

Progress Toward Safer Rail Tank Cars Transporting Flammable Liquids: 2026 Report



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Abstract

This annual report addresses Section 7308(b), (c), and (f) of the Fixing America's Surface Transportation (FAST) Act [Public Law 114–94] by summarizing industry-wide progress toward implementing mandated rail tank car–safety upgrades between 2013 and 2025 by type of rail tank car and flammable liquid—as defined by the Association of American Railroads.

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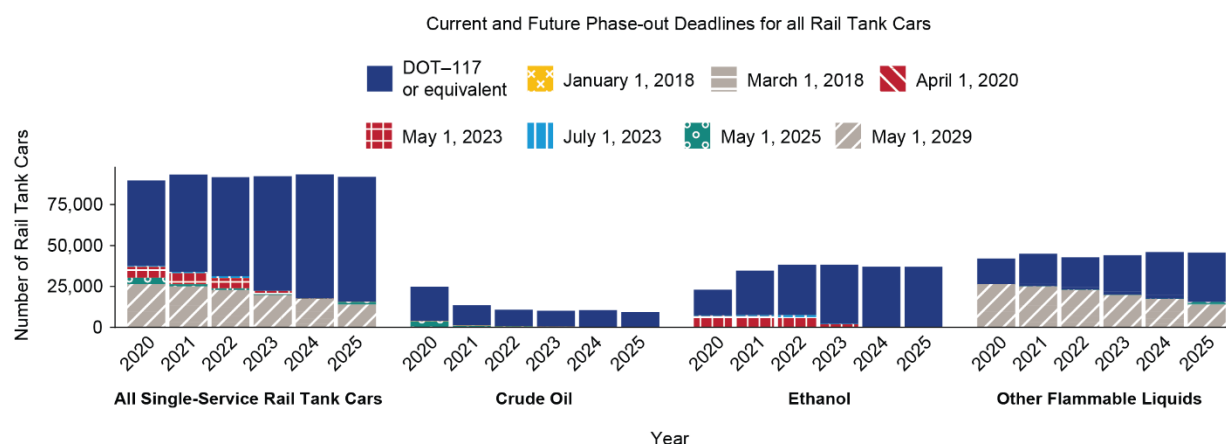
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Executive Summary

This 2026 report summarizes the progress the railroad freight industry has made toward upgrading North American rail tank cars that transport Class 3 flammable liquids (FLs) to meet DOT-117 specifications. Upgrades include a thicker, insulated or thermally protected tank;¹ a full-height head shield; and top and bottom valve-fitting protections.²

The Fixing America's Surface Transportation (FAST) Act [Public Law 114–94] established a rolling phase-out schedule for rail tank cars that transport Class 3 FLs but do not meet or exceed DOT-117 specifications. This schedule is organized by type of rail tank car and FL transported (Figure 1). All rail tank cars that transported Class 3 FLs in 2025 were compliant with the FAST Act phase-out schedule. Several types of rail tank cars and FLs were phased out on May 1, 2025, and they are discussed in more detail in this report. The number of rail tank cars built to DOT-117 specifications or retrofitted to DOT-117R specifications increased from 73 to 76 percent of all rail tank cars that transport Class 3 FLs.

Figure 1. Rail Tank Cars by Class 3 FL and FAST Act Phase-out Deadline



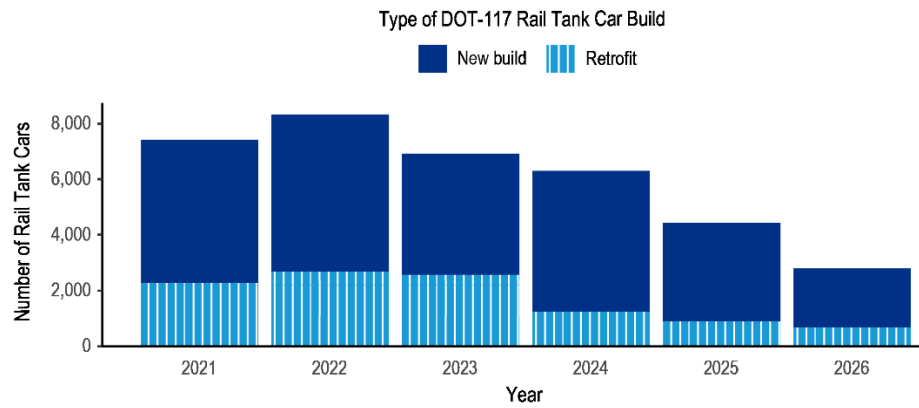
Note: DOT-117 rail tank cars and other rail tank cars that meet DOT-117 specifications are listed as DOT-117 or equivalent because they do not have a phase-out deadline. Rail tank cars listed in this report as Others are considered to be in compliance with the FAST Act as they meet a stricter set of regulations. Refer to [Box B](#). Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

The Bureau of Transportation Statistics estimated the number of rail tank cars that will be built to DOT-117 or retrofitted to DOT-117R specifications for 2026 based on a survey of rail tank car shops capable of building and/or retrofitting rail tank cars to these specifications. The 2026 survey projects 2,137 new DOT-117 rail tank cars will be built and 663 existing rail tank cars will be retrofitted to DOT-117R specifications, totaling a projected 2,800 additional DOT-117 and DOT-117R rail tank cars in 2026. An estimated 16,988 non-DOT-117 and non-DOT-117R rail tank cars need to be replaced over the next 4 years to meet FAST Act deadlines. To meet these deadlines, 4,247 DOT-117 and DOT-117R rail tank cars need to be added to the fleet per year, which is possible based on previous production rates (Figure 2).

¹ Existing rail tank cars retrofitted to DOT-117R specifications may continue in service with a 7/16-inch head and shell thickness.

² For more information and illustrations, refer to <https://tankcarresourcecenter.com/> [RSI 2017].

Figure 2. Projected New and Retrofitted DOT-117 Rail Tank Cars



Source: BTS, data from the Rail Tank Car Survey [BTS 2025].

Preface: Requirements of Section 7308 of the Fixing America's Surface Transportation (FAST) Act

The Fixing America's Surface Transportation (FAST) Act requires the U.S. Department of Transportation (USDOT) to collect (Section 7308[b] and [c]) and report (Section 7308[f]) data on rail tank cars that transport Class 3 flammable liquids (FLs) ([Box A](#)) [Public Law 114-94]. This legislation aims to track the industry's progress toward upgrading these rail tank cars to DOT-117 specifications.

DOT-117 specifications, finalized in 2015, define the design characteristics of DOT-117 and DOT-117R rail tank cars. These characteristics include a thicker, insulated or thermally protected tank;¹ a full-height head shield; and top and bottom valve fitting protections.² Thick-walled head shields are required on both ends of rail tank cars to resist puncture in a derailment. The top and bottom valves, used to fill and empty rail tank cars, need to be protected from shearing off in a derailment to prevent release of FLs.

Section 7308(b) of the FAST Act mandates that USDOT collect information on the total number of unmodified rail tank cars used or likely to be used to transport Class 3 FLs for the previous year and provide this to Congress.

Furthermore, Section 7308(c) of the FAST Act mandates that USDOT provide Congress estimates of the projected numbers of new builds (i.e., DOT-117 rail tank cars) and retrofits (i.e., DOT-117R rail tank cars) based on a survey of rail tank car shops. Specifically, Section 7308(c) states that USDOT:

[S]hall conduct a survey of tank car facilities modifying tank cars to the DOT-117R specification, or equivalent, or building new tank cars to the DOT-117 specification, or equivalent, to generate statistically valid estimates of the anticipated number of tank cars those facilities expect to modify to DOT-117R specification, or equivalent, or build to the DOT-117 specification, or equivalent. [Public Law 114-94]

Using the results of rail tank car usage (Section 7308[b]) and the survey (Section 7308[c]), this annual report addresses Section 7308(f) by summarizing and reporting to Congress the industry's progress toward implementing the mandated rail tank car safety upgrades between 2013 and 2025 by type of rail tank car and FL—as defined by the Association of American Railroads (AAR). Refer to [Box B](#) for more detail on the types of rail tank cars referenced in this report.

