Can I use an Alcohol Monitor for both Straight Gasoline and E10?

To best understand the answer to this question, you should first have an understanding of how water acts in each fuel and how a 'detection' type filter reacts to the water. There are two types of absorbents used in detection filters: absorbents that attract 'non-dissolved' (free or emulsified) water and absorbents that attract all water (free, emulsified, dissolved and phase separated water). The two types of absorbent are *different* in their sensitivity.

Straight Gasoline

There are three types of water commonly present in regular gasoline: free water, emulsified water and dissolved water. Typically, regular gasoline can contain up to 200 parts per million of dissolved water, depending on the additives contained in the fuel. Dissolved water in fuel passes harmlessly through an engine. Emulsified water is simply small pockets of water mixed up and suspended in the fuel. Free water is larger pockets of water that eventually will settle to the bottom of the fuel storage tank. Emulsified and free water in fuel will freeze. Emulsified or free water, at a certain level, will stall an engine.

Absorbents that attract free and emulsified water in straight gasoline are used in the Cim-Tek Hydrosorb® and competitive brands. Finding and absorbing these types of water is relatively easy as it is a simple H_2O molecule to be found. The absorbent found in the pleated element within a Hydrosorb filter easily attracts the H_2O molecules, swells and reduces the flow through the filter dramatically.

E10 Ethanol-Blended Fuel

Water found in an ethanol-blended fuel is distinctly different. The water actually forms a weak hydrogen bond to the ethanol molecules. A 'warm' E10 blend can hold up to 6000 parts per million of water. At a certain saturation point and temperature, the fuel will phase separate, meaning the water bonded to the ethanol will form an emulsion and impart a cloudy, milky look to the fuel; over time this emulsion will settle to the bottom of the tank. This phase separated layer is not combustible.

A special super-absorbent is required in an Alcohol Monitor in order to break the hydrogen bond between water and ethanol. The super-absorbent needs to have an extremely strong attraction to water to accomplish this. As the super-absorbent attracts water molecules, it gels and congeals, effectively reducing the flow through the filter.

Using an Alcohol Monitor with Straight Gasoline

With the above in mind, you can imagine how easy it is for an Alcohol Monitor to find dissolved water in straight gasoline! Extremely easy! The Alcohol Monitor will find all of the dissolved water and absorb it when a Hydrosorb or competitive product would not. A Bio-Tek® Alcohol Monitor actually contains both a Hydrosorb pleated element and an inner super-absorbent wrapped core. The Hydrosorb pleated element is included to absorb any stray free water, should it be present. Cim-Tek filed the original super-absorbent core Alcohol Monitor patent back in the early 1980's. A competitive product, a 'Dual' use filter, is constructed in a very similar way: a water absorbing pleated element around a super-absorbent core. Unless the straight gasoline is completely dry (0 parts per million water), in our opinion it is not recommended that an Alcohol Monitor or Dual filter of the above design be used, because any water in the fuel will activate the absorbent regardless if it is free, emulsified or dissolved. In this case, we would recommend using a Hydrosorb® filter together with Hydroburn™, Cim-Tek's new fuel treatment.

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