

ULTRA-LOW SULFUR DIESEL

EPA Rulemaking

In December 2000, the U.S. Environmental Protection Agency (EPA) issued a final rulemaking on heavy-duty engines and highway diesel fuel sulfur control requirements.¹ The new rule requires refiners and importers to produce highway diesel meeting a 15 parts per million (ppm) maximum requirement, starting June 1, 2006. Diesel meeting the new specification will be required at terminals by July 15, 2006 and at retail stations and wholesalers by September 1, 2006 in time for the 2007 model year release. There is an allowance during the “phase-in” period requiring 80% of diesel fuel produced to meet the 15 ppm requirement, and up to 20% produced to still meet the 500 ppm sulfur limit through May 2010.

Some Q&As Regarding Ultra-Low Sulfur Diesel Fuel²

What is ultra-low sulfur diesel fuel?

Ultra-low sulfur diesel (ULSD) fuel is a specially refined diesel fuel that has dramatically lower sulfur content than regular on-highway diesel. The sulfur content is 15 parts per million. Regular diesel has a maximum of 500 parts per million of sulfur. Other than the sulfur content, ultra-low sulfur diesel meets the same specifications as regular on-highway diesel.

Why use ultra-low sulfur diesel fuel?

Ultra-low sulfur diesel fuel reduces harmful emissions that are hurting our air quality and impacting public health. Using ultra-low sulfur diesel will contribute to dramatic reductions in harmful diesel emissions, particularly when used in conjunction with on-board emission control technologies.

- The lower sulfur content produces fewer harmful emissions and enables use of emission-reduction equipment, such as particulate filters. Use of these systems in combination with ultra-low sulfur diesel can reduce emissions of fine particulates and toxic air particles by more than 90 percent and emissions of hydrocarbons to nearly undetectable levels.
- Even without special emission-reduction equipment, use of ultra-low sulfur diesel in diesel engines reduces harmful sulfate pollutants.
- When using ultra low sulfur diesel with no additional control technologies, particulate matter is reduced by 8% and nitrogen oxides by 2%.

When will ultra-low sulfur diesel be available in Atlanta?

It is available now at the Doraville, Georgia terminal. The supplier is Chevron-Texaco.

Will using ultra-low sulfur diesel fuel affect my engine's performance?

No. Ultra-low sulfur diesel fuel has the same energy and performance as regular highway diesel. Only the amount of sulfur in the fuel has been changed.

Is lubricity a problem with ultra-low sulfur diesel fuel?

No. Today's ultra-low sulfur diesel fuel contains additives to ensure adequate lubricity. For example, ultra-low sulfur diesel currently produced by Phillips Petroleum in Ferndale, Washington, has a minimum of 3,100 grams lubricity (SBOCLE Test) in compliance with the ASTM standard for highway diesel.

Have any big fleets tried using ultra-low sulfur diesel fuel?

Yes. New York City's transit fleet has been using ultra-low sulfur diesel fuel in all buses (including buses that do not have emission-reduction equipment) since September 2000. The fleet has not had any maintenance issues. King County Metro in Washington has been successfully using ultra-low sulfur diesel in their transit fleet since July 2001. The City of Seattle is using ultra-low sulfur diesel in all heavy-duty diesel vehicles. Southern California, Arizona, New Jersey, Alaska, Texas, and Ohio are a few other states implementing a voluntary ULSD initiative.

How do I convert to ultra-low sulfur diesel fuel?

Converting your fueling facility to ultra-low sulfur diesel fuel is simple. Use up any existing fuel in your tank until the fuel level in the tank is as low as possible without impacting your fleet operation, and then fill-up with ultra-low sulfur diesel fuel. No rinsing or special clean-out procedures are needed. As you continue to fill up with ultra-low sulfur diesel fuel, any remaining high-sulfur fuel will be diluted until, over time, only ultra-low sulfur diesel fuel is present. The current sulfur content of the ultra-low sulfur diesel fuel is low enough so that reaching the maximum sulfur level of 15 parts per million should happen with the third or fourth fill-up of ultra-low sulfur fuel when following this procedure.

If you are also adding emission-reduction equipment immediately, you may need to pay more attention to the existing fuel and the sulfur content of the mixed fuel during conversion. Existing contaminants, existing additives and the time since the tank was cleaned could alter the fuel mix. That could affect the performance of the emission-reduction equipment. Also, excessive sulfur content can affect the performance and maintenance needs of diesel particulate filter traps (diesel oxidation catalysts are not affected by higher levels of sulfur in diesel fuel). Simple ways to prevent or reduce conversion problems include phasing in the ultra-low sulfur diesel fuel earlier; checking the existing fuel and tank conditions; and checking the new fuel mixture in your tank.

¹ U.S. Environmental Protection Agency, "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements: Final Rule," *Federal Register*, 40 CFR Parts 69, 80, and 86 (January 18, 2001).

² Most information retrieved from website: http://www.pscleanair.org/dieselsolutions/ds_fuel.shtml