



# Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels

---

APRIL 23, 2020

# Agenda

---

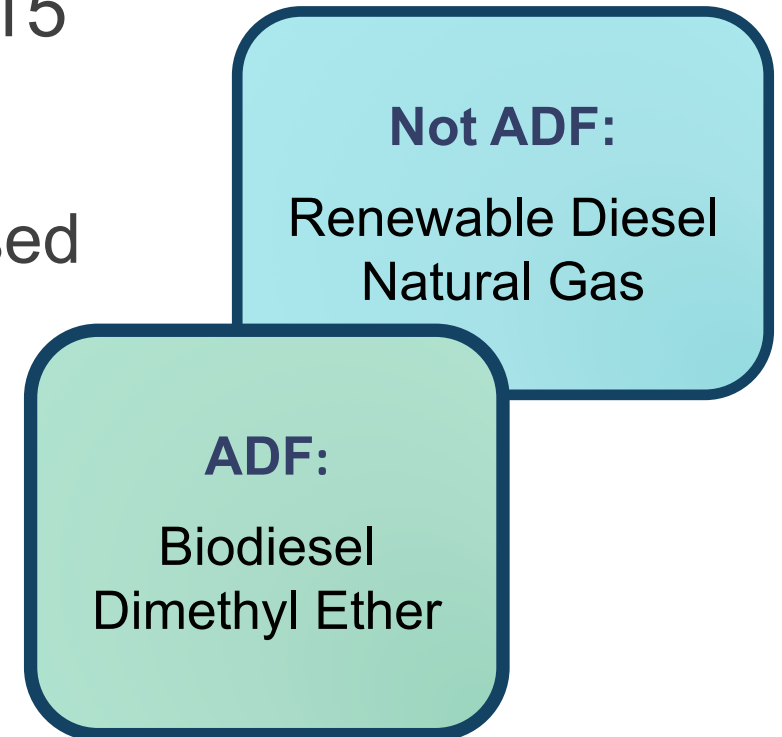
- Alternative Diesel Fuels (ADF) Regulation Background
- ADF Emissions Certification Testing
- CARB Confirmatory Testing
- Proposed Amendments



# ADF Regulation Background

---

- ADF Regulation governs the introduction and use of alternative diesel fuels, adopted Sept 2015
- Alternative Diesel Fuels
  - Diesel substitutes that are not petroleum based
  - Do not consist solely of hydrocarbons
  - Do not have CARB fuel specification
- ADF Regulation also contains:  
**Biodiesel Use Requirements**



# ADF Regulation

## Biodiesel Use Requirements

---

- Biodiesel use increases NOx emissions in limited circumstances (e.g. use in older engines)
  - NOx increases have the potential to impact public health
  - Truck traffic impacts vulnerable communities disproportionately
- Biodiesel Use Requirements address NOx emissions
  - Use CARB-certified NOx-mitigating additives or formulations that pass **ADF Emissions Certification Testing**





