



441 G St. N.W.  
Washington, DC 20548

## Accessible Version

July 12, 2019

The Honorable Ron Wyden  
Ranking Member  
Committee on Finance  
United States Senate

### Electronic Cigarettes: U.S. Imports, 2016-2018

Dear Senator Wyden:

Over the last 15 years, use of electronic cigarettes, known as e-cigarettes, in the United States has grown rapidly as use of traditional cigarettes declined among both adolescents and adults. As we reported previously, most e-cigarettes sold in the United States are thought to be imported.<sup>1</sup> The U.S. government began collecting data specific to e-cigarette imports in January 2016, after the Committee for Statistical Annotation of Tariff Schedules established six new statistical reporting numbers for e-cigarette devices, parts, and liquid in the Harmonized Tariff Schedule of the United States (HTS).<sup>2</sup> In April 2017, we reported, on the basis of the first year of data, that the customs value of U.S. e-cigarette imports in 2016 was about \$342 million and that 91 percent of those imports, by customs value, came from China.<sup>3</sup>

You requested that we report on e-cigarettes imported into the United States from 2016 through 2018. This report examines the customs value, tariff revenue, countries of origin, and ports of entry for e-cigarette devices, parts, and liquid imported during those years. We analyzed the data that were available in April 2019 from the Interactive Tariff and Trade DataWeb maintained by the U.S. International Trade Commission (USITC), which incorporates U.S. trade statistics published by the U.S. Census Bureau (Census).<sup>4</sup> We analyzed import data for the six statistical reporting numbers that covered e-cigarette devices, parts, and liquid in 2016 through 2018.<sup>5</sup> For

<sup>1</sup>GAO, *Electronic Cigarettes: U.S. Imports in 2016*, [GAO-17-515R](#) (Washington, D.C.: Apr. 24, 2017).

<sup>2</sup>The committee comprises representatives from the U.S. International Trade Commission (USITC), U.S. Customs and Border Protection (CBP), and the U.S. Census Bureau. All goods imported into the United States are classified by CBP according to the HTS. The HTS, published and maintained by USITC, provides the legal basis for the classification of every product that enters the United States and the corresponding tariff rate the importer must pay for each product. The HTS contains numbered provisions at the 2-, 4-, 6-, 8-, and 10-digit level. The 10-digit provision is known as a statistical reporting number that can be used for tracking and reporting trade statistics. For more information about the committee and process for establishing new statistical reporting numbers, see GAO, *Electronic Cigarettes: Imports, Tariffs, and Data Collection*, [GAO-15-491R](#) (Washington, D.C.: May 7, 2015).

<sup>3</sup>[GAO-17-515R](#). Customs value is defined as the price actually paid or payable for merchandise when sold for exportation to the United States, excluding U.S. import tariffs (also known as duties), freight, insurance, and other charges incurred in bringing the merchandise to the United States.

<sup>4</sup>See <https://dataweb.usitc.gov/>.

<sup>5</sup>All years cited in this report are calendar years (January–December). U.S. import data are collected by CBP from records submitted by importers. These data are then incorporated into the official trade statistics published by

each reporting number, we analyzed customs value, tariff revenue, country of origin, and port of entry.<sup>6</sup> We also analyzed data on import quantities for four e-cigarette reporting numbers—covering e-cigarette devices and liquid—for which the federal government tracked quantity in 2016 through 2018.<sup>7</sup>

To understand trends in the data and assess the data's reliability, we reviewed agency documents about U.S. foreign trade statistics and interviewed U.S. Customs and Border Protection (CBP) and Census officials about how the data were collected, how they were checked, and any limitations of the data. We determined that the data were sufficiently reliable for the purposes of presenting annual descriptive statistics.

We conducted this performance audit from April to July 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

An e-cigarette device typically contains a battery, a heating element, and a cartridge or tank that may be empty or filled with liquid. Major e-cigarette parts include heating elements and cartridges, which can be imported separately from devices. E-cigarette liquid—which may contain nicotine in different concentrations or no nicotine—can also be imported separately from both devices and cartridges.