Prior annual reports are on the Bureau of Transportation Statistics (BTS) website: <http://www.bts.gov/tankcarreports> [BTS 2025].

Box A. What is a Class 3 Flammable Liquid?

The following definitions can be found in the Code of Federal Regulations Title 49, Part 173:

A *flammable liquid* (Class 3) is a liquid with a flash point of not more than 60°C (140°F) or any material in a liquid phase with a flash point at or above 37.8°C (100°F) that is intentionally heated and offered for transportation or transported at or above its flash point in a bulk packaging. This definition includes refined petroleum products, crude oil, and ethanol.

Class 3 FLs are designated by four-digit United Nations (UN) numbers or North American (NA) numbers that are used to identify hazardous materials worldwide and are required for the shipment of hazardous materials. Over 400 UN and NA numbers apply to Class 3 FLs.

Flash point is the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

Packing Groups are identified in the federal hazardous materials regulations and determine how an FL must be prepared for transport. Crude oil and ethanol are both packing group I, and the 400 liquids in the “other” category are a mix of packing groups I, II, and/or III.

Packing group I liquids are the most dangerous, and packing group III liquids are the least dangerous. Packing group III liquids have a higher flash point than packing group II liquids, and both have a higher flash point than packing group I liquids.

Box B. Rail Tank Car Types and Definitions²

DOT-111: A nonpressurized tank car with a shell thickness of 7/16 inches. These tank cars can transport hazardous and nonhazardous liquids. These tank cars are not required to have head shields or top fittings protection. DOT-111s have pressure relief valves that offer some protection in some fires.

DOT-117 (TC-117 in Canada): A nonpressurized tank car with a shell thickness of 9/16 inches and insulating material that provides thermal protection. Additionally, DOT-117s have a skin that holds the insulation and thermal protection in place and doubles as additional protection from punctures. These tank cars have protected top fittings, a full-height head shield, and a bottom outlet valve with an enhanced handle designed to prevent the tank car from emptying its contents in an incident. All the enhancements are designed to protect the tank from punctures and the valves from damage. DOT-117R tank cars are retrofitted to meet DOT-117 specifications, but they may continue in service with a shell thickness of 7/16 inches.

CPC-1232: A voluntary, industry-sponsored specification for tank cars transporting crude oil and ethanol. This specification includes additional safety features compared to DOT-111 tank cars. Cars ordered after October 2011 to transport crude oil or ethanol must meet this industry specification. CPC-1232 tank cars are equipped with a pressure-relief valve, more extensive top fittings than DOT-111 tank cars, and a full-height or half-height head shield. The shell of non-jacketed tank cars must be 1/2 of an inch thick, and the shell of jacketed tank cars must be 7/16 of an inch thick.

Box B. Rail Tank Car Types and Definitions² Continued

DOT-105:* A pressurized tank car that has additional safety features than what is required on DOT-111 nonpressurized tank cars, including head shields to help prevent punctures, relief valves, and thermal insulation.

DOT-112:* A pressurized tank car that has additional safety features than what is required on DOT-111 nonpressurized tank cars, including tank head puncture resistance systems, thermal protection, and fitting and valve protections.

DOT-114:* A pressurized tank car that has additional safety features than what is required on DOT-111 nonpressurized tank cars, including additional insulation, head protection, and coupler safety equipment. Few of these cars actively operate in the fleet transporting Class 3 flammable liquids.

DOT-120:* A pressurized tank car that has additional safety features than what is required on nonpressurized tank cars. Few of these tank cars actively operate in the fleet transporting Class 3 flammable liquids.

DOT-115:* A nonpressurized tank car similar to a DOT-111 tank car but with an inner container surrounded by an outer shell. The inner container may house multiple compartments. Relatively few of these tank cars actively operate in the fleet transporting Class 3 flammable liquids.

DOT-211:* A nonpressurized tank car similar to a DOT-111 tank car. Few of these tank cars actively operate in the fleet transporting Class 3 flammable liquids.

Head shield: Located at the ends of the tank car, this 1/2-inch-thick steel shield provides extra protection in the event of an incident to prevent an adjacent car from puncturing the rail tank car.

Jacketed versus non-jacketed tank cars: Jacketed tank cars have a layer of insulation and/or thermal protection between the tank shell and jacket that stabilizes the temperature of the liquid contained in the tank car and/or reduces the conductivity of heat from outside sources to the contents of the tank car.

Single service versus multiple service: Rail tank cars may make one or more trips in a year. If they transport the same liquid for all their trips, then they are a single-service car. If a tank car is cleaned between trips and transports different liquids, then they are in multiple service for that year.

Top and bottom fittings and valves: Tank cars have valves on the top and bottom for the purposes of loading and unloading liquids. The top valve is surrounded by a steel structure to prevent damage to the top valve in a release. The bottom valve has a specialized handle that is intended to prevent an unintended release.

*Indicates tank car types included in the “other” category for analysis purposes in this report.

Note: DOT-105, DOT-112, DOT-114, and DOT-120 rail tank cars are grouped because they are pressurized and exceed DOT-117 specifications. These rail tank cars also transport other non-Class 3 hazardous materials. DOT-115 and DOT-211 rail tank cars are grouped because they do not typically transport crude oil or ethanol.

1. Fleet Composition of Rail Tank Cars That Transport Class 3 Flammable Liquids (Section 7308[b])

1.1. KEY FINDINGS

The following are key findings from the rail tank car usage analysis [BTS 2025]:

- In 2025, 100,485 rail tank cars transported Class 3 FLs—a 0.6-percent decrease from 2024. Changes in the number of rail tank cars that transport Class 3 FLs have remained steady since 2022, with small fluctuations of a similar magnitude as this year's change.
- The share of ethanol transported by new or retrofitted DOT-117 rail tank cars remained at 99.9 percent from 2024 to 2025. Jacketed and non-jacketed DOT-111 and non-jacketed CPC-1232 rail tank cars that transported ethanol were phased out in 2023. In 2025, the remainder of ethanol shipments were in jacketed CPC-1232 rail tank cars, which were phased out on May 1, 2025 (12 rail tank cars, less than 0.1 percent), or other rail tank cars (16 rail tank cars, less than 0.1 percent) that meet the DOT-117 specifications.
- The number of rail tank cars used to transport Class 3 FLs decreased slightly from 2024 to 2025, with 631 (0.6 percent) fewer rail tank cars transporting Class 3 FLs in 2025. The extent of this change has been consistent from year to year since 2022, when between 100,000 and 101,100 rail tank cars were in use.

1.2. BACKGROUND: HAZARDOUS MATERIALS RULE OF 2015

Several high-profile incidents prompted the United States and Canadian governments to reexamine the safety standard that governs the transport of Class 3 FLs.³ USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) and Federal Railroad Administration issued a final rule on May 8, 2015, intending to make transporting Class 3 FLs safer. This rule, Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains (HM-251), includes regulations to upgrade rail tank cars transporting FLs and operating in high-hazard flammable trains.⁴

The FAST Act includes additional provisions to make the transport of hazardous materials safer by phasing out and ultimately prohibiting rail tank cars built to DOT-111 specifications from transporting Class 3 FLs by 2029. As of 2025, crude oil may only be transported in rail tank cars that meet the DOT-117 or DOT-117R specifications. Rail tank cars that do not meet these safety standards may switch to transporting commodities other than Class 3 FLs or be retired. After the HM-251 rule was issued in May 2015, Congress passed the FAST Act in December 2015. Because the FAST Act revised the phase-out timeline originally set in HM-251, PHMSA revised

³ For more information on the incidents, refer to <https://tankcarresourcecenter.com/tankcar101/> [RSI 2024].