# Scope of Amendments

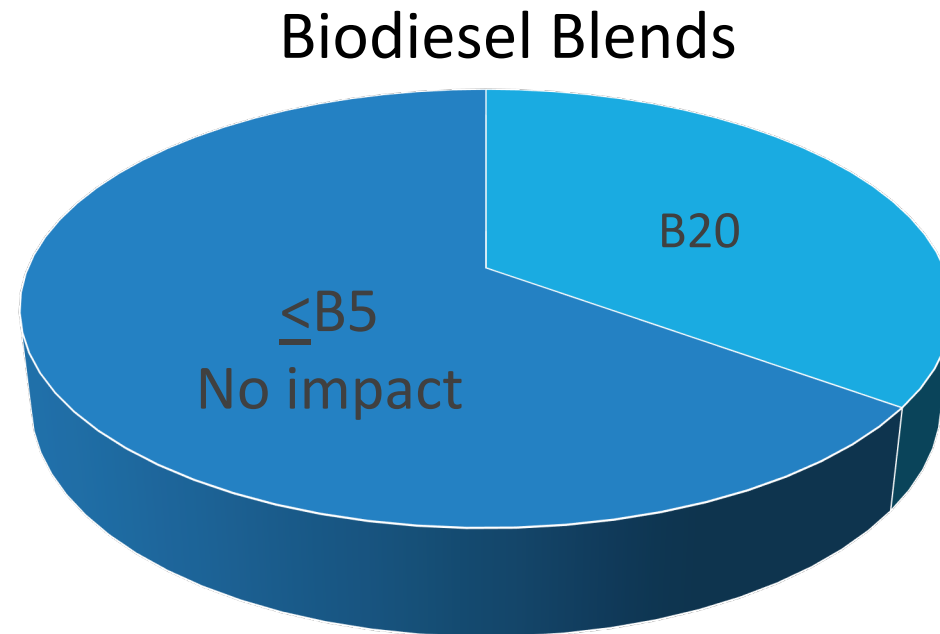
---

Additive Producers  
(Voluntary ADF Participants)



CARB  
Certified  
additive

Biodiesel Suppliers  
(Voluntary LCFS Participants)



# ADF Emissions Certification Testing

---

- CARB has certified six NOx-mitigating additive formulations and three other NOx-mitigating formulations
- Two NOx-mitigating additives currently used in California

Additive	Certified Concentration (in B20)
1	1,000-3,000 ppmv
2	20 ppmv

# Certification vs. Confirmatory Test Results

---

Additive	Certification Test	Confirmatory Test
1	Pass – Full NOx Mitigation	Partial NOx Mitigation – Equivalence Not Confirmed
2	Pass – Full NOx Mitigation	No NOx Mitigation – Equivalence Not Confirmed

# CARB Actions as a Result of Confirmatory Test

- Released Product Alert  
(October 31, 2019)
- Proposing Amendments to ADF  
Regulation



Gavin Newsom, Governor  
Jared Blumenfeld, CalEPA Secretary  
Mary D. Nichols, Chair

**Product Alert: Fuel Additives**  
October 31, 2019

The California Air Resources Board (CARB) has conducted emissions testing designed to determine, consistent with the emissions mitigation requirements of CARB's Regulation on the Commercialization of Alternative Diesel Fuels (ADF regulation), that additives certified pursuant to that regulation are effective at mitigating biodiesel NOx emissions to equivalence with CARB diesel.

This testing was conducted at the University of California, Riverside, and included the additives listed in the attachment summary to this notice. The testing showed that the additives failed to effectively mitigate to the regulatory standard. These results raise significant questions both as to the specific additives addressed by the testing and regarding how best to ensure appropriate performance of additives and formulations generally under the ADF regulation going forward. Accordingly, CARB intends soon to propose modifications to the ADF regulation that will ensure that additives perform consistently with all regulatory requirements. These amendments may, for instance, require additional testing of currently certified additives, among other steps to ensure conformance with regulatory standards for currently certified additives and additives certified in the future. As part of this amendment process, CARB may consider approving blends of renewable diesel with biodiesel (approx. R80/B20) for use by any blender to meet the NOx control requirements, in case additive availability is limited due to the regulatory changes.

# Proposed Amendments Objectives

---

To reinforce the emissions certification testing requirements and require biodiesel additives and formulations to be uniformly certified to ensure the efficacy of NOx mitigating additives and formulations



# Proposed Amendments

---

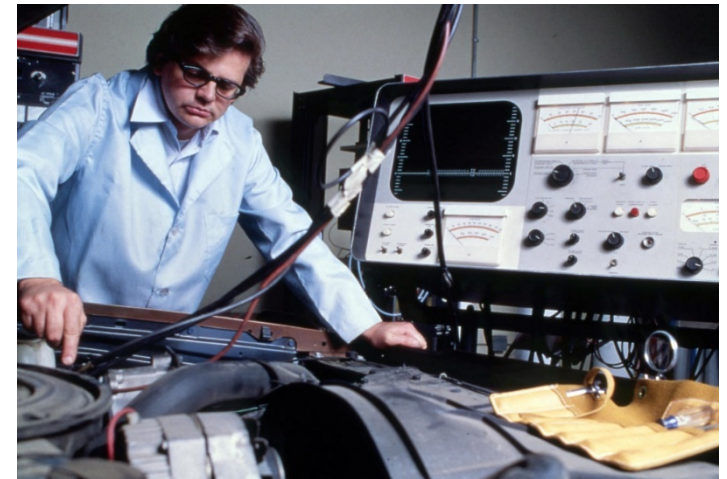
1. Reinforce fuel blending and emissions testing requirements
2. Reinforce chain of custody requirements
3. Additional test facility / Additional testing
4. New approved formulation / Implementation date

