

Vermont Department of Environmental Conservation

Sulfur Content in Heating Oil – Fact Sheet

Sulfur Limits

As part of a regional air pollution control strategy, Vermont has adopted regulations to lower the allowed sulfur content of fuel oils used, purchased, or sold for use for heating and power generation. Commencing on July 1, 2014, the sulfur content of No.2 and lighter distillate oils shall not exceed 0.05% by weight (500ppm), and commencing July 1, 2018, such oils shall not exceed 0.0015% by weight (15ppm). Distillate Fuel Oils meeting the 0.0015% by weight sulfur limit are commonly referred to as ultra-low sulfur diesel (ULSD).

On July 1, 2014, the sulfur content of No.2 heating oil purchased, sold, or used in Vermont shall not exceed 500 ppm (0.05%). Additional sulfur limits go into effect on July 1, 2018.

Also commencing on July 1, 2018, the sulfur content of No.4 residual oil and No.5/No.6 residual fuel oil shall not exceed 0.25% and 0.5% by weight, respectively. Sulfur dioxide (SO₂) is generated during combustion from the oxidation of sulfur contained in the fuel. The amount of uncontrolled SO₂ emitted is almost entirely dependent on the sulfur content of the fuel and is essentially independent of burner design.



Benefits

Under certain atmospheric conditions and in the presence of other pollutants, some SO₂ condenses to form sulfate particles, a major component of PM_{2.5}. Exposure to SO₂ and PM_{2.5} is associated with negative impacts to human health, which include respiratory problems and the intensifying of heart disease symptoms.

Fine particles and their precursors, are the major causes of visibility impairment (i.e., regional haze) in the United States. Particles affect visibility through the scattering and absorption of light, and PM_{2.5} particles are most efficient, per unit of mass, at reducing visibility. Regional haze affects urban and rural areas, including National parks, forests and wilderness areas, such as Vermont's Lye Brook.

Sulfur oxide emissions may also react with water vapor to form sulfuric acid. Deposition of atmospheric acids causes acidification of lakes and streams, contributes to the damage of trees and many sensitive forest soils, and

accelerates the decay of building materials and paints. From a consumer standpoint, using lower sulfur fuel oil will yield cost savings due to lower heating system maintenance costs and efficiency improvements.

How to Comply

The Vermont Air Quality and Climate Division routinely checks fuel oil delivery tickets for sulfur content during site inspections. The sulfur content of the fuel oil delivered should be included on the delivery ticket and bill of lading. If it is not, the inspector will ask for further verification from the dealer. If the sulfur content cannot be verified, the Air Quality and Climate Division Field Services Staff may collect and analyze fuel samples to ensure compliance.

The sulfur content should be clearly stated on the bill of lading from wholesalers as well as delivery tickets from fuel dealers.

Fuel that met the applicable sulfur content limit when it was stored in Vermont may continue to be stored, used, delivered, or exchanged in trade after the effective dates of the new limits, but may not be offered for sale. Full text of the rule can be found in section 5-221 of the Vermont Air Pollution Control Regulations. Contact Brian Monroe at (802) 338-2047 or brian.monroe@state.vt.us with questions or concerns.