⁴ A high-hazard flammable train is defined as "a single train transporting 20 or more loaded tank cars containing Class 3 FL in a continuous block or a single train transporting 35 or more loaded tank cars of a Class 3 FL throughout the train" [PHMSA 2015].

its rule so the phase-out deadlines in HM-251 matched the FAST Act via the HM-251C rule,⁵ eliminating any confusion as to when phase-out must occur [PHMSA 2016]. Table 1 lists the current dates. Figure 1 shows the proportion of rail tank cars currently meeting DOT-117 specifications as well as the proportions that will be phased-out on a rolling basis. This figure shows the proportion of all rail tank cars that meet current phase-out guidelines (i.e., new DOT-117 rail tank cars or existing rail tank cars modified to DOT-117R specifications). Figure 1 shows 9,256 rail tank cars transported crude oil in 2025. Of these rail tank cars, all met DOT-117 or DOT-117R specifications (including DOT-117 rail tank cars, retrofit DOT-117R rail tank cars, and rail tank cars classified as “Others”⁶). An additional 147 Jacketed CPC-1232 rail tank cars in use during 2025 were expected to be retrofitted or repurposed before the May 1, 2025 phase-out deadline. Of those 147 Jacketed CPC-1232 rail tank cars, 135 transported crude oil and 12 transported ethanol in 2025.

Table 1. FAST Act Phase-out Schedule and Status for Rail Tank Cars That Transported Class 3 FLs

FL type	Truck type	Date for phase-out	Number of cars that transported FLs	
			2024	2025
Crude oil	Non-jacketed DOT-111	1-Jan-18	0	0
	Jacketed DOT-111	1-Mar-18	0	0
	Non-jacketed CPC-1232	1-Apr-20	0	0
	Jacketed CPC-1232	1-May-25	130	135*
Ethanol	Non-jacketed DOT-111	1-May-23	0	0
	Jacketed DOT-111	1-May-23	0	0
	Non-jacketed CPC-1232	1-Jul-23	0	0
	Jacketed CPC-1232	1-May-25	18	12*
Other FLs packing group I	Non-jacketed DOT-111	1-May-25	1,136	702*
	Jacketed DOT-111	1-May-25	413	339*
	Non-jacketed CPC-1232	1-May-25	503	197*
	Jacketed CPC-1232	1-May-25	546	364*
Other FLs packing group II / III	Non-jacketed DOT-111	1-May-29	6,747	5,527
	Jacketed DOT-111	1-May-29	2,666	2,344
	Non-jacketed CPC-1232	1-May-29	3,922	4,284
	Jacketed CPC-1232	1-May-29	1,504	1,677
Multiple-service FLs	Non-jacketed DOT-111	—	734	589
	Jacketed DOT-111	—	83	95
	Non-jacketed CPC-1232	—	1,219	605
	Jacketed CPC-1232	—	87	188

*BTS only counts rail tank cars that transported the FL at least once during the year and does not have information when during the year they were used.

—Not applicable.

Note: Rail tank cars that transport different fluids in a year are classified as multiple-service liquids and do not have a single phase-out deadline because each fluid has a different deadline. For more information on packing groups, refer to [Box A](#).

Source: Data from PHMSA [2016], Railinc’s Umler® [n.d.a], and Railinc’s TRAIN II® [n.d.b].

⁵ For the full text of the Hazardous Materials: FAST Act Requirements for Flammable Liquids and Rail Tank Cars (HM-251C), refer to <https://www.federalregister.gov/documents/2016/08/15/2016-19406/hazardous-materials-fast-act-requirements-for-flammable-liquids-and-rail-tank-cars> [PHMSA 2016].

⁶ Other rail tank cars include DOT-105, DOT-112, DOT-114, and DOT-120 rail tank cars, which are pressurized and already exceed DOT-117 specifications, and DOT-115 and DOT-211 rail tank cars, which do not typically transport crude oil or ethanol but may transport other FLs.

1.3. CURRENT FLEET COMPOSITION AND USE (SECTION 7308(B))

This section of the report analyzes the use of all rail tank cars that transported Class 3 FLs based on data received from AAR.

1.3.1. Data Sources

To provide a complete picture of the rail tank cars that transport Class 3 FLs, BTS uses data from AAR, which maintains two databases:

- Umler® (Universal Machine Language Equipment Register) is an inventory of individual rail tank cars (active or scheduled to be built) and their specifications, such as wall thickness, types of valves, and so on [Railinc n.d.a].
- TRAIN II® (TeleRail Automated Information Network) is a comprehensive listing of rail tank car movements [Railinc n.d.b].

These AAR databases comprise information on all rail tank cars in North America. Each rail tank car has a unique identification number, and its owner is required to identify its specifications as well as track commodities transported over the North American rail network. Only rail tank cars with shipments transported entirely within the United States or that start or end in the United States are included in this report.

1.3.2. Analysis Results

Between 2013 and 2025, the number of rail tank cars that transported Class 3 FLs has varied. Numerous factors, such as the following, determine whether a rail tank car will be used to transport Class 3 FLs:

- Demand for each Class 3 FL
- North American pipeline capacity for transporting crude oil as an alternative to rail tank cars

The size of the fleet of rail tank cars that transport Class 3 FLs is also affected by the number of rail tank cars that transport multiple FL types over the course of a year, which reduces the need for additional rail tank cars.

By the end of the phase-out period in 2029, all Class 3 FLs are expected to be transported in rail tank cars that meet or exceed DOT-117 or DOT-117R specifications. The May 1, 2025, phase-out deadline applied to several FLs and rail tank car types.⁷ Jacketed CPC-1232 rail tank cars were phased out of transporting crude oil and ethanol. One hundred thirty-five jacketed CPC-1232 rail tank cars transported crude oil, and 12 transported ethanol. Jacketed and non-jacketed CPC-1232 rail tank cars and jacketed and non-jacketed DOT-111 rail tank cars that transported other FLs in packing group I were also phased out May 1, 2025.⁷ Three hundred sixty-four and 197 jacketed and non-jacketed CPC-1232 rail tank cars, respectively, transported other FLs in packing group I in 2025. Three hundred thirty-nine and 702 jacketed and non-

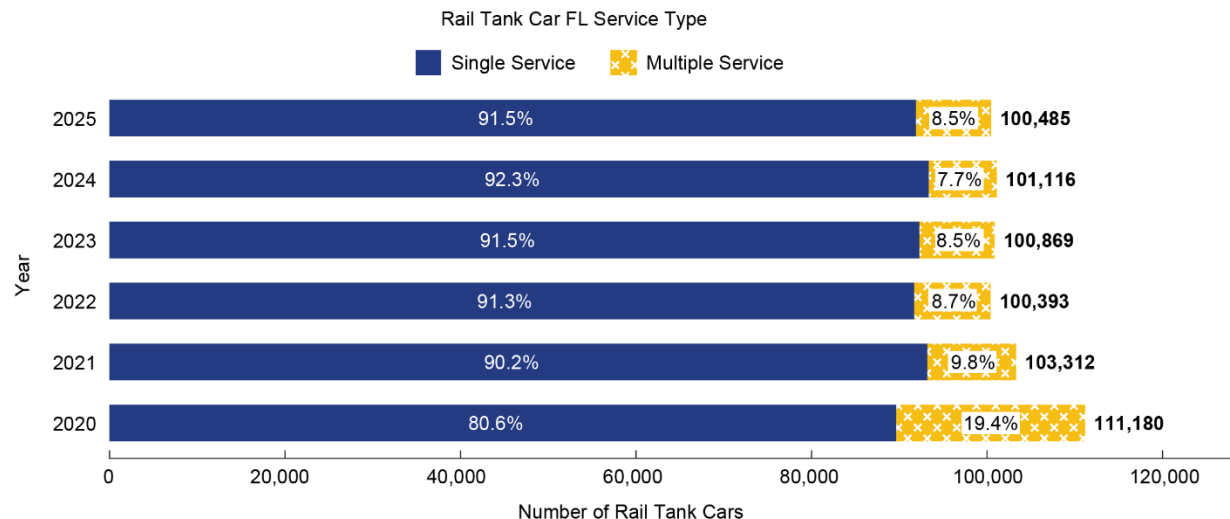
⁷ Due to the way the data were collected, BTS cannot determine when during the year these rail tank cars transported these liquids in relation to the phase-out deadline.

jacketed DOT-111 rail tank cars, respectively, transported other FLs in packing group I . The industry continues to adhere to all phase-out deadlines that have already passed.

