

Frequently Asked Questions about Trailer Standards for Fuel Efficiency and Greenhouse Gas Emissions

The U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) jointly adopted new regulations for trailers on August 16, 2016, as part of the Phase 2 Heavy-Duty Greenhouse Gas Emissions and Fuel Efficiency Standards. As a follow up to a November 2016 workshop, EPA assembled this information to answer questions about the Phase 2 Trailer Program for manufacturers.

General Information

1. Who is responsible for complying with the trailer standards?

- Trailer manufacturers are the primary regulated entities, while there are some requirements that affect companies importing trailers. Owners, operators and fleets do not have regulatory requirements under the Phase 2 rules other than to follow the trailer manufacturer's instructions (such as specifications for tire replacement – See Question 18).
- Device manufacturers, although not directly regulated, may request pre-approval of devices that improve trailer aerodynamics. See Questions 19 to 23.

2. When do the regulations take effect?

- EPA's standards apply for all regulated trailers produced on or after January 1, 2018.
- Small business trailer manufacturers may delay compliance for one year, to January 1, 2019.
 - See Question 4 to learn more about determining small business status.
 - See Question 10 for small manufacturer obligations prior to certification.
- In addition to the 2018 standards, the trailer program has progressive stages of standards for Model Years 2021, 2024, and 2027.

- A manufacturer's Model Year for EPA/NHTSA compliance need not align with model years defined for marketing purposes or for other regulations. Model Year may align with calendar year. See the definition of Model Year at 40 CFR 1037.801.
- NHTSA's trailer program is optional until Model Year 2021.

3. What is the relationship between EPA and NHTSA for the trailer standards?

- EPA's GHG regulations and NHTSA's fuel consumption regulations are fully harmonized.
- The agencies have different regulatory authorities. NHTSA's fuel consumption standards are authorized under the Energy Independence and Security Act of 2007, and EPA's GHG emission standards are authorized under the Clean Air Act.
- EPA provides the certification/compliance portal for both EPA and NHTSA compliance programs. Manufacturers annually submit compliance data to EPA to show compliance with both programs.
- Manufacturers should contact EPA with any requests for determinations or approvals, or for any other questions about the program; EPA will consult with NHTSA as needed to ensure that the two programs remain harmonized.
- Manufacturers may ask EPA to submit Model Year 2018-2020 data to NHTSA.

4. How do I know if my company qualifies as a small business?

- Regulated trailer manufacturers will be considered small businesses for purposes of Phase 2 if their employee counts for the past three years, as described at 13 CFR 121.106, is below 1,000, including employees of affiliated companies. Affiliations are described at 13 CFR 121.103.
- EPA and NHTSA apply this small business criterion based on the North American Industry Classification System (NAICS) code 336212. We will update the program as appropriate based on the latest published threshold at 13 CFR 121.201. This threshold applies even if a business is registered under a different NAICS industry code.

Regulated Trailer Types

5. What types of trailers are regulated?

- Long-box dry vans (greater than 50.0-feet in length)
- Long-box refrigerated vans (greater than 50.0-feet in length)
- Short-box dry vans (50.0 feet and shorter in length)
- Short-box refrigerated vans (50.0 feet and shorter in length)
- Tank trailers designed to transport liquids or gases
- Flatbed trailers with continuous, flat platforms
- Container chassis (all lengths)
- See 40 CFR 1037.107, 1037.230(a)(3), and 1037.801

6. Which trailers are excluded?

- Trailers built before January 1, 2018
- Trailers pulled exclusively by pintle hook or hitch; not designed to be pulled by Class 7 or 8 tractors

- Non-box trailers that do not meet the definition of flatbed trailers, tank trailers or container chassis
- Trailers with four or more axles, and trailers less than 35-feet with three axles
- Trailers intended for temporary or permanent residence, office space or other work space
- Trailers with a gap of 120 inches between adjacent axle centerlines
- See 40 CFR 1037.5

7. Do I have to contact EPA if I produce excluded trailers?

- Trailers that meet our definitions of excluded vehicles have no regulatory requirements; you do not have to contact EPA if you are a manufacturer producing only excluded trailers.
- You may contact EPA if you are unsure if your trailer is excluded. See Question 37.

8. Are imports from Canada and other countries regulated?

- A trailer is subject to EPA/NHTSA regulation when it is sold, offered for sale, or introduced or delivered into commerce in the United States or imported into the United States.
- Manufacturers based outside of the US must certify trailers that will be imported or introduced into commerce in the US.
- Only importers registered with NHTSA may import trailers.

9. When should trailer manufacturers contact EPA to discuss certification?

- Manufacturers are welcome to register with EPA anytime. See Question 11.
- After you have registered with EPA, you will receive notice regarding your assigned compliance representative.
- After you have been assigned an EPA compliance representative, we recommend contacting your representative prior to submitting a certification application.
- If you have general questions and you have not yet been assigned a compliance representative. See Question 37.