As table 1 in the enclosure shows, the six statistical reporting numbers in the HTS for U.S. e-cigarette imports cover devices with and without nicotine; parts with and without nicotine; and two types of nicotine-containing e-cigarette liquid: (1) liquid mixtures containing 5 percent or more by weight of one or more aromatic or modified aromatic substances, including nicotine (liquid with higher aromatic substance content), and (2) liquid mixtures containing less than 5 percent by weight of one or more aromatic or modified aromatic substances, including nicotine (liquid with lower aromatic substance content).<sup>8</sup> Devices with and without nicotine are subject to the same general tariff rate, and parts with and without nicotine are subject to the same general tariff rate. However, liquid with higher aromatic substance content is subject to a higher general

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Census. We used unrevised 2018 trade data. Census revises trade data periodically, and its first official revisions of 2018 trade data became available in June 2019, after we completed our analysis. Throughout this report, our analysis is based on consumption import data, which measure the total of merchandise that has physically cleared U.S. customs, either entering consumption channels immediately or entering after withdrawal for consumption from bonded warehouses or foreign trade zones under CBP custody.

<sup>6</sup>To report tariff revenue, we used the “calculated duty” variable, which represents the estimated import duties collected. Estimated duties are calculated on the basis of the applicable rate(s) of duty (or tariff) as shown in the HTS.

<sup>7</sup>Tracking of the quantity of imported e-cigarette liquid began in January 2016 and of e-cigarette devices in July 2016. Tracking of the quantity of imported e-cigarette parts began in January 2019.

<sup>8</sup>These descriptions for the two types of e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures and are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine, and not by the percentage of nicotine alone. Formulated liquid mixtures imported under 3824.99.2840 and 3824.99.9280 may also contain other substances in addition to aromatic and modified aromatic substances. For more information, see table 1 in the enclosure.

tariff rate (6.5 percent of customs value) than liquid with lower aromatic substance content (5 percent of customs value).<sup>9</sup>

In summary, our analysis of U.S. e-cigarette import data for 2016 through 2018 found the following:

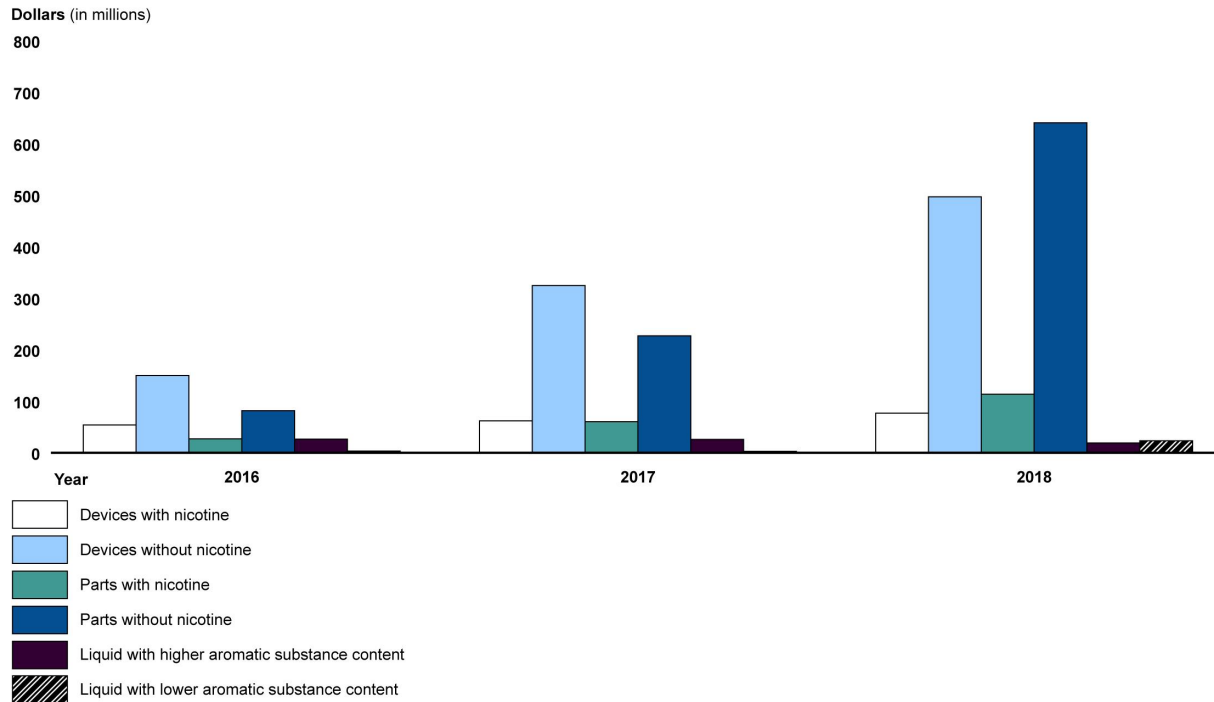
- **Customs value and tariff revenue for all U.S. e-cigarette imports.** The customs value of e-cigarette devices, parts, and liquid imported into the United States from 2016 through 2018 was \$2.4 billion (see table 2 in the enclosure). Devices and parts each accounted for about \$1.2 billion of total customs value (48 percent for each, or 96 percent for both) and liquid accounted for \$101.5 million (4 percent). The federal government collected \$120 million in total tariff revenue from these imports during this period.
- **Changes in customs value, tariff revenue, and quantities of U.S. e-cigarette imports from 2016 to 2018.** The customs value of all U.S. e-cigarette imports increased by 300 percent from 2016 to 2018 (see table 3 in the enclosure). The customs value of five of the six imported e-cigarette products—devices with and without nicotine, parts with and without nicotine, and liquid with lower aromatic substance content—increased from the 2016 level to the 2018 level. Tariff revenue from these products also increased (see table 4 in the enclosure). In addition, quantities of imported devices with and without nicotine and of liquid with lower aromatic substance content increased (see table 5 in the enclosure). Only imported e-cigarette liquid with higher aromatic substance content decreased in customs value, tariff revenue, and quantity from the 2016 level to the 2018 level.