As shown in Figure 3, the total number of rail tank cars in the fleet that transported Class 3 FLs has fluctuated little between 2020 and 2025. Findings include the following:

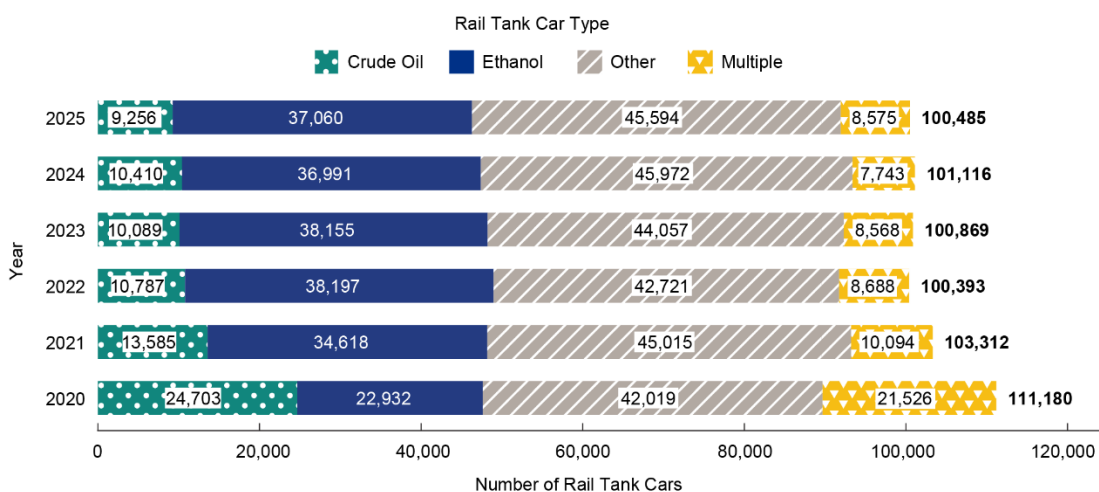
- In 2025, 100,485 rail tank cars transported FLs. This small 0.6-percent decrease from 2024 is a similar rate of change as the 0.2-percent increase between 2023 and 2024. In fact, the number of rail tank cars has been stable for the last 5 years, ranging between a low of 100,393 rail tank cars in 2022 and a high of 101,116 in 2024. This stabilization in the number of rail tank cars that transport Class 3 FLs occurred after a small decrease from 2020 to 2021 (111,177 to 103,312 rail tank cars, respectively).
- The percentage of single-service rail tank cars decreased to 91.5 percent in 2025 from 92.3 percent in 2024. This decrease is within the normal range for the previous 5 years. The percentage of rail tank cars that transport a single fluid has ranged between a low of 90.2 percent in 2021 and a high in 92.3 percent in 2024.
- The percentage of rail tank cars that transport multiple fluids increased to 8.5 percent in 2025 after decreasing to 7.7 percent in 2024.
- The number of rail tank cars that transport multiple fluids in a year increased to 8,575 in 2025 (Figure 3). This year is the first time the number and percentage of rail tank cars that transport multiple fluids have increased since 2020, when it reached a high of 21,526 rail tank cars after 6 years of increasing numbers.

Figure 3. Rail Tank Cars by Percentage of Single- and Multiple-FL Service: 2020–2025



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

Figure 4. Rail Tank Cars by Type of FL Transported: 2020–2024



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

From 2020 to 2025, the mix of fluids transported by train also changed as follows (Figure 4):

- The number of rail tank cars that transported crude oil decreased from 10,410 in 2024 to 9,256 in 2025, an 11.1-percent decrease. This change is a 62.5-percent decline from the high of 24,703 in 2020.
- The number of rail tank cars that transported ethanol was relatively steady from 2013 to 2020, with an average of 24,264 in service each year. This value increased to 38,197 rail tank cars in 2022 and 38,155 in 2023 and has stayed stable in 2025 at 37,060 rail tank cars, a 0.2-percent increase from 2024.
- The number of single-service rail tank cars that transported other Class 3 FLs in 2025 was similar to 2024, decreasing only 0.8 percent. These values have changed little over the last 6 years, ranging between a low of 42,016 in 2020 and a high of 45,972 in 2024.
- In 2025, the number of rail tank cars in the fleet that transported multiple Class 3 FLs increased 10.7 percent compared to 2024. Like single-service rail tank cars, the number of multiple-service rail tank cars has remained stable over the past 4 years.

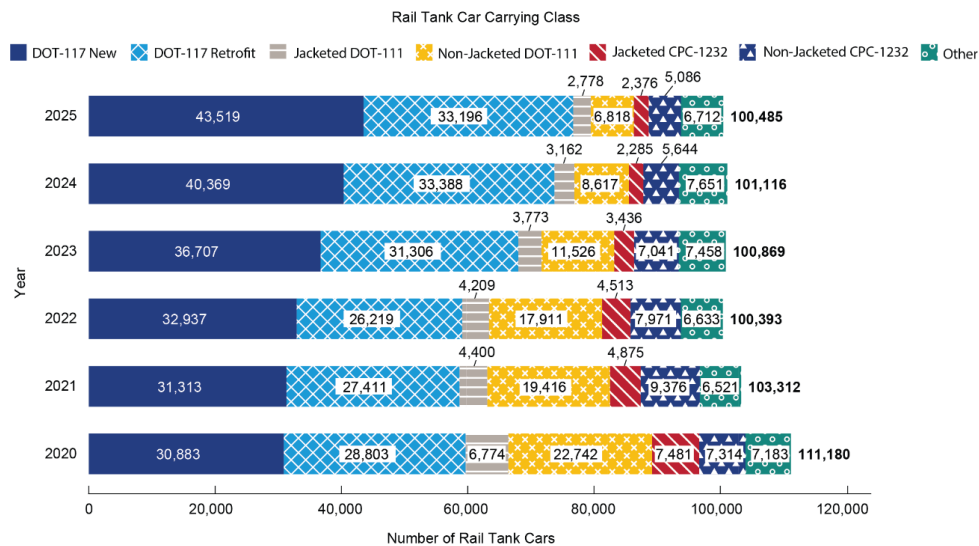
From 2020 to 2025, the composition of the fleet also changed. Figure 5-A and Figure 5-B show the following:

- The percentage of rail tank cars meeting the DOT-117 specifications continued to rise from 73 percent in 2024 to 76 percent in 2025. New DOT-117 rail tank cars were the primary source of the increase in 2025 (Figure 5-B).
- The number of DOT-117 rail tank cars, including DOT-117R rail tank cars, increased from 59,686 in 2020 to 76,715 in 2025 (Figure 5-A). The number of new DOT-117 rail tank cars increased from 40,369 in 2024 to 43,519 in 2025, while the number of retrofitted DOT-117R rail tank cars decreased slightly from 33,388 in 2024 to 33,196 in 2025 (Figure 5-A).

