

BIODIESEL

FAQ

WHAT IS D-SOL D60?

D-SOL is a synthetically produced Magnesium Silicate that contains no crystalline silica. D-SOL is used as an adsorbent for the purification of biodiesel to remove contaminants such as soap, excess catalyst, glycerin, metals, residual methanol and other polar compounds.

D-SOL also increases the oxidative stability of the biodiesel.

DOES D-SOL REACT WITH THE CONTAMINANTS?

No. The mechanism for the removal of contaminants with D-SOL is adsorption. The contaminants are trapped in the pores of D-SOL and removed through simple filtration.

WILL D-SOL REPLACE THE WATER WASH?

Yes. D-SOL can be used to replace the water washing process with a simple filtration step. It can also be applied as a final polish of the biodiesel to ensure regulatory specifications are met.

IF I PUT THE D-SOL POWDER INTO MY UNWASHED BIODIESEL, DO I THEN HAVE TO REMOVE IT?

Yes, you do have to remove it. But therein lies the reason as to why D-SOL really works so well. As a fine powder with consistent particle size distribution, it is designed to cover every square inch of the wash tank allowing for maximum clean up efficiency. Unlike other wash methods, D-SOL's strong affinity for polar compounds allows all production residues and soaps to be effectively removed.

HAVE YOU DONE INDEPENDENT ANALYSIS OF D-SOL VS WET WASHING, OTHER MAGNESIUM SILICATES AND RESINS?

An independent study has been conducted by Iowa State University in which D-SOL out-performed even the best wet-wash system. We are currently working with Cambridge University in the UK to conduct a similar analysis of wet and dry wash methods.



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DO YOU NEED TO REPLENISH D-SOL AFTER EACH WASH?

Yes, unlike other dry wash methods, with D-SOL you only use what you really need in every wash.

I HAVE TRIED A MAGNESIUM SILICATE BEFORE, AND I COULD NOT GET MY BIODIESEL CLEAN?

Some low-grade magnesium silicates that are promoted as effective biodiesel purification methods contain high moisture contents, which “cloud” the fuel. They also do not have the ability to remove all of the contaminants necessary to achieve regulatory specifications. They are particularly difficult to remove due to inconsistent particle size and distribution.

HOW MUCH D-SOL IS REQUIRED PER WASH?

The easiest way to determine the proper amount of D-SOL is by correlating it to the soap content of the biodiesel. For every 1000ppm residual soap, approximately 0.8% D-SOL D60 is required.

HOW LONG DOES A WASH TAKE?

D-SOL requires only about 10 minutes of agitation and then can be removed from the biodiesel using filtration. This process is very fast and unlike the water wash, there is no time required to separate the water from the biodiesel. Also, there is no need to dry the biodiesel after the process as with the water wash process.

MUST I REMOVE THE METHANOL PRIOR TO USING D-SOL?

Although D-SOL will work with methanol in the biodiesel, it is recommended to remove the methanol prior to the purification process. This will allow the re-use of the methanol through methanol recovery system and will also decrease the amount of D-SOL required to remove the contaminants from the system.



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WILL "REVERSION" OCCUR DURING THE FLASH EVAPORATION OF THE METHANOL?

Reversion of the methyl ester to mono-and di-glycerides can occur if the free glycerin is not removed from the methyl esters prior to performing the flash evaporation step. This is why it is important to get a good separation of the glycerin phase.

AT WHAT CONCENTRATION OF FREE FATTY ACIDS IS THE PRETREATMENT PROCESS RECOMMENDED (DIRECT ACID ESTERIFICATION)?

Direct acid esterification will convert the FFA directly into methyl esters with the use of an acid catalyst. The concentration that is recommended for the acid esterification reaction is any oil that has an FFA of 0.5% or higher. Oils that contain less than 0.5% FFA can be reacted with the base transesterification reaction.

DO I NEED TO SEPARATE THE GLYCERIN FROM THE METHYL ESTER PHASE PRIOR TO USING D-SOL?

Yes. The separation of the glycerin and methyl ester phase is required prior to using D-SOL. D-SOL removes polar contaminants and since glycerin is very polar, the D-SOL will be used up by the glycerin phase

HOW ARE THE "HAZY" PRECIPITATES PREVENTED (I.E. STEROL GLUCOSIDES AND SATURATED MONOGLYCERIDES)?

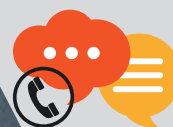
Hazy precipitates have been known to cause issues with filter plugging in the engine. Two of the most common causes for the precipitate are mono-glycerides (especially saturated) and sterol glucosides. The presence of mono-glycerides is directly related to the completion of the transesterification reaction. The sterol glucosides must be removed from the biodiesel in order to prevent precipitation from occurring in the finished biodiesel. While water washing cannot remove the sterol glucosides, filtration with D-SOL can remove the sterol glucosides thus preventing "hazy" finished product.

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