

Reference Sheet



4328796R1

Date: March 2021

SUBJECT: Cold-Weather Operation Recommendations for Diesel Fuel and Diesel Exhaust Fluid (DEF)

Model: All Models

DESCRIPTION

Provides information and recommendations on diesel fuels that must meet ASTM D975 Specification (2D, 1D) and Winter Fuel Additives. Also, provides information on diesel exhaust fluid as it relates to cold-weather operation.

OVERVIEW

The properties and quality of diesel fuel can be affected by:

- Geographical location
- Local government mandates
- Source refinery
- Pipeline terminal
- Temperature

Cold-weather temperatures, especially cold ambient temperatures that fall far below 32°F / 0°C, can cause the fuel to thicken or gel. This fuel condition diminishes the efficient operation of the fuel system, engine, and ultimately the safe and reliable operation of the vehicle.

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2D SUMMER FUEL

2D fuel is used during warm months and is known as summer fuel. All diesel fuel contains paraffin waxes that are thinner at warmer temperatures. However, as temperatures decline, the waxes can thicken or gel and clog the fuel filter and the fuel system. Fuel suppliers use a variety of methods to limit the possibility of this occurring, including dilution and cold-weather additives.

1D WINTER FUEL

Dilution is achieved using a lighter, kerosene-like, diesel cut known as 1D diesel fuel. This fuel usually contains less aromatic compounds as well as fewer long-chain paraffin (wax) compounds. 1D fuel has a lower cloud point than 2D fuel. The blend of 1D and 2D diesel fuel is often referred to as winter blended fuel, with the blend ratio dependent on the ambient temperature of the geographic location.

WINTER FUEL ADDITIVES

To prevent fuel gelling, winter fuel additives can be added to 2D, 1D, or even 2D and 1D blended fuel. Please note that winter fuel additives must be used before any wax in the fuel has formed. Therefore, it must be added before the fuel has reached its cloud point. For specific instructions on amount used, please use in accordance with the instructions provided by the additive supplier.

RECOMMENDATIONS

CAUTION! To prevent damage to components, if unsure about which additives to use, consult with your Navistar International® dealership or certified service representative.

- A combination of both winter blended fuel and winter fuel additives may be used as needed in extreme cold-weather conditions.
- Navistar recommends that customers use additives when deemed necessary. Customers may have need to use fuel additives due to low temperatures, marginal fuel quality, or other circumstances. However, Navistar does not test additives and therefore cannot validate or dispute any of the claims made by suppliers.

- Additives need to be regarded as medicine for the fuel. Please choose additives from a reputable source who can provide technical expertise when needed. Indiscriminate use of additives can do more harm than good because of unexpected interaction between other additives in the fuel.

DIESEL EXHAUST FLUID (DEF) PRECAUTION

CAUTION! To prevent damage to components, avoid overfilling the DEF tank. Overfilling the tank may cause a freezing condition and could cause cracks and leaks in the tank. Nozzle fill is recommended whenever possible.

Always follow the recommendation in the Caution above.

The freezing point of DEF is 12°F / -11°C. When operating the vehicle in cold ambient temperatures, it's important not to overfill the DEF tank. If the DEF tank is completely full during freezing conditions, the fluid could expand and possibly damage the tank and related components.