- Jacketed and non-jacketed DOT-111, jacketed and non-jacketed CPC-1232, and other specification rail tank cars⁸ declined between 2019 and 2025, from 46 percent of the fleet in 2020 to 24 percent in 2025.

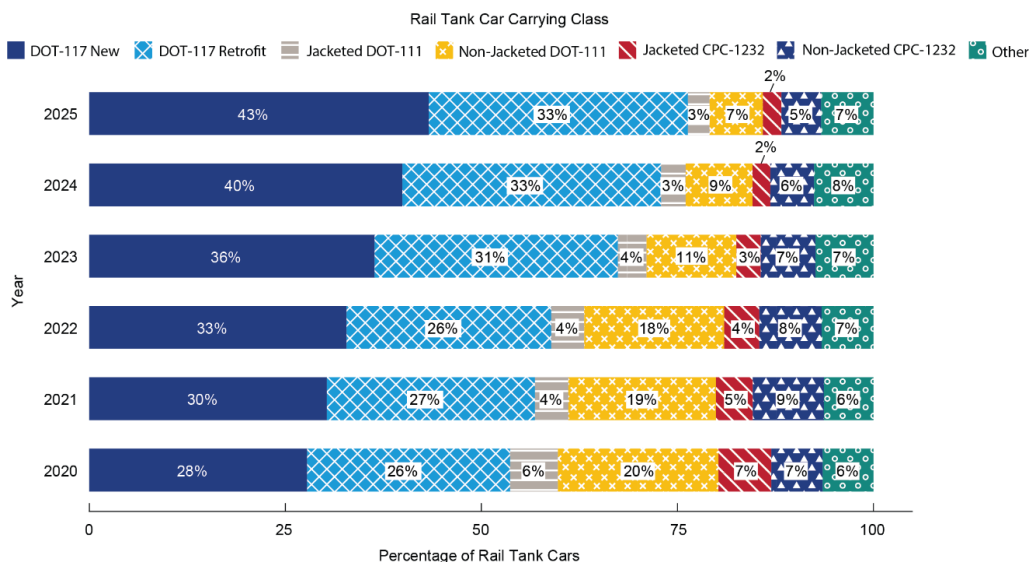
Figure 5. Fleet Composition: 2020–2025

A. Rail Tank Cars That Transported Class 3 FLs by Number



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

B. Rail Tank Cars That Transported Class 3 FLs by Percentage



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

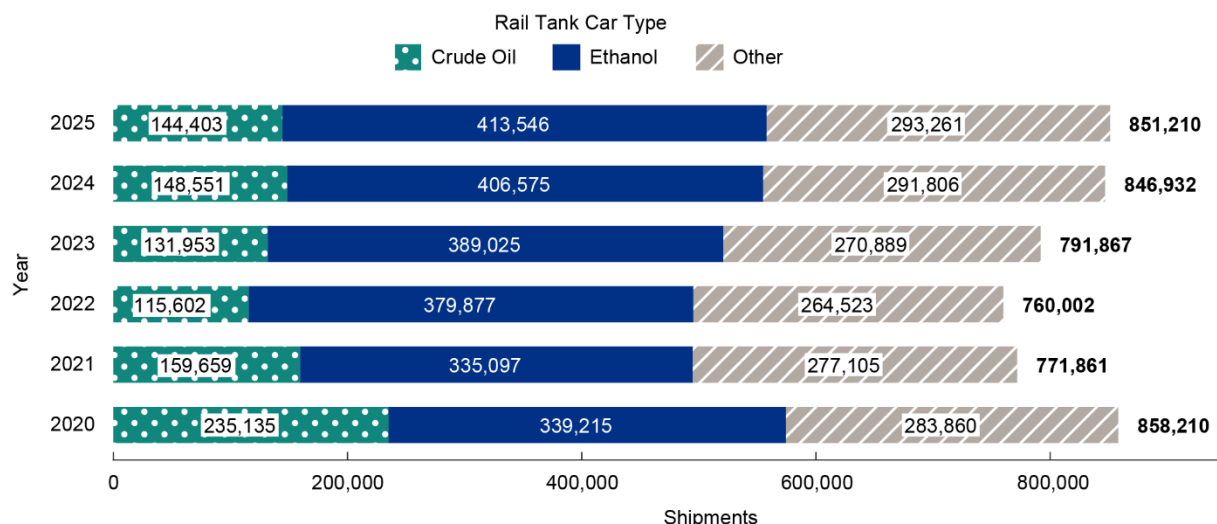
⁸

Other-specification rail tank cars include rail tank cars that meet the following specifications: DOT-105, DOT-112, DOT-114, DOT-115, DOT-120, and DOT-211. Most of the rail tank cars (90 percent in 2021) in the other rail tank car category that transport any FLs meet DOT-105, DOT-112, or DOT-120 specifications, which exceed the DOT-117 specification. Refer to [Box A](#).

The fleet of rail tank cars transports many shipments throughout the year. BTS defines a shipment as a carload movement that generates a waybill received from a rail customer, made by a single rail tank car from an origin to a destination. Any single rail tank car may transport one or many carloads in any given year. The total number of shipments, along with the mix of liquids needing transport, drives the active fleet size for the year. Demand is based on industry needs for Class 3 FL movements, primarily the crude oil and ethanol used for transportation, heating, and other essentials. Rail tank cars capable of transporting Class 3 FLs are also capable of transporting other liquids. The following describes the number of shipments in each year from 2020 to 2025 by FL type (Figure 6):

- Shipments in 2025 increased from 2024, the third consecutive increase in shipments. The number of shipments increased 0.5 percent in 2025, with 851,210 shipments in 2025 and 846,932 shipments in 2024.
- Crude oil shipments decreased 2.8 percent from 2024 to 2025. This value is the first decrease in crude oil shipments since 2022.
- Ethanol shipments were the highest since data collection began, with 413,546 shipments—an increase of 1.7 percent over 2024 shipments.
- From 2020 to 2025, fluctuations in the volume of shipments were attributable to fluctuations in crude oil and ethanol demand. The volume of shipments for crude oil varied from a high of 235,135 in 2020 to a low of 115,602 in 2022 but has increased to 144,403 in 2025. The volume of shipments for ethanol has steadily increased each year since 2021, from 335,097 in 2021 to 413,546 in 2025.
- The volume of shipments of other FLs steadily increased between 2022 and 2025, from 264,523 in 2022 to 293,261 in 2025.

