

Spark-Ignition Marine Vessels Evaporative Regulation Summary

Evaporative Emission Harmonized Design Standards for ≤ 30 kW Vessels

Model Year Effective Date	Fuel Hose Permeation (grams/m ² /day ROG ¹)	Fuel Tank Permeation (grams/m ² /day ROG ¹)	Diurnal Requirement (grams/gallon/day HC ¹)	Fuel Injection or Equivalent (grams/hour)
2012 and later	15.0	1.5	0.4	None
Test Procedure	40 CFR §1060.515	40 CFR §1060.520	40 CFR §1060.525	None

Evaporative Emission Design Standards for Trailerable > 30 kW Vessels

Model Year Effective Date	Fuel Hose Permeation ² (grams/m ² /day ROG ¹)	Fuel Tank Permeation (grams/m ² /day ROG ¹)	Diurnal Requirement (grams/gallon/day HC ¹)		Fuel Injection or Equivalent (grams/hour)
			Canister	Non-Canister ³	
2012 and 2013	15.0	1.5	0.40	N/A	None
Test Procedure	40 CFR §1060.515	40 CFR §1060.520	40 CFR §1060.525		None
2014 and 2015	10.0	0.70	0.25	65% reduction from uncontrolled HC emissions	0.2
2016 and later	5.0 ^{4,5}	0.70	0.25	65% reduction from uncontrolled HC emissions	0.2
Test Procedure	40 CFR §1060.515 ⁶	40 CFR §1060.520 ⁶	40 CFR §1060.525 ⁷		TP-1502 ⁷

Evaporative Emission Design Standards for Nontrailerable > 30 kW Vessels

Model Year Effective Date	Fuel Hose Permeation ² (grams/m ² /day ROG ¹)	Fuel Tank Permeation (grams/m ² /day ROG ¹)	Diurnal Requirement (grams/gallon/day HC ¹)	Fuel Injection or Equivalent (grams/hour)
2012 and 2013	15.0	1.5	0.16	None
Test Procedure	40 CFR §1060.515	40 CFR §1060.520	40 CFR §1060.525	None
2014 and 2015	10.0	0.70	0.16	0.2
2016 and later	5.0 ^{4,5}	0.70	0.16	0.2
Test Procedure	40 CFR §1060.515 ⁶	40 CFR §1060.520 ⁶	40 CFR §1060.525	TP-1502 ⁷

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Alternative Evaporative Emission Performance Standards for > 30 kW Vessels

Model Year Effective Date	Marine Vessel Type	Diurnal Standard grams HC/day
2014	All Marine Vessels With Engines > 30 kW	0.048 * Tank Volume (liters) + 0.97
	Test Procedure	TP-1501 ⁷

Notes

¹ Hydrocarbon (HC) and Reactive Organic Gas (ROG)

² The following fuel hose standards apply to auxiliary engines on vessels designed for > 30 kW engines.

³ For non-canister vented systems, a venting control efficiency standard of 65% must be met. To determine the venting control efficiency, a venting control test must be done according to 40 CFR 1060.525 with E10 CERT fuel and then compared against an identical uncontrolled venting test or an estimated uncontrolled venting value according to the fuel tank vapor generation equation (6) in SAE Technical Paper 892089, Prediction of Fuel Vapor Generation From a Vehicle Fuel Tank as a Function of Fuel RVP and Temperature (Reddy, 1989).

⁴ Starting MY2014 and thereafter, if the Executive Officer determines that all of the following criteria are met:

1. that a 5.0 g/m²/day fuel hose has been certified and
2. that a certified 5.0 g/m²/day fuel hose is commercially available in common sizes

Then the fuel hose permeation standard will change to 5.0 g/m²/day. Fuel hose manufacturers will have two years from the date of the finding to comply with the new fuel hose standard. The new fuel hose permeation standard will not begin any earlier than MY2016.

⁵ Using a test temperature of 40C. As an alternative to 40 CFR Part 1060.515, manufacturers can test according to SAE J1737, Test Procedure to Determine the Hydrocarbon Losses from Fuel Tubes, Hoses, Fittings, and Fuel Line Assemblies by Recirculation (Rev. NOV2004).

⁶ Using a test fuel of either E10 CERT fuel or CE 10 fuel.

⁷ Using E10 CERT fuel.

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Standards

- All test fuels and test temperatures will be harmonized with U.S. EPA except where noted.
- For the interim, all testing required to use E10 CERT fuel will be done with a temporary E10 certification fuel specification (indicated in the regulation) until a board approved California E10 certification fuel is adopted.

Deck Fill Plate Compatibility Standard

- All deck fill plates on spark-ignition marine vessels must comply with the design requirements for the fill pipe face as set forth in the Air Resources Board's "Specification for Fill Pipes and Openings of Motor Vehicles" as set out in section 2235, Chapter 4.4, Division 3, Title 13 of the California Code of Regulations.

California Fuel Compatibility Standard

- All evaporative emission components must be properly installed and must be compatible with applicable California fuels.

Certification Requirements

- All components and vessels for all applicable model years must be CARB certified for all categories.
- Evaporative system builders must submit a certification application and have a certified vessel in order to be able to sell into California.
- Evaporative system builders must certify using ARB approved components.
- Component manufacturers must submit data for certification; however, if applicable, the data may be from a previous test for U.S. EPA certification.
- Any U.S. EPA small volume certification requirements will not apply.

Spark-Ignition Marine Vessel Registration

- Vessels will be required to meet all registration requirements set out in sections 2442 – 2443.3, Article 4.7, Chapter 9, Division 3, Title 13 of the California Code of Regulations.

After Market Parts

- Sale or installation of any aftermarket parts, which could potentially affect the evaporative system, in California without an ARB approved Executive Order is prohibited.

Component and Spark-Ignition Marine Vessel Labeling

- All components and spark-ignition marine vessels must have a CARB approved label. However, CARB may approve alternate labeling at its own discretion.

Defects Warranty Requirements for Spark-Ignition Marine Vessels

- All evaporative emission control systems installed in spark-ignition marine engines must meet applicable regulations, be free of all defects, and warranted to the original publisher and all subsequent owners.

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- The warranty is primarily the responsibility of the EO holder. In the event that the component exhibits a defect in the manufacturing, the component manufacturer will be responsible for addressing all warranty issues.

Evaporative Emission Control Warranty Statement

- Any application for an evaporative emission control system certification must include a copy of an ARB emission control warranty statement.

Emission-Related Defect Reporting Requirements

- An evaporative system builder or component manufacturer must file a defect information report whenever an evaporative system builder or component manufacturer determines a safety or performance defect or a specific evaporative emission-related defect exists in 10% of production or 20 or more spark-ignition marine vessels (whichever is less) of a given evaporative family.

New Evaporative Emissions Component Compliance Testing

- The Executive Officer may order a component manufacturer to make available for compliance testing and/or inspection five evaporative emission components.

New Spark-Ignition Marine Vessel Compliance Testing

- The Executive Officer may order a spark-ignition marine vessel manufacturer or evaporative system builder to make available for compliance testing and/or inspection one spark-ignition marine vessel.

Variances

- Any manufacturer of spark-ignition marine vessels or engines subject to this Article that cannot meet the applicable requirements due to extraordinary reasons beyond the manufacturer's reasonable control may apply in writing for a variance.

No notable changes for the following sections:

- Denial, Suspension or Revocation of Certification
- Appeals
- Penalties
- Severability

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