

Information on Diesel Fuel Additives #03-06-04-017 - (03/13/2003)

The use of diesel **fuel** additives is not required or recommended for the 6.5L diesel or the 6.6L Duramax® Diesel engine under normal conditions. The filtering system is designed to block water and contaminants without the use of additives. However, some customers may desire to use **fuel** additives to improve the characteristics of available diesel fuels.

Water Emulsifiers and Demulsifiers

If the customer desires to use a **fuel additive**, care must be taken in its selection. There are two common methods that **fuel** additives use to cope with water in the **fuel**. One method is through demulsification of water in the **fuel**. This method causes water particles to combine together to form larger particles, which drop out of suspension. This allows the **fuel** filter/water separator to separate the water from the **fuel** as it is designed to. The other method of coping with water in the **fuel** is through emulsification. This method, often using alcohol as the emulsifier, keeps water particles suspended in the **fuel**. Emulsification of water in the **fuel** can allow water to get past the **fuel** filter/water separator, in most cases causing damage to the **fuel** system.

Only alcohol free water demulsifiers should be used in General Motors diesel engines. Both *Racor® and *Stanadyne® diesel **fuel** additives are alcohol free and utilize water demulsifiers to cope with water in the **fuel**. Other brands may be available in different areas; be sure that they clearly state that they are alcohol free demulsifiers before use.

*We believe these sources and their products to be reliable. General Motors does not endorse, indicate any preference for or assume any responsibility for the products from these firms or for any such items which may be available from other sources.

COMMON DIESEL **FUEL** CONCERNS

Fuel Waxing/Icing

Fuel distributors blend #1 and #2 diesel fuels for seasonal requirements in a particular region. No other blending of fuels is recommended. However, a customer may desire to use a winter **fuel additive** to prevent **fuel** waxing or icing during extreme cold snaps. If a winter **fuel additive** is to be used, it should not contain alcohol or other water emulsifiers that may compromise the water removal effectiveness of the **fuel** filtering system.

Bacteria and Fungi Growth

Bacteria and fungi growth can occur in diesel **fuel** when there is water present, especially during warmer weather. The best prevention against bacteria and fungi growth is to use clean **fuel** that is free of water. There are diesel **fuel** biocides available which are designed to kill bacterial growth in the **fuel** system. However, the dead bacteria can still cause blockages throughout the **fuel** system. If bacterial growth is found in the **fuel** system, the proper method of removal is to flush the **fuel** system using Service Manual procedures, replace the **fuel** filter element, and refill the tank with clean diesel **fuel**. If a customer desires to use a biocide after flushing the **fuel** system, it should not contain alcohol or other

water emulsifiers.

Low Cetane Number

The cetane number is one indicator of a diesel **fuel's** ability to ignite. There are many indicators of overall **fuel** quality such as cleanliness, specific gravity, volatility, viscosity, detergency, corrosion inhibiting abilities, and lubricity. Increasing the cetane number alone is not a fix for poor quality **fuel**. Additionally, increasing the cetane number beyond the engine's requirements will not increase performance. However, the cetane number of diesel **fuel** is not always consistent and some customers may desire to use a cetane improver to ensure full performance of their engine. If such an **additive** is to be used, it must not contain alcohol or other water emulsifiers.