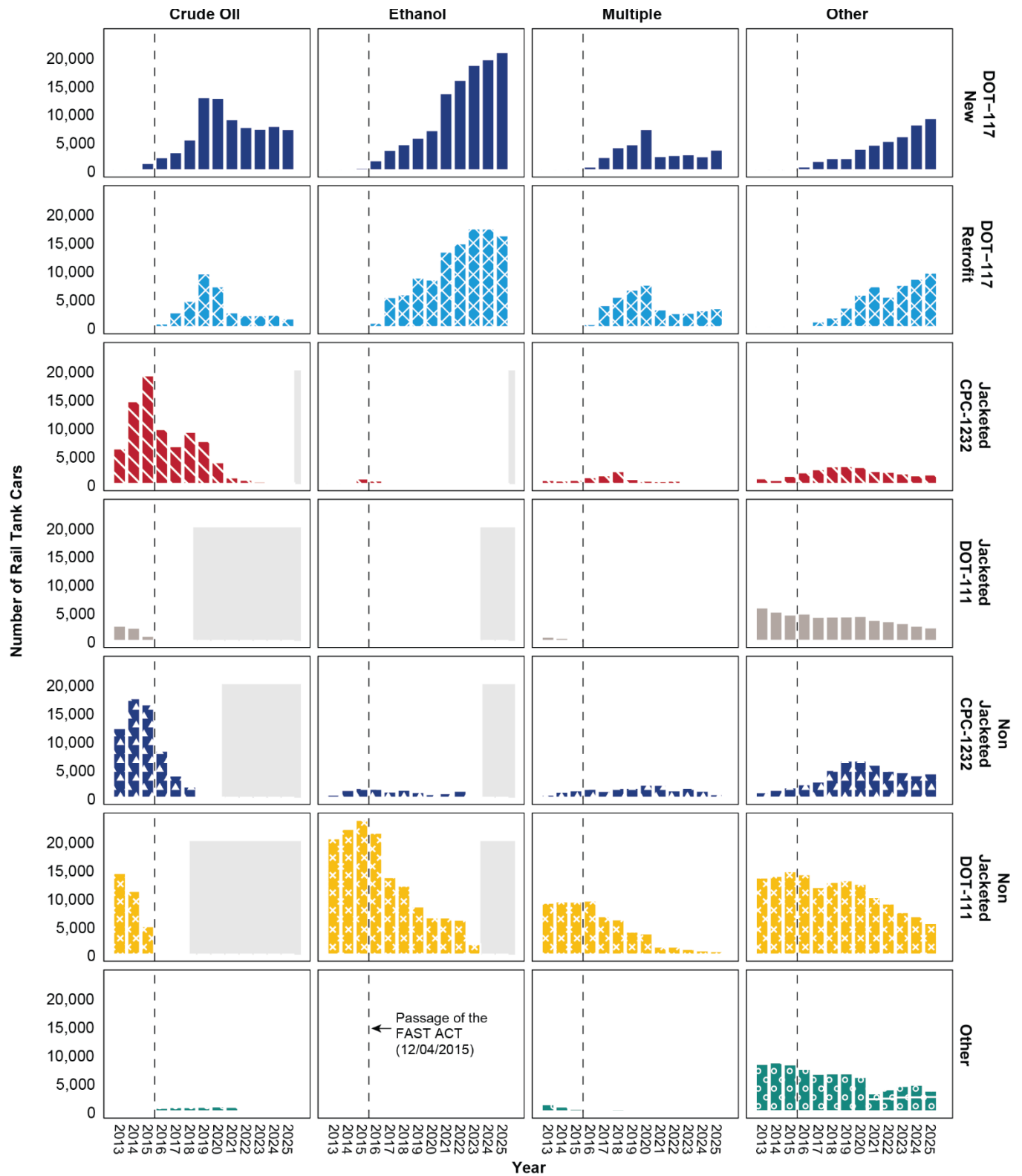
Figure 6. U.S. Shipments of Class 3 FLs by Year and Fuel Type: 2020–2025



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

Due to the length of the full FAST Act phase-out schedule, looking at the types of FLs transported by the various rail tank car types is useful. The remainder of this report summarizes the specific types of rail tank cars that transported Class 3 FLs between 2020 and 2025. Figure 7 shows a broader historical view of all the data from 2013 to the present report.

Figure 7. Counts of Rail Tank Cars by Fuel and Car Type: 2013–2025



Note: The dashed lines indicates the passage of the FAST Act on December 4, 2015.

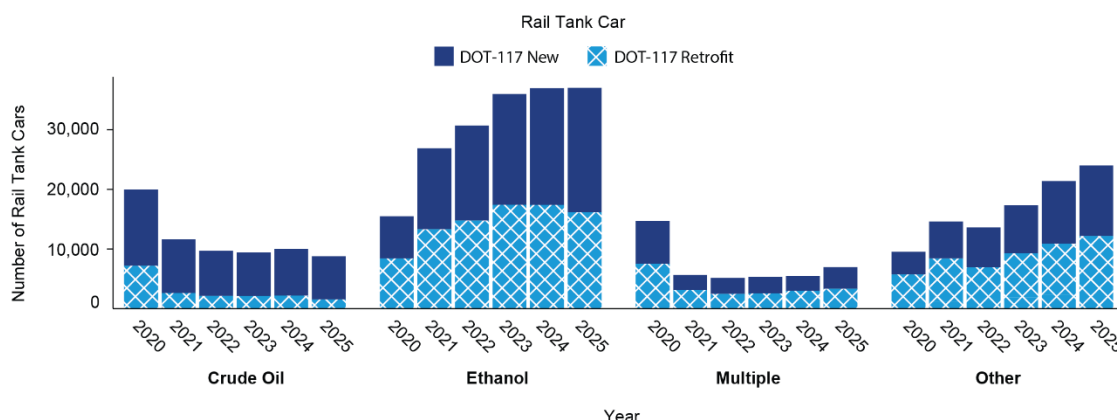
Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

1.3.2.1. DOT-117 Rail Tank Cars

DOT-117 rail tank cars are new or retrofitted rail tank cars that meet the technical and safety specifications finalized in the 2015 federal regulations. All rail tank cars that transport Class 3 FLs are required to meet or exceed DOT-117 specifications at the end of the phase-out period in 2029. In 2015, fewer than 2,000 DOT-117 and DOT-117R rail tank cars were in use, and by 2025, 76,715 were in use transporting Class 3 FLs (Figure 8). Key findings include the following:

- DOT-117 and DOT-117R rail tank cars that transport FLs besides crude oil increased 6.5 percent from 2024 to 2025, from 63,774 to 67,932 rail tank cars.
- In 2025, the volume of crude oil shipments decreased 2.8 percent from 2024 (Figure 6), and the number of DOT-117 rail tank cars (both new and retrofitted) that transported crude oil decreased 12.3 percent.
- The percentage of new or retrofitted DOT-117 rail tank cars that transported crude oil, among all DOT-117 rail tank cars in 2025, decreased compared to 2024, at 11.4 percent in 2025 and 13.0 percent in 2024.

Figure 8. DOT-117 (New and Retrofit) Rail Tank Cars by Liquid Type: 2019–2025



Source: BTS, data from the Railinc datasets, Umler® [n.d.a] and TRAIN II® [n.d.b], on rail tank car and annualized rail tank car movements between 2013 and 2025.

1.3.2.2. CPC-1232 Rail Tank Cars (Jacketed and Non-Jacketed)

The number of CPC-1232 rail tank cars decreased from 7,929 in 2024 to 7,487 in 2025. Figure 7 details how many jacketed and non-jacketed CPC-1232 rail tank cars transported Class 3 FLs. Key findings include the following:

- Several phase-outs occurred for CPC-1232 rail tank cars on May 1, 2025. This deadline affected jacketed CPC-1232 rail tank cars that transported crude oil and ethanol and jacketed and non-jacketed CPC-1232 rail tank cars that transported other FLs with packing group I. In 2025, 135 jacketed CPC-1232 rail tank cars transported crude oil, 12 jacketed CPC-1232 rail tank cars transported ethanol, 364 jacketed CPC-1232 rail tank cars transported other FLs with packing group I, and 197 non-jacketed CPC-1232 rail tank cars transported other FLs with packing group I.⁷
- Non-jacketed CPC-1232 rail tank cars that transported crude oil and ethanol were phased out on May 1, 2023, and none of these rail tank cars transported these types of liquids.

- Jacketed CPC-1232 rail tank cars that transported crude oil increased 3.8 percent in 2025 over 2024, with 135 in 2025 and 130 in 2024. Jacketed CPC-1232 rail tank cars that transported ethanol decreased 33.3 percent in 2025, from 18 in 2024 to 12 in 2025.⁷
- The majority (98 percent) of CPC-1232 rail tank cars transported multiple fluids or FLs other than crude oil and ethanol. Of all the CPC-1232 rail tank cars, 1.8 percent transported crude oil and 0.2 percent transported ethanol.