10. If small manufacturers take advantage of the 1-year delay, do they have to do anything before 2019?

- Standards for trailers produced by small manufacturers apply on a delayed schedule. Small businesses do not have to certify trailers produced before January 1, 2019.
- Small manufacturers must notify EPA that they will make use of delayed standards by submitting a declaration to EPA before introducing trailers into US commerce in 2018.
- Declarations should describe how the company meets the employee threshold described in Question 4.
- Trailers excluded under the small business flexibility must include a label with the following statement: "THIS VEHICLE IS EXCLUDED UNDER 40 CFR 1037.150(c)."

11. How do I register with EPA for certification?

- Company registration
 - As part of registration, trailer manufacturers must electronically register for a unique manufacturer code.

- Manufacturers can request a code by following the instructions at <https://www.epa.gov/vehicle-and-engine-certification/company-registration-verify-system>
- As part of registration, an Agent for Service located in the US must be identified. Once you complete this process, the manufacturer code for your company will be sent to the business email address provided during registration and then you can set up your Verify account.
- Verify account setup
 - The Compliance Division's Verify system is the tool that trailer manufacturers will use to submit certification applications.
 - Trailer manufacturers can request access to Verify by following the instructions at <https://www.epa.gov/vehicle-and-engine-certification/account-setup-verify-system>

12. Can a manufacturer with multiple facilities receive a single code from EPA?

- Trailers produced in multiple facilities operating under a single parent corporation may be certified with the same manufacturer code or with separate manufacturer codes, depending on how responsibility is shared among company officials.

13. When will Verify be ready for trailer manufacturers?

- Trailer manufacturers can register with EPA and begin to setup their Verify account immediately.
- EPA's Compliance Division is in the process of updating trailer-specific features of Verify that will allow trailer manufacturers to submit certification information to EPA, and will notify manufacturers when these features are available.

14. How can I stay up-to-date on the status of Verify?

- EPA's Compliance Division maintains a Verify listserver to provide updates on system developments and outages, information on upcoming webinars, and opportunities to test beta versions of input modules.
- Interested manufacturers should subscribe by sending an email to verify@epa.gov that includes the email address(es) to be added to the listserver.
- This is EPA's primary communication method for Verify related information. Manufacturers not subscribed to this listserver will not receive timely communications from EPA related to Verify.

15. Will EPA issue any other guidance related to trailer compliance?

- It is common for EPA's Compliance Division to issue guidance letters to regulated industries clarifying regulations and compliance requirements.
- EPA's Compliance Division maintains a Guidance Letter listserver to notify subscribers when new guidance letters are available.
- Interested manufacturers should subscribe by sending an email to complianceinfo@epa.gov that includes the email address(es) to be added to the listserver.
- This is EPA's primary communication method for mobile source compliance related information. Manufacturers not subscribed to this listserver will not receive timely communications from EPA's Compliance Division.
- All EPA guidance letters are available at EPA's Transportation and Air Quality Document Index System: <https://iaspub.epa.gov/otaqpub/>

- All NHTSA guidance is available through their Public Information Center:
http://www.nhtsa.gov/CAFE_PIC/CAFE_PIC_Home.htm

Trailer Types, Technology Options, and Measuring Trailer Performance

16. Can I still use my old trailer? Do I have to add technologies to my old trailer?

- These standards only apply to new trailers. There are no requirements for owners or operators to retire or retrofit trailers.

17. Do new trailers need specific technologies to meet the standards?

- Maybe, it depends on what type of trailer it is.
- Non-box trailer standards for flatbed trailers, tank trailers and container chassis and standards for box vans designated as “non-aero” are *design standards* that require trailer manufacturers to install a certain level of lower rolling resistance tires and a tire pressure system (either TPMS or ATIS).
 - The design standards do not require the use of any specific make or model of technology.
- Box van standards (other than “non-aero”) are *performance-based standards*. Manufacturers can meet the overall trailer performance requirements with any combination of technologies, including the use of aerodynamic improvements, lower rolling resistance tires, tire pressure systems (ATIS or TPMS) weight reduction, or other “off-cycle technology.” See Question 29. Manufacturers have several options of technologies that can help them meet the performance standards for a given model year:
 - The performance standards do not require the use of any specific technology type, make, or model Manufacturers must demonstrate that the trailer meets the performance standard.

18. Does the end-user have to install the same LRR tires when they need replacement?

- Trailer manufacturers must include sufficient rolling resistance information in their maintenance instructions to allow end-users to purchase replacement tires that meet the appropriate performance specifications.
- End-users can replace tires with tires of a different make or model as long as their rolling resistance performance is equivalent to or better than the original tires’ performance.

