

State of California
AIR RESOURCES BOARD

Updated Informative Digest

**REGULATORY AMENDMENTS EXTENDING THE CALIFORNIA STANDARDS FOR
MOTOR VEHICLE DIESEL FUEL TO DIESEL FUEL USED IN HARBORCRAFT AND
INTRASTATE LOCOMOTIVES**

Sections Affected: Amendments to sections 2281, 2282 and 2284, and adoption of section 2299, title 13, California Code of Regulations (CCR); adoption of section 93117, title 17, CCR.

Background

The Air Resources Board (ARB or Board) administers regulations that since 1993 have limited statewide the allowable sulfur content of motor vehicle diesel fuel to 500 parts per million weight (ppmw) and the aromatic hydrocarbon content to 10 percent with a 20 percent limit for small refiners. The regulation limiting aromatic hydrocarbon content allows refiners to comply by selling a certified alternative formulation that has an aromatic hydrocarbon content greater than the basic limits. Most refiners have taken advantage of the regulation's flexibility to produce alternative diesel formulations that provide the required air quality benefits at a lower cost. Diesel fuel meeting the ARB's standards is often referred to as "CARB diesel."

The California diesel fuel regulations are a necessary part of the state's strategy to reduce air pollution through the use of clean fuels and lower emitting motor vehicles and off-road equipment. The use of ultra-low sulfur diesel fuels reduces emissions for in-use engines and enables the use of sophisticated aftertreatment devices necessary to reduce the public exposure to diesel particulate matter. The most recent proposed and adopted standards for diesel engines will require the use of ultra-low sulfur diesel fuel for those engine standards to be effective.

In July 2003, the Board approved amendments – now in effect – which lowered the allowable sulfur content of motor vehicle diesel fuel to 15 ppmw starting June 1, 2006 and retained the existing aromatic hydrocarbon content limit for motor vehicle diesel fuel. California's motor vehicle diesel fuel regulations were already applicable to on-road and off-road vehicular sources and, as part of the July 2003 regulatory amendments, a separate Airborne Toxic Control Measure (ATCM) was adopted making diesel fuel used for most nonvehicular sources subject to standards for motor vehicle diesel fuel. Further, provisions were included to ensure there were adequate standards for diesel fuel lubricity. However, diesel fuel for locomotives and marine vessels were specifically exempted from the July 2003 amendments. At the July 2003 public hearing, the Board directed staff to

evaluate the feasibility, and if appropriate, develop recommendations to extend applicability of the CARB diesel regulations to locomotives and marine vessels.

As discussed below, the United States Environmental Protection Agency (U.S. EPA) administers a 500 ppmw sulfur standard for on-road motor vehicle diesel fuel. In addition, this fuel is required to have a cetane index of at least 40 or have an aromatic hydrocarbon content of no greater than 35 percent by volume (vol. %). Starting June 1, 2006, the federal sulfur standard for diesel fuel for on-road motor vehicles will be 15 ppmw. Diesel fuel meeting U.S. EPA's sulfur standards for on-road motor vehicles but not ARB's low-aromatics standard is often referred to as "EPA diesel."

In August 1998, ARB identified particulate matter emitted from diesel engines (diesel PM) as a Toxic Air Contaminant (TAC) and in September 2001, approved the Diesel Risk Reduction Plan to reduce public exposure to diesel particulate matter. The plan identified air toxic control measures and regulations that will set more stringent emissions standards for new diesel-fueled engines and vehicles, establish retrofit requirements for existing engines and vehicles where determined to be technically feasible and cost-effective.

Although ARB's vehicular diesel fuel standards currently do not apply to diesel fuel used in intrastate diesel-electric locomotives and most marine diesel engines, most diesel fuel currently used in those engines has a sulfur content under 500 ppmw. Because of fuel availability and other factors, almost all of the diesel fuel used in intrastate diesel-electric locomotive engines in California is either CARB diesel or EPA diesel, with a majority of it being CARB diesel. Passenger-fleet (i.e., ferries and excursion marine vessels) marine diesel engines are required by statute to use CARB diesel fuel. However, harborcraft that generally operate within California coastal waters primarily use EPA diesel, with lesser amounts of CARB diesel.