1.3.2.3. DOT-111 Rail Tank Cars (Jacketed and Non-Jacketed)

Mandated in HM-251 (Table 1), non-jacketed DOT-111 rail tank cars are prohibited from transporting crude oil as of January 1, 2018. Jacketed DOT-111 rail tank cars are also prohibited from transporting crude oil as of March 1, 2018. Both deadlines were met. Ethanol was phased out for non-jacketed and jacketed DOT-111 rail tank cars on May 1, 2023, and this deadline was met. Prior to 2018, non-jacketed DOT-111 rail tank cars transporting crude oil and ethanol had a significant presence in the fleet of rail tank cars that transport Class 3 FLs as shown in Figure 7. Figure 5 and Figure 7 show more detail for the jacketed DOT-111 rail tank cars. Key findings include the following:

- The phase-out deadlines for DOT-111 rail tank cars transporting crude oil were in 2018. All 9,596 DOT-111 rail tank cars used to transport FLs in 2025 were transporting an FL other than crude oil.
- The phase-out deadline for jacketed and non-jacketed DOT-111 rail tank cars for ethanol was May 1, 2023, and no DOT-111 rail tank cars transported ethanol in 2025.
- In 2025, 18.5 percent fewer DOT-111 rail tank cars, both jacketed and non-jacketed, were in use compared to 2024.
- The number of DOT-111 rail tank cars that transport other FLs steadily declined between 2013 and 2025, from 19,445 to 8,912 (Figure 7). DOT-111 rail tank cars that transported other Class 3 FLs in packing group I, both jacketed and non-jacketed, were phased out on May 1, 2025. In 2025, 339 jacketed DOT-111 rail tank cars transported other FLs within packing group I and 702 non-jacketed DOT-111 rail tank cars transported other FLs within packing group I.⁷ That change is an 18.0-percent decrease for jacketed DOT-111 rail tank cars, and a 38.2-percent decrease for non-jacketed DOT-111 rail tank cars. The remainder of the DOT-111 rail tank car fleet that transports other Class 3 FLs in packing groups II and III will be phased out May 1, 2029.

1.3.2.4. Other Rail Tank Car Types

Several rail tank car types exceed DOT-117 specifications and can transport Class 3 FLs. However, they are notably few, just 6.8 percent of the FL-transporting fleet in 2025. Therefore, for analysis purposes, they are grouped and include DOT-105, DOT-112, DOT-114, DOT-115, DOT-120, and DOT-211 rail tank cars. In 2025, 95.5 percent of these other rail tank cars met DOT-105, DOT-112, or DOT-120 specifications. In 2025, the “other” category comprised 6,712 rail tank cars, a 12.3-percent decrease from the 7,458 rail tank cars in 2024. As shown in Figure 7, the majority of “other” rail tank cars transported FLs other than crude oil or ethanol (94.5 percent).

2. Anticipated Number of Rail Tank Cars Meeting New Safety Standard (Section 7308[c])

2.1. DATA SOURCES

Section 7308(c) requires USDOT to estimate the anticipated number of DOT-117 and DOT-117R rail tank cars for each year through 2029 by collecting data from rail tank car shops that build and/or retrofit rail tank cars. This data-collection program gathered information from rail tank car retrofitting and manufacturing facilities on planned and projected numbers of rail tank cars to be retrofitted or manufactured in 2026. Any facility identified with the capacity to build new DOT-117 rail tank cars or modify existing rail tank cars to DOT-117R specifications, as described in Section 7308(c) of the FAST Act, is included in the voluntary data-collection plan. Because not all rail tank car shops or facilities have the capacity or are certified to build or retrofit rail tank cars to DOT-117 or DOT-117R specifications, AAR and the Railway Supply Institute (RSI)⁹ assisted BTS in identifying facilities with the capabilities and certifications to build and/or retrofit rail tank cars to the necessary specifications. In 2026, 136 rail tank car shops or facilities were identified and surveyed. The data collected from this annual program are summarized in the next sections.

2.2. RESPONSES FROM FACILITIES

The following findings are based on responses from U.S.-owned and/or -operated rail tank car shops:

- 2,137 new rail tank cars are expected to be built in 2026 (Figure 2) to meet DOT-117 specifications.
- 663 existing rail tank cars are expected to be retrofitted in 2026 (Figure 2) to meet DOT-117R specifications.
- 104 rail tank car shops (76 percent) responded to the survey out of the 136 shops identified to have the ability to build or retrofit rail tank cars to DOT-117 specifications.

Due to fluctuations in the business environment and market conditions, predicting the exact numbers of new rail tank cars that will be built or retrofitted to meet DOT-117 specifications is challenging for these shops.

The data collected from this program will not match future counts of rail tank car movements in the AAR databases for the following reasons:

- Movements account for all rail tank cars that transported a shipment of Class 3 FLs, regardless of when they were built or retrofitted to meet a different specification.
- Newly built or retrofitted rail tank cars may enter service at any point in the year and may not be used immediately.

⁹ RSI is a trade association representing rail tank car manufacturers and facilities performing repairs and maintenance.

- Facilities that build or retrofit rail tank cars for the North American market outside the United States and are not owned by an American company are not included in the data collection.

BTS did not receive responses from 32 rail tank car shops that have the ability to build new DOT-117 rail tank cars or retrofit existing rail tank cars to DOT-117R specifications. The projections listed here do not include rail tank cars that may be built or retrofitted by these 32 rail tank car shops, resulting in an underestimation of DOT-117 and DOT-117R rail tank car projections.

3. Conclusions

In 2025, 100,485 rail tank cars transported Class 3 FLs—a 0.6-percent decrease from 2024. Shipments of FLs in 2025 were similar to 2024, only down 0.5 percent overall. Crude oil shipments had a small decrease, which was the first decrease in crude oil shipments since 2022, dipping by 2.8 percent compared to 2024. In 2025, DOT-117 rail tank cars comprised over three-quarters of the Class 3 FL fleet at 76 percent. Among the fleet of rail tank cars that met DOT-117 specifications in 2025, 56.7 percent (43,519 rail tank cars) were built to DOT-117 specifications as new rail tank cars, and 43.3 percent (33,196 rail tank cars) were retrofitted to DOT-117R specifications. The number of DOT-117R rail tank cars in the fleet decreased by 192 rail tank cars from 2024, the first time a decrease in DOT-117R rail tank cars has occurred since 2022. In 2025, 64.5 percent of DOT-117 rail tank cars transported either crude oil or ethanol, and 53.3 percent of DOT-117R rail tank cars transported either crude oil or ethanol. The May 1, 2025, phase-out deadline affected multiple types of rail tank cars that transported multiple FLs. The last remaining phase-out deadline is May 1, 2029. This final deadline affects all remaining rail tank car types that do not meet DOT-117 or DOT-117R specifications. Based on responses to the data collection, 104 responding shops plan to build or modify 2,800 rail tank cars during 2026 to meet DOT-117 or DOT-117R specifications.

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Appendix A. Rail Tank Car Movement Data

Table 2 summarizes the rail tank car movement data used in this report.