# Proposed Amendment

---

## 1. Reinforce fuel blending and emissions testing requirements

Blending and testing must be observed and verified by an independent state-licensed professional engineer

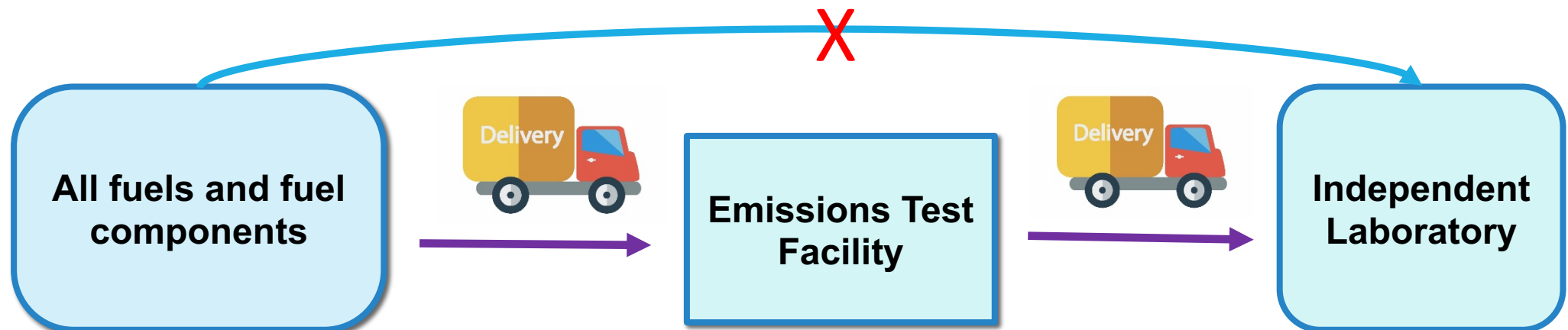




# Proposed Amendment

## 2. Reinforce chain of custody requirements

Chain of custody document must be shown to follow specified instructions and submitted to CARB.



# Proposed Amendment

## 3. Additional test facility/ Additional testing

Two emission testing labs required. One of the labs must include emissions equivalency to commercially available California diesel in addition to reference CARB diesel.

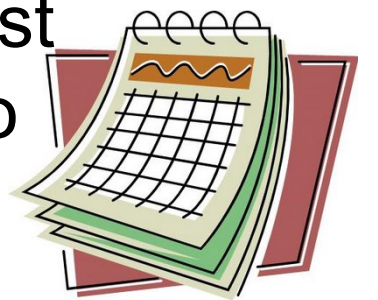
	Current	Proposed
Lab 1	Additive vs. Reference CARB	Additive vs. Reference CARB
Lab 2	--- ---	Additive vs. Reference CARB Additive vs. <b>Commercial Diesel</b>

# Proposed Amendment

---

## 4. New approved formulation / Implementation date

- New approved ADF Formulation  
Nominally 80/20 Renewable Diesel/Biodiesel blend
- Existing NOx-mitigating additives and formulations must be certified under adopted regulation by Jan 1, 2021 to continue sales



# Summary of Regulation Amendments

---

- Current additive producers can continue to voluntarily participate, and have time to meet new certification requirements
- Economic Estimates
  - Certification testing costs expected to be fully passed on to biodiesel fuel suppliers
  - Biodiesel fuel suppliers get financial credit from LCFS and Federal RFS of ~\$2.10/gallon
  - Full cost pass-through for ADF certification reduces LCFS and RFS credit value by less than 0.3 percent

# Staff Recommendation

---

Staff recommends that the Board adopt the proposed amendments in order to ensure the effectiveness of the ADF Regulation.





# Thank You