing several new products to meet various needs in the filtration industry, especially the jet fuel filtration industry...



VCA in Operation at Denver Int'l Airport and Dubai, UAE.

Velcon Contaminant Analyzer (VCA)

VCA is a device that detects water and solids in fuels for last-stage quality check after final filtration. The VCA uses laser sensing technology to insure that the fuel being loaded onto the aircraft is clean and dry. In the event of wet or dirty fuel (or both), the system will shut down the fueling operation and alert the user with only a minimal amount of out-of-spec fuel reaching the plane.

Jed Stevens demonstrating the VCA at the Aviation Industry Expo Show in Las Vegas.



Velcon®

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Velcon Filters' Position on the Use of Anti-Icing Additive

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In November of 2003 Velcon issued a service bulletin that recommended that service life for all water absorbing cartridges should be one (1) year. Velcon also advised all operators to continue to follow the previously published Velcon guidelines of May, 2003.

In a Clarifier article published in March, 2000, Velcon addressed the issue of using coalescers in pre-mixed fuel. This article confirmed that Velcon had not encountered any operational problems with the coalescers, provided operators regularly drain storage tanks and filter/separators sumps daily. In the article Velcon also emphasized that it is extremely important to use desiccant dryers on anti-icing drums to ensure that water is removed from the air entering the drums.

During the Coordinating Research Council (CRC) meeting in May of 2006 it became clear to Velcon that although very clear guidelines exist for the safe operation of pre-mixed fuel, it has proven difficult for operators to ensure that the water absorbing cartridges are being operated correctly.

Following the CRC meeting and for the reasons set forth above, **Velcon Filters, Inc. has concluded that effective immediately, the use of water absorbing cartridges with commercial fuels (Jet A and Jet A1) containing anti-icing additives should be discontinued.**

Velcon believes this decision is also supported by the fact that the current IP Specification 1583 does not address the issue of fuels containing anti-icing additives. In addition, ATA Specification 103, Rev 2004.1 issued the following caution: "Full flow monitors should not be used with fuels containing fuel system icing inhibitors (FSII). The water removal performance of full flow monitors may be reduced with fuel containing FSII."

If you currently use pre-mixed fuel prior to filtration and require assistance from Velcon Filters, Inc. please contact us at vfsales@velcon.com or visit our web site at www.velcon.com to locate your nearest Velcon Filters' distributor.

Sump Recovery System (SRS)

- Closed circuit system that allows
- sumped
- fuel to be
- filtered
- and
- recycled.
- Designed
- to enable
- operators
- to re-
- claim fuel
- when
- sumping
- filter/separators, monitors and other
- vessels that may have water in the
- bottom of the vessel. Can also be
- used to re-claim fuel during filter
- change out.



Flow Differential Pressure Module (FDPM)

- Provides automatic sensing of flow
- and differential and provides a
- corrected differential pressure reading.
- Eliminates the need to manually
- calculate an adjusted differential
- pressure when flow is below the rated
- flow for the vessel.

IDC Series Coalescers

- These coalescers are
- centertubeless; they are designed
- for pipelines, terminals and refinery
- applications. The cartridge
- incorporates a unique design pleat
- block for removal of solids and also
- utilizes a deep coalescing structure
- for free water removal.

Clarifier Collection 1999-2005

Now available on CD: *The Clarifier Collection ~ 1999-2005. This collection contains technical articles from every Clarifier published from 1999-2005 as well as Question & Answer sections. Please contact vfsales@velcon.com to order your free CD.*

Operating Instructions For Water Absorbing Cartridges In Commercial Jet Fuel Without Anti-icing Additives

Given the current situation in the industry regarding water absorbing cartridges, we thought now would be a good time for a reminder...

- Check drain low points and dead legs in the piping daily.
- Check filter sump daily.
- Maximum service life is 1 year, or when differential pressure reaches 25 psi - whichever come first.
- Check flow rate and DP during each fueling and calculate and record corrected differential pressure. (See Velcon Decal 1846)
- Check cartridges if corrected differential pressure is lower than previous reading.
- Whenever possible sample fuel and check for free water content using the Velcon HYDROKIT® or other chemical method. Replace cartridges if the water content exceeds your company's fuel handling guidelines.
- If fueling unit is operating consistently below 50% of rated flow then periodically check fueling unit at test stand and check DP at flow rate of 50% or higher and confirm corrected DP.
- After changing cartridges circulate flow through vessel for at least 30 minutes, use millipores to check for fibers and also check hose end strainers.

Options to Using Monitors:

- Use Filter/water separators combined with appropriate water defense mechanisms .
- Incorporate Velcon's Flow Differential Pressure Module (FDPM), currently in development.
- Add a contaminant analyzer (VCA) at final stage of fueling.
- Replace monitor cartridges with filter cartridges.
- In place of one monitor cartridge install Velcon's ECDF water sensing cartridge, in development.

Question & Answer

(The following questions came from one of our customers in Asia)

Q How is the Velcon Contaminant Analyzer (VCA) calibrated? Does the size of dirt particles and water droplets affect the meter outputs?

A We are currently working on in-place calibration of the VCA, so that the VCA calibration can be easily done while installed. Yes, the contaminant size does affect the outputs. Particles are likely to be quite small, downstream of the current filtration. However water droplet size may vary, since the upstream filters may actually coalesce water that gets through the filter. We think the water may range in size from a few micrometers up to 200 micrometers, depending on the filter upstream. The calibration for water will require some assumptions about the water droplet size range.

Q Could variations in production tolerances of monitor cartridges contribute to performance degradation? Is the cartridge itself the problem - why would one set of monitor cartridges pass the test; then later, another set fail?

A We believe that changes in performance of the cartridge is due to fuel quality and the presence of trace contaminants which could be additives. The failure mechanism is the poor water absorption of the used polymer itself. The cause for this has not been found. The variation between lots of filters and the media used is very small compared to the degradation found in the field.

Q Does air in the filter housing affect the activity of microorganisms in the fuel?

A Velcon is certainly not an expert in microorganisms found in fuel systems. Most of these organisms require both water and fuel to thrive in fuel systems. Most of the microorganisms live at the interface of fuel and water. The presence of air is not likely to have much effect. The presence of both fuel and water is the key.

Electronic CDF (ECDF)

Special monitor cartridge with a water sensor built into the blind cap of the sensing monitor cartridge. This sensing cartridge is wired to a control unit mounted on a vessel pipe fitting, such as an air eliminator fitting. The control unit output can be wired to a deadman. This is currently in the testing & development stage.



Velcon Service Awards

Congratulations to these Velcon employees who have recently celebrated special anniversaries with Velcon:

40 Years

Gary Olstad (CO)

25 Years

Lynette Hamilton (AL)

20 Years

Theodore Smart (AL)

10 Years

Otto Laursen (CO)

5 Years

Luciano Miceli (CO)

Felisha D. Moon (AL)

Misty Threatt (AL)

Lakia S. Garrett (AL)

Jacqueline G. Holtzclaw (AL)

Holiday Shutdown

Please note that Velcon will be closed the following dates of Summer 2006 due to holidays.

Independence Day
July 3 and 4

Labor Day
September 4

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If you know anyone who would like to receive *The Clarifier*, fax their name, company and address to the address listed on the left.

We also welcome your comments and suggestions on topics covered in *The Clarifier*.

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