As figure 1 and table 3 in the enclosure show, the highest increases in customs value from the 2016 level to the 2018 level were associated with imported parts without nicotine (684 percent), liquid with lower aromatic substance content (582 percent), and parts with nicotine (322 percent). In addition, the customs value of imported devices without nicotine increased by 231 percent during this period. By comparison, the customs value of imported liquid with higher aromatic substance content decreased by 28 percent from 2016 to 2018.

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<sup>9</sup>General tariff rates are applied to imported goods from countries with which the United States has normal trade relations.

**Figure 1: Customs Value of E-cigarette Devices, Parts, and Liquid Imported into the United States, 2016-2018**



Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Notes: See table 3 in GAO-19-619R for a more detailed presentation of the data for these imports.

The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report (GAO-17-515R). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

- U.S. e-cigarette imports by country.** The customs value of e-cigarette imports from China accounted for 97 percent of the customs value of all e-cigarette imports from 65 countries from 2016 through 2018 (see table 6 in the enclosure). Imports from China accounted for almost 100 percent of the customs value of all devices with nicotine and 95 percent of the customs value of all devices without nicotine (see table 7 in the enclosure) and for about 99 percent of the customs value of all parts with and without nicotine (see table 8 in the enclosure). Devices and parts without nicotine were imported from a larger number of countries than devices and parts with nicotine. In contrast to devices and parts, e-cigarette liquid imported from China represented a smaller percentage of the customs value of the two types of imported e-cigarette liquid: 90 percent for liquid with higher aromatic substance content and 69 percent for liquid with lower aromatic substance content (see table 9 in the enclosure).

Our analysis of quantities of e-cigarette devices and liquid imported from 2016 through 2018 shows similar patterns. From July 2016 through December 2018, e-cigarette importers brought 271 million e-cigarette devices with and without nicotine into the United States. Almost all imported devices with and without nicotine, or just under 100 percent by quantity, came from China (see table 10 in the enclosure). From January 2016 through December

2018, e-cigarette importers brought 2 million kilograms of nicotine-containing e-cigarette liquid into the United States. Liquid with higher aromatic substance content imported from China accounted for 55 percent of all such imported liquid by quantity, and liquid with lower aromatic substance content imported from China accounted for 45 percent (see table 11 in the enclosure).