The Amendments Adopted in This Rulemaking

In this rulemaking, ARB has adopted amendments extending the CARB motor vehicle diesel fuel standards to diesel fuel used in harborcraft and intrastate locomotives, starting in 2006 and 2007 as described below. The Board has made additional, non-substantial changes. The final regulation order originally proposed as section 93116, title 17, CCR, has been renumbered to section 93117, title 17, CCR in the final regulation order text since another regulation 93116 is now in place.

Applicability of the regulations. The amendments will apply to persons selling or supplying diesel fuel for use in intrastate diesel-electric locomotives and both commercial and recreational harborcraft. An intrastate diesel-electric locomotive is defined as a diesel-electric locomotive that annually operates at least 90 percent of the time within the borders of the California, based on hours of operation, miles traveled, or fuel consumption. Harborcraft are marine vessels with characteristics that distinguish them from large oceangoing ships. They are be defined as marine vessels meeting all of the following

criteria: (1) less than 400 feet in length; (2) less than 10,000 gross tons; (3) propelled by engines with a cylinder displacement less than 30 liters per cylinder; and (4) neither a foreign-flagged vessel, nor documented as a foreign trade vessel by the United States Coast Guard. The requirements do not apply to military specification fuel that is sold, offered for sale, or supplied for use in marine vessels owned or operated by the U.S. armed forces.

Implementation dates. Diesel fuel sold, supplied, or offered for sale for use in commercial or recreational harborcraft within the SCAQMD will be required to be CARB diesel beginning January 1, 2006. This earlier implementation date for the SCAQMD is proposed to satisfy emission reduction commitments for harborcraft in the 2003 Statewide Strategy of the California State Implementation Plan. Diesel fuel sold, supplied, or offered for sale for use in intrastate diesel-electric locomotive and harborcraft operators throughout the state will be required to be CARB diesel beginning January 1, 2007.

Alternative emission control plan. To provide flexibility to affected diesel-electric locomotive operators, operators of intrastate diesel-electric locomotives will be permitted to participate in an Alternative Emission Control Plan. The owner or operator of an intrastate diesel-electric locomotive may submit, for approval by the Executive Officer, a substitute fuel and/or emission control strategy that achieves equivalent or greater reductions than those achieved solely through the use of CARB diesel and that has adequate enforcement provisions. It is expected that operators could propose any combination of fuels, equipment, or operational changes at one or more of their rail facilities in the State. Any plan must contain adequate protections for individuals living in areas that have existing local air pollution or localized air toxic impacts.

Structure of the regulations. New section 2299, title 13, CCR, is directly applicable to diesel fuel used in intrastate locomotives and harborcraft and has been adopted by ARB pursuant to its Health and Safety Code section 43013 authority to adopt standards and regulations for locomotives and marine vessels. New section 93117, title 17, CCR, which contains essentially identical provisions, is an ATCM that will complement and enable the use of high-efficiency emission control devices for non-vehicular diesel engines to reduce emissions of diesel PM.

Comparable Federal Regulations

Since 1993, a U.S. EPA regulation – 40 C.F.R. §§ 80.29 – has imposed a maximum sulfur content limit of 500 ppmw on diesel fuel sold or supplied for use in on-road motor vehicles. In addition, on-road motor vehicle diesel fuel is required to have either a cetane index of at least 40 or an aromatic hydrocarbon content of no greater than 35 percent by volume. In January 2001, U.S. EPA published a final rule requiring refiners to meet a maximum sulfur standard of 15 ppmw for highway diesel fuel beginning June 1, 2006. (66 F.R. 5002; 40 C.F.R. §§ 80.500 et seq.). All 2007 and later model year diesel fueled vehicles must be fueled with this new low sulfur diesel. The federal regulations contain temporary compliance options and flexibility provisions not offered in ARB's regulations.

On June 29, 2004, U.S. EPA published a final rule imposing a 500 ppmw maximum sulfur standard for diesel fuel used in nonroad, locomotive, and marine engines, starting in June 2007 (69 F.R. 38958, 40 C.F.R. §§ 80.510 et seq.). The federal sulfur standard drops to 15 ppm starting June 2010 for diesel fuel used in most nonroad engines, and starting June 2012 for diesel fuel used in locomotives and marine vessels.

Under the new ARB regulations, California will receive the benefits of five years of use of ultra-low sulfur (15 ppmw) diesel fuel before the U.S. EPA regulations become applicable to diesel fuel used in locomotives and marine vessels. In addition, the U.S. EPA diesel fuel programs do not achieve the NO_x and particulate matter emission reductions provided by the aromatic hydrocarbon requirements for CARB diesel.