19. Must trailer manufacturers perform testing?

- Performance-based standards apply as described in Question 17, but the agencies designed the trailer program to limit the amount of testing needed.
- Manufacturers can install tire pressure systems (ATIS or TPMS) or lightweight components with pre-determined performance values (no testing needed).
- They can also obtain tire rolling resistance performance data directly from tire manufacturers.
- Aerodynamic device manufacturers may conduct testing and submit their test data to EPA for pre-approval, for trailer manufacturers to use for certification.
- Manufacturers have the option to measure the performance of their tires, aerodynamic improvements, or lightweight components, but we expect them to be able to certify their trailers without performing their own tests.

20. What is the difference between SmartWay verification and Heavy-Duty Phase 2 certification?

- The SmartWay testing protocols are slightly different than the certification testing requirements and manufacturers must work with each program separately. These differences are explained further in Questions 21 to 25.

21. If a device manufacturer's technology is already SmartWay-verified, can trailer manufacturers use those devices for certification?

- The agencies may pre-approve aerodynamic devices for use by trailer manufacturers in certification if the data were collected for SmartWay verification. A pre-approval request must include documentation about aerodynamic testing.
- Test data must be obtained using SmartWay's post-2014 wind tunnel or coastdown protocols:
 - Evidence must be provided that SmartWay verification occurred prior to January 1, 2018; and
 - Test results in percent improvement must be converted to a change in drag area, or "delta CdA." See Question 22.
- When EPA pre-approves a device, it will assign a unique device identifier. Devices pre-approved based on pre-2018 SmartWay verification will be available for manufacturers to use for certification for MYs 2018-2020.
- Manufacturers must perform testing using Phase 2 test procedures for any new aerodynamic trailer tests conducted after January 1, 2018, and for certifying all Model Year 2021 and later trailers.
- Trailer manufacturers wishing to continue use of pre-approved devices for MY 2021 and beyond, where approval was based on pre-2018 SmartWay verification, must have the devices tested using Phase 2 procedures and a new pre-approval request must be submitted to EPA.

22. How do device manufacturers calculate delta CdA from their SmartWay verification data?

- Delta CdA values calculated from SmartWay's wind tunnel results must be converted to wind-averaged values, using the following five steps:
 - 1) Create a 4th order curve fit of CdA vs yaw angle from the nine CdA values obtained from the sweep of yaw angles (-9, -6, -3, -1, 0, +1, +3, +6, and +9) for the baseline trailer configuration (no aerodynamic improvements)
 - 2) Using the curve fit equation from Step 1, calculate the CdA value at both +4.5 and -4.5 yaw angles
 - 3) Calculate the average of the CdA values at -4.5 and +4.5 yaw from Step 2
 - 4) Repeat Steps 1-3 using data from the configuration with aerodynamic improvements
 - 5) Subtract the average CdA from the improved aero configuration (CdA_improve) from the baseline configuration (CdA_base) to calculate the change in CdA:

$$\text{delta CdA} = \text{CdA_base} - \text{CdA_improve}$$

- Delta CdA values calculated from SmartWay's coastdown results do not have to be wind-averaged values. Simply calculate delta CdA using the near-zero yaw results from the coastdown test of the baseline and improved aero configurations ($\text{delta CdA} = \text{CdA}_{\text{base}} - \text{CdA}_{\text{improve}}$).
- 23. Do device manufacturers have to submit data to both SmartWay and the Phase 2 program?**
- Device manufacturers may continue to seek SmartWay verification without submitting pre-approval requests for devices to be used for Phase 2 certification.
 - Device manufacturers may test their devices using the Phase 2 test procedures and submit their pre-approval requests directly to EPA's compliance program for pre-approval without pursuing SmartWay verification.
 - However, trailer manufacturers cannot directly apply SmartWay data for certification. Trailer manufacturers will have to obtain delta CdA data from another source (their own or third-party testing) to use the device on their trailers to meet the standards.
- 24. Can a trailer be certified for Phase 2 without using any aerodynamic technologies?**
- This is potentially true, as long as the trailer has sufficient other technologies to meet the EPA GHG and NHTSA fuel consumption standards.
- 25. If a trailer is certified for Phase 2 using no aerodynamic technologies, is it possible for this trailer to be verified under SmartWay?**
- SmartWay Verification is for trailer aerodynamic devices and low rolling resistance tires. A SmartWay Designated Trailer uses one or more SmartWay verified devices to achieve a fuel savings benefit. Therefore, a trailer that is certified to GHG Phase 2 without using any aerodynamic technologies cannot be considered a SmartWay Designated Trailer.
- 26. Are there approved software packages for CFD testing?**
- There are specifications for software that can be found in 40 CFR 1037.532. A manufacturer may also check with its certification representative before purchasing CFD software.
- 27. What is the purpose of attestation by device manufacturers?**
- Component manufacturers are responsible for emission test results provided to EPA or certifying vehicle manufacturers for the purpose of certification (see 40 CFR 1037.620).
 - If a component manufacturer attests to the validity of its performance data, it is responsible for the performance of its component.
 - As an example, EPA will not accept a delta CdA value from an aerodynamic device manufacturer without an attestation.
 - Component manufacturers may contractually agree to process emission warranty claims on behalf of the certifying manufacturer.
- 28. What if trailer manufacturers believe their trailer technologies will perform better than as measured by others?**
- Trailer manufacturers always have the option to perform their own testing. They must do testing if the data aren't otherwise available.