- **Ports of entry.** The top five ports of entry—Los Angeles, Cleveland, Chicago, Savannah, and Norfolk—accounted for 81 percent of the customs value of U.S. e-cigarette imports in 2016 through 2018 (see table 12 in the enclosure).<sup>10</sup> Notably, the value of e-cigarette imports that cleared customs at the Chicago port of entry increased 80-fold, from about \$6 million in 2016 to \$468 million in 2018.

More detailed information about the six statistical reporting numbers for U.S. e-cigarette imports and about the results of our analysis is presented in the enclosure.

We provided a draft of this report to USITC, CBP, and Census. We received technical comments from USITC, CBP, and Census and incorporated the comments as appropriate.

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As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to appropriate congressional committees, to the Chairman of the U.S. International Trade Commission, the Commissioner of U.S. Customs and Border Protection, and the Director of the U.S. Census Bureau. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3149 or [gootnickd@gao.gov](mailto:gootnickd@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are Emil Friberg (Assistant Director), Sada Aksartova, Reid Lowe, and Grace Lui.

Sincerely yours,



David Gootnick  
Director, International Affairs and Trade

Enclosure – 1

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<sup>10</sup>The port of entry is the location where imported goods clear U.S. customs and may differ from the port of unloading, where goods are unloaded from the importing vessel or aircraft.

Enclosure

**Table 1: HTS Classification Summary for U.S. E-cigarette Imports, January 2016–June 2019**

E-cigarette product and statistical reporting number	General tariff rate (percentage of customs value)	Unit of quantity	Date when tracking of quantity began
<b>Devices<sup>a</sup></b>			
Devices with nicotine 8543.70.9930 <sup>b</sup>	2.6 percent	Number	July 2016
Devices without nicotine 8543.70.9940 <sup>b</sup>	[+25 percent additional tariff rate since August 23, 2018, for products from China <sup>c</sup> ]		
<b>Parts<sup>a</sup></b>			
Parts with nicotine 8543.90.8850 <sup>d</sup>	2.6 percent (Jan. 2016–June 2016) 1.9 percent (July 2016–June 2017) 1.3 percent (July 2017–June 2018) 0.6 percent (July 2018–June 2019) <sup>e</sup>	Number	January 2019
Parts without nicotine 8543.90.8860 <sup>d</sup>	[+10 percent additional tariff rate since September 24, 2018, for products from China that increased to 25 percent on May 10, 2019 <sup>c</sup> ]		
<b>Liquid<sup>f</sup></b>			
Liquid mixtures containing 5 percent or more by weight of one or more aromatic or modified aromatic substances, including nicotine (liquid with higher aromatic substance content) 3824.99.2840 <sup>g</sup>	6.5 percent [+10 percent additional tariff rate since September 24, 2018, for products from China that increased to 25 percent on May 10, 2019 <sup>c</sup> ]	Kilogram	January 2016
Liquid mixtures containing less than 5 percent by weight of one or more aromatic or modified aromatic substances, including nicotine (liquid with lower aromatic substance content) 3824.99.9280 <sup>g</sup>	5 percent [+10 percent additional tariff rate since September 24, 2018, for products from China that increased to 25 percent on May 10, 2019 <sup>c</sup> ]		

Source: GAO presentation of information from the Harmonized Tariff Schedule of the United States (HTS) and U.S. International Trade Commission. | GAO-19-619R

Notes: General tariff rates are applied to imported goods from countries with which the United States has normal trade relations. The HTS also enumerates tariff rates for goods from some of these countries that qualify for preferential tariff rates under a variety of special trade agreements as well as rates for a specific list of countries. The HTS additionally lists special tariff rates for products that fit technical specifications enumerated in notes to the HTS. See the HTS for these other rates.

Customs value is defined as the price actually paid or payable for merchandise when sold for exportation to the United States, excluding U.S. import tariffs (also known as duties), freight, insurance, and other charges incurred in bringing the merchandise to the United States.

<sup>a</sup>According to the HTS (chapter 85, statistical note 7), for the purposes of statistical reporting numbers 8543.70.9930, 8543.70.9940, 8543.90.8850, and 8543.90.8860, personal electric or electronic vaporizing devices are devices that electrically heat or atomize liquids or other substances, whether or not containing nicotine, producing a vapor to be inhaled through the mouthpiece.