Table 2. Summary of Rail Tank Car Movement Data

Fluid type	Rail tank car type	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Crude oil	DOT-117	0	84	1,303	2,925	5,788	10,040	22,349	19,959	11,625	9,718	9,386	9,983	8,758
Crude oil	Jacketed DOT-111	2,667	2,286	898	295	51	29	0	0	0	0	0	0	0
Crude oil	Non-jacketed DOT-111	14,388	11,230	4,980	302	5	0	0	0	0	0	0	0	0
Crude oil	Jacketed CPC-1232	6,252	14,589	19,150	9,659	6,658	9,208	7,580	3,832	1,154	738	407	130	135
Crude oil	Non-jacketed CPC-1232	12,266	17,534	16,470	8,258	3,899	1,979	208	27	0	0	0	0	0
Crude oil	Others	362	205	46	611	733	734	792	885	806	331	296	297	363
Ethanol	DOT-117	0	3	411	2,493	8,884	10,375	14,459	15,483	26,882	30,683	35,992	36,958	37,032
Ethanol	Jacketed DOT-111	143	147	152	149	103	102	109	102	94	80	20	0	0
Ethanol	Non-jacketed DOT-111	20,494	22,163	23,762	2,1477	13,643	12,146	8,480	6,541	6,531	6,122	1,835	0	0
Ethanol	Jacketed CPC-1232	0	336	957	586	123	164	142	87	72	49	19	18	12
Ethanol	Non-jacketed CPC-1232	507	1,334	1,709	1,570	1,069	1,378	986	626	776	1,210	224	0	0
Ethanol	Others	4	34	112	105	139	160	68	93	263	53	65	15	16
Multiple-service FL	DOT-117	0	2	34	1,190	6,187	9,409	11,171	14,728	5,629	5,143	5,337	5,435	6,940
Multiple-service FL	Jacketed DOT-111	700	518	280	305	254	174	149	113	150	171	105	83	95
Multiple-service FL	Non-jacketed DOT-111	9,141	9,360	9,321	9,516	6,757	6,185	4,023	3,722	1,407	1,392	971	734	589
Multiple-service FL	Jacketed CPC-1232	689	591	716	1,190	1,515	2,257	873	566	503	567	272	87	188
Multiple-service FL	Non-jacketed CPC-1232	509	1,044	1,299	1,562	1,170	1,696	1,719	2,280	2,259	1,309	1,721	1,219	605
Multiple-service FL	Others	1,249	855	453	324	315	380	232	117	146	106	162	185	158
Other FL	DOT-117	0	14	139	974	2,627	3,845	5,582	9,516	14,588	13,612	17,298	21,381	23,985

Fluid type	Rail tank car type	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Other FL	Jacketed DOT-111	5,870	5,151	4,627	4,785	4,202	4,269	4,295	4,381	4,156	3,958	3,543	3,079	2,683
Other FL	Non-jacketed DOT-111	13,575	13,864	14,697	14,153	11,914	12,813	13,092	12,476	11,478	10,397	8,720	7,883	6,229
Other FL	Jacketed CPC-1232	988	701	1,436	2,063	2,596	3,100	3,128	2,996	3,146	3,159	2,465	2,050	2,041
Other FL	Non-jacketed CPC-1232	963	1,361	1,806	2,344	2,834	4,862	6,554	6,559	6,341	5,452	5,096	4,425	4,481
Other FL	Others	8,383	8,653	8,287	7,499	6,626	6,710	6,694	6,088	5,306	6,143	6,935	7,154	6,175

FL = flammable liquid.

Appendix B. Annual Survey of Rail Tank Car Facilities Data-Collection Methodology

DATA SOURCES

Section 7308(c) requires USDOT to estimate the anticipated number of DOT-117 and DOT-117R rail tank cars for each year through 2029 by collecting data from rail tank car shops that build or retrofit rail tank cars. This data-collection program collects information from rail tank car retrofitting and manufacturing facilities on planned and projected numbers of rail tank cars retrofitted to DOT-117R specifications or manufactured to DOT-117 specifications in 2025. Any facility identified with the capacity to build new DOT-117 rail tank cars or modify existing rail tank cars to DOT-117R specifications, as described in Section 7308(c) of the FAST Act, was included in the voluntary data collection. Because not all rail tank car shops, or facilities, can or are certified to build or retrofit rail tank cars to DOT-117 and/or DOT-117R specifications, the Association of American Railroads (AAR) and Railway Supply Institute assisted the Bureau of Transportation Statistics (BTS) in identifying facilities with the capabilities and certifications to build and/or retrofit rail tank cars to the relevant specifications. AAR certifies the rail tank car shops to build and/or retrofit rail tank cars to DOT-117 and DOT-117R specifications. The data collected from this effort are summarized in this report.

METHODOLOGY

The 2026 Tank Car Survey, conducted from May to August 2026, included U.S.-owned or -operated facilities, known as rail tank car shops, with the capability to retrofit and/or manufacture rail tank cars to DOT-117 or DOT 117R specifications. In total, 136 rail tank car shops were identified and asked to respond to this voluntary questionnaire.

Rail tank car shops were contacted by U.S. mail. Follow-up calls and emails were made to nonrespondents. Respondents were asked to provide the number of DOT-117 rail tank cars they expected to build in 2026 as well as the number of rail tank cars to be retrofitted to DOT-117R specifications from a previous rail tank car specification type (e.g., DOT-111).¹⁰ For more information on the specifications, refer to [Box B](#). As in the past, all information is collected with the assurance of confidentiality. The information collected from this program is protected by the Confidential Information Protection and Statistical Efficiency Act of 2002; therefore, only aggregate statistics are provided in this report to ensure the confidentiality of individual participants and responses.

The data collected from this program will not match future counts of rail tank car movements in the AAR databases. Rail tank car movements account for all rail tank cars that transported a Class 3 flammable liquid shipment, regardless of when they were built or retrofitted to meet a different specification. Newly built or retrofitted rail tank cars may enter service at any point and may or may not enter service for that year. Furthermore, facilities outside the United States but

¹⁰ Per the FAST Act, Section 7308(c): The Secretary shall conduct a survey of tank car facilities modifying tank cars to the DOT-117R specification, or equivalent, or building new tank cars to the DOT-117 specification, or equivalent, to generate statistically- valid estimates of the anticipated number of tank cars those facilities expect to modify to DOT-117R specification, or equivalent, or build to the DOT-117 specification, or equivalent. [Public Law 114-94]

in North America and not owned by an American company are not included in the data collection.

Responses to this voluntary data collection were obtained from 104 out of 136 identified facilities, or 76 percent. Because 32 rail tank car shops did not respond, these projections of newly built DOT-117 rail tank cars and rail tank cars retrofitted to DOT-117R specifications underestimate the total projected numbers. Discerning the effects of nonresponses in this data collection is difficult given the variation in business operations of rail tank car shops and the lack of auxiliary information to gauge that extent. The rail tank car shops included in this data collection are varied in their capabilities as well as their industry reach geographically, across different modes of transport, and through supply-chain control. Some rail tank car shops are part of larger corporations and others are standalone entities. Of the 136 facilities BTS surveyed, 67 percent of the respondents are part of corporations with 2 or more rail tank car shops. Of the 110 shops that are part of corporations with 2 or more locations, 84 percent reported. Of the 26 shops that are part of corporations with no more than 1 railcar location, 46 percent reported. Some rail tank car shops focus solely on repairs and retrofits with certifications from AAR to do that work, while others have the AAR-certified capability to build brand new rail tank cars.

The numbers reported in BTS' data-collection program are not equivalent to the actual numbers of new and retrofitted rail tank cars entering service. In the 8 years of data available (2018–2026), the numbers of DOT-117 rail tank cars built exceeded projections by 43, 36, and 55 percent for the first 3 years, while falling 5, 13, 11, 38, and 4 percent below projections in 2021, 2022, 2023, 2024, and 2025. A comparison of actual retrofitted DOT-117R rail tank cars and projections from this program shows both under and over performing projections with no discernable pattern. The response rate for the survey has varied from 72 percent in 2019 to 90 percent in 2020, with specific rates shown in Table 3. Similarly, the number of rail tank car shops that can build and/or retrofit DOT-117 and/or DOT-117R rail tank cars has varied with a low of 120 in 2024 to a high in 149 in 2021 and has followed no clear trend through time. No correlation exists between response rates and the number of shops (Pearson's Correlation Test: $t = 0.08$, $df = 7$, $p = 0.94$).

Table 3. Response Rates and Sample Frame Size Through Time: 2018–2025

Year	Response rate	Number of shops
2026	76%	136
2025	76%	138
2024	83%	120
2023	79%	121
2022	77%	121
2021	85%	145
2020	90%	149
2019	72%	148
2018	75%	148