29. Which trailer technologies can be tested using off-cycle provisions?

- Off-cycle provisions are available for trailers subject to performance standards if a technology is expected to reduce CO₂ emissions, but its performance is not captured in the trailer compliance equation.
- Manufacturers can evaluate lightweight components by comparing the weight of a lightweight trailer to a baseline trailer, as in 40 CFR 1037.515(e)(1).
- Additional examples of off-cycle technology include the use of solar power or regenerative braking.
- Manufacturers are encouraged to contact EPA prior to testing off-cycle technologies.

Labeling

30. Does my regulated trailer need a label?

- Yes, all regulated trailers are required to have a permanent label indicating that they are certified vehicles.
- See 40 CFR 1037.135 and Appendix III to Part 1037.

31. Does the label need to be in a specific location on the trailer?

- We do not specify a location for the label, but it must be easily visible for inspection.

32. Do I have to create a separate label or can I place emissions information on my current label?

- We do not require emissions information be on a stand-alone label
- The information required by 40 CFR 1037.135 can be added to an existing label as long as it meets the durability requirements outlined in 40 CFR 1068.45.

33. What information must be included on the label? Must it list all devices used on the trailer? Must it include compliance equation results?

- Specific requirements for the label are outlined in 40 CFR 1037.135.
- The label must list the components installed on the trailer for compliance with the standards: For every trailer where any of the technologies listed in Appendix III to Part 1037 are used to demonstrate compliance during certification of that configuration, the Emission Control Identifier must be listed on the label.
- If a manufacturer uses technologies from Appendix III but does not rely on that technology to demonstrate compliance, that technology does not need to be included on the label.
- Many weight reduction components and off-cycle technologies are not listed in Appendix III and therefore are not required to be listed on the label.
- The label does not include compliance equation results.

34. Do I need to affix a label on excluded trailers?

- No label is required for trailers excluded under 40 CFR 1037.5.
- MY 2018 trailers excluded as part of the small business flexibility outlined in 40 CFR 1037.150(c) must have a label with the following statement: "THIS VEHICLE IS EXCLUDED UNDER 40 CFR 1037.150(c)."

35. Do I need to affix a label on trailers exempted using the transitional allowance for MYs 2018-2026?

- Yes, trailers exempt under the transitional allowance provision outlined in 40 CFR 1037.150(v) must include a permanent label that meets the requirements of 40 CFR 1068.45(a), the corporate name of the trailer manufacturer, and a statement that the trailer is exempt under 40 CFR 1037.150.

36. Do we need a label for trailers built for export?

- Labels are required for trailers that will be exported, but the labels can be removable (see 40 CFR 1068.230).

Other Resources

37. How can I get more information?

- For further information about complying with the trailer regulations, please contact OTAQ's Compliance Division at:

U.S. Environmental Protection Agency
Office of Transportation and Air Quality
2000 Traverwood Drive
Ann Arbor, MI 48105
E-mail: ComplianceInfo@epa.gov

- You may also access rulemaking documents and related material on the following web pages:
 - EPA's Phase 2 Rule web page:
<https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>
 - Slides from the November 16, 2016 Trailer Workshop:
<https://www.epa.gov/sites/production/files/2016-12/documents/phase2-hd-ghg-fuel-trailer-workshop-11-16-2016.pdf>
 - Phase 2 Rule Docket (EPA-HQ-OAR-2014-0827):
www.regulations.gov;
<https://www.regulations.gov/searchResults?rpp=25&po=0&s=EPA-HQ-OAR-2014-0827&fp=true&ns=true>
 - Federal Register (81 FR 73478):
www.federalregister.gov;
<https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf>
 - Code of Federal Regulations: Heavy-Duty Vehicles (40 CFR 1037):
www.ecfr.gov;
<http://www.ecfr.gov/cgi-bin/text-idx?SID=391a15fbb1e6517d53ad4bf07a519901&mc=true&node=pt40.36.1037&rqn=div5>