<sup>b</sup>Statistical reporting numbers 8543.70.9930 and 8543.70.9940 replaced 8543.70.9630 and 8543.70.9640, respectively, on July 1, 2016. These reporting numbers cover closed-system and open-system e-cigarettes if they are imported as functional devices with or without cartridges.

<sup>c</sup>The additional tariffs were imposed by the U.S. Trade Representative (USTR) in accordance with the direction of the President. On August 18, 2017, following a Memorandum from the President, USTR initiated an investigation under Section 301 of the Trade Act of 1974 into the government of China’s acts, policies, and practices related to technology transfer, intellectual property, and innovation. 82 *Fed. Reg.* 40,213 (Aug. 24, 2017). As a result of the

investigation and at the direction of the President, USTR imposed tariffs on a range of products from China in three separate actions in 2018. See, 83 *Fed. Reg.* 28,710 (June 20, 2018); 83 *Fed. Reg.* 40,823 (Aug. 16, 2018); and 83 *Fed. Reg.* 47,974 (Sept. 21, 2018). Additionally, effective May 10, 2019, USTR increased the tariff rate imposed on products covered by its third action from 10 percent to 25 percent. The additional tariffs are effective until suspended or terminated.

<sup>d</sup>Statistical reporting numbers 8543.90.8850 and 8543.90.8860 cover major parts, such as heating elements and cartridges containing heating elements, that are imported separately from e-cigarette devices. Smaller e-cigarette components—such as microprocessors, batteries, tubes containing batteries, or light-emitting diode lights—that may be used for other products in addition to e-cigarettes are classified under other applicable HTS provisions.

<sup>e</sup>The general tariff rate of 0.6 percent was reduced to zero on July 1, 2019.

<sup>f</sup>According to the HTS (chapter 38, statistical note 3), for the purposes of statistical reporting numbers 3824.99.2840 and 3824.99.9280, “mixtures for use in personal electric or electronic vaporizing devices” means a formulated liquid containing nicotine, whether or not packaged for retail sale in cartridges or tanks adaptable to such devices.

<sup>g</sup>In this report, the descriptions of the two types of e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differs from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two reporting numbers on the basis of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures and are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine, and not by the percentage of nicotine alone. Formulated liquid mixtures imported under 3824.99.2840 and 3824.99.9280 may also contain other substances—such as, for example, glycol or glycerin—in addition to aromatic and modified aromatic substances. Statistical reporting numbers 3824.99.2840 and 3824.99.9280 replaced 3824.90.2840 and 3824.90.9280, respectively, on January 1, 2017.

**Table 2: Total Customs Value and Tariff Revenue for U.S. E-cigarette Imports, 2016-2018**

<b>E-cigarette product</b>	<b>Customs value in dollars</b>	<b>Tariff revenue in dollars</b>
<b>Devices</b>		
Devices with nicotine	192,997,202	14,513,280
Devices without nicotine	971,789,973	56,949,466
<b>Subtotal for devices</b>	<b>1,164,787,175</b>	<b>71,462,746</b>
<b>Parts</b>		
Parts with nicotine	201,284,194	6,118,656
Parts without nicotine	949,522,430	35,508,317
<b>Subtotal for parts</b>	<b>1,150,806,624</b>	<b>41,626,973</b>
<b>Liquid<sup>a</sup></b>		
Liquid with higher aromatic substance content	71,942,536	4,825,617
Liquid with lower aromatic substance content	29,572,706	2,541,831
<b>Subtotal for liquid</b>	<b>101,515,242</b>	<b>7,367,448</b>
<b>Total</b>	<b>2,417,109,041</b>	<b>120,457,167</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

<sup>a</sup>The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.



**Table 3: Customs Value of U.S. E-cigarette Imports, by Product and Year, 2016-2018**

E-cigarette product	Customs value in dollars			Percentage change, 2016–2018
	2016	2017	2018	
Devices with nicotine	53,946,173	62,053,635	76,997,394	43
Devices without nicotine	150,155,638	324,592,277	497,042,058	231
<b>Subtotal for devices</b>	<b>204,101,811</b>	<b>386,645,912</b>	<b>574,039,452</b>	<b>181</b>
Parts with nicotine	26,996,229	60,462,520	113,825,445	322
Parts without nicotine	81,745,233	227,116,550	640,660,647	684
<b>Subtotal for parts</b>	<b>108,741,462</b>	<b>287,579,070</b>	<b>754,486,092</b>	<b>594</b>
Liquid with higher aromatic substance content	26,675,683	26,088,221	19,178,632	-28
Liquid with lower aromatic substance content	3,412,746	2,871,712	23,288,248	582
<b>Subtotal for liquid<sup>a</sup></b>	<b>30,088,429</b>	<b>28,959,933</b>	<b>42,466,880</b>	<b>41</b>
<b>Total</b>	<b>342,931,702</b>	<b>703,184,915</b>	<b>1,370,992,424</b>	<b>300</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission’s Interactive Trade DataWeb, (accessed Apr. 29, 2019). | GAO-19-619R

<sup>a</sup>The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report (GAO-17-515R). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

**Table 4: Tariff Revenue from U.S. E-cigarette Imports, by Product and Year, 2016-2018**

E-cigarette product	Tariff revenue in dollars			Percentage change, 2016–2018
	2016	2017	2018	
Devices with nicotine	1,402,525	1,613,409	11,497,346	720
Devices without nicotine	3,423,424	8,150,814	45,375,228	1,225
<b>Subtotal for devices</b>	<b>4,825,949</b>	<b>9,764,223</b>	<b>56,872,574</b>	<b>1,078</b>
Parts with nicotine	602,086	919,833	4,596,737	663
Parts without nicotine	1,638,998	3,528,174	30,341,145	1,751
<b>Subtotal for parts</b>	<b>2,241,084</b>	<b>4,448,007</b>	<b>34,937,882</b>	<b>1,459</b>
Liquid with higher aromatic substance content	1,693,349	1,671,372	1,460,896	-14
Liquid with lower aromatic substance content	159,221	134,535	2,248,075	1,312
<b>Subtotal for liquid<sup>a</sup></b>	<b>1,852,570</b>	<b>1,805,907</b>	<b>3,708,971</b>	<b>100</b>
<b>Total</b>	<b>8,919,603</b>	<b>16,018,137</b>	<b>95,519,427</b>	<b>971</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

<sup>a</sup>The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

**Table 5: Quantities of Imported E-cigarette Devices and Liquid, by Product and Year, 2016-2018**

Devices (July 2016–Dec. 2018), Number

<b>E-cigarette product</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Percentage change, 2016–2018</b>
Devices with nicotine	5,629,456	30,222,777	30,601,891	444
Devices without nicotine	5,310,938	91,265,598	108,301,027	1,939
<b>Total for devices</b>	<b>10,940,394</b>	<b>121,488,375</b>	<b>138,902,918</b>	<b>1,170</b>

Liquid (Jan. 2016–Dec. 2018)/a/, Kilograms

<b>E-cigarette product</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Percentage change, 2016–2018</b>
Liquid with higher aromatic substance content	486,313	399,744	407,864	-16
Liquid with lower aromatic substance content	123,608	157,044	462,214	274
<b>Total for liquid</b>	<b>609,921</b>	<b>556,788</b>	<b>870,078</b>	<b>43</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Notes: Tracking of the quantity of imported e-cigarette liquid began in January 2016 and of e-cigarette devices in July 2016. Tracking of the quantity of imported e-cigarette parts began in January 2019.

<sup>a</sup>The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

**Table 6: Customs Value of U.S. E-cigarette Imports, by Country of Origin and Year, 2016-2018**

65 countries, customs value in dollars

Country	2016	2017	2018	Total	Percentage
China	313,521,695	680,648,542	1,352,922,732	<b>2,347,092,969</b>	97.1
Canada	11,573,095	11,275,241	3,388,247	<b>26,236,583</b>	1.1
Mexico	9,423,067	1,649,546	1,509,108	<b>12,581,721</b>	0.5
Germany	1,998,540	2,990,635	2,971,204	<b>7,960,379</b>	0.3
United Kingdom	1,635,250	1,852,016	2,504,044	<b>5,991,310</b>	0.2
Italy	318,437	167,385	1,492,978	<b>1,978,800</b>	0.1
France	656,008	92,681	1,080,753	<b>1,829,442</b>	0.1
Malaysia	51,317	605,196	1,048,329	<b>1,704,842</b>	0.1
Israel	856,402	348,484	254,742	<b>1,459,628</b>	0.1
Czech Republic	2,400	738,486	550,685	<b>1,291,571</b>	0.1
Austria	620,404	548,841	55,538	<b>1,224,783</b>	0.1
Switzerland	392,636	291,780	423,578	<b>1,107,994</b>	0.0
South Korea	225,664	408,383	435,626	<b>1,069,673</b>	0.0
Singapore	47,694	125,677	769,258	<b>942,629</b>	0.0
Poland	137,664	318,502	398,338	<b>854,504</b>	0.0
Japan	587,374	115,097	128,031	<b>830,502</b>	0.0
Taiwan <sup>a</sup>	146,639	124,253	201,957	<b>472,849</b>	0.0
New Zealand	32,823	105,831	159,366	<b>298,020</b>	0.0
India	86,472	123,765	77,825	<b>288,062</b>	0.0
Malta	-	-	201,250	<b>201,250</b>	0.0
Vietnam	14,960	173,880	4,924	<b>193,764</b>	0.0
Denmark	133,761	11,250	12,145	<b>157,156</b>	0.0
Hungary	48,728	102,010	2,906	<b>153,644</b>	0.0
Panama	109,968	8,029	-	<b>117,997</b>	0.0
Netherlands	82,164	21,769	7,415	<b>111,348</b>	0.0
Other (40 countries)	228,540	337,636	391,445	<b>957,621</b>	0.0
<b>Total</b>	<b>342,931,702</b>	<b>703,184,915</b>	<b>1,370,992,424</b>	<b>2,417,109,041</b>	<b>100.0</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

<sup>a</sup>Although the United States does not have diplomatic relations with Taiwan, we have listed it as a separate country because whenever the laws of the United States refer or relate to foreign countries, nations, states, governments, or similar entities, such terms shall include and shall apply to Taiwan. Taiwan Relations Act, Pub. L. No. 96-8, § 4(b)(1), 93 Stat. 14 (1979). Furthermore, the data we used list Taiwan as a country and show imports from Taiwan separately.

**Table 7: Customs Value of E-cigarette Devices Imported into the United States, by Country of Origin and Year, 2016-2018**

In dollars

	Country	2016	2017	2018	Total	Percentage
Devices with nicotine	China	53,779,326	61,841,443	76,828,711	<b>192,449,480</b>	99.7
	Austria	54,680	107,273	-	<b>161,953</b>	0.1
	Japan	4,763	85,545	36,797	<b>127,105</b>	0.1
	Singapore	-	-	120,000	<b>120,000</b>	0.1
	United Kingdom	30,412	5,135	-	<b>35,547</b>	0.0
	Netherlands	32,239	-	-	<b>32,239</b>	0.0
	Germany	16,650	-	9,873	<b>26,523</b>	0.0
	Australia	12,951	-	-	<b>12,951</b>	0.0
	Taiwan	8,712	-	-	<b>8,712</b>	0.0
	Poland	-	6,542	-	<b>6,542</b>	0.0
	Other (5 countries)	6,440	7,697	2,013	<b>16,150</b>	0.0
	<b>Subtotal Devices without nicotine</b>	<b>53,946,173</b>	<b>62,053,635</b>	<b>76,997,394</b>	<b>192,997,202</b>	<b>100.0</b>
Devices without nicotine	China	125,801,030	308,481,870	490,251,421	<b>924,534,321</b>	95.1
	Canada	11,213,774	10,676,729	315,967	<b>22,206,470</b>	2.3
	Mexico	9,390,998	1,578,933	1,484,036	<b>12,453,967</b>	1.3
	Germany	1,611,568	2,509,892	2,616,927	<b>6,738,387</b>	0.7
	United Kingdom	618,628	136,885	484,797	<b>1,240,310</b>	0.1
	France	175,887	37,046	882,474	<b>1,095,407</b>	0.1
	South Korea	171,555	295,911	155,584	<b>623,050</b>	0.1
	Switzerland	103,704	153,322	182,933	<b>439,959</b>	0.0
	Austria	135,656	182,000	9,576	<b>327,232</b>	0.0
	Israel	245,872	30,000	41,700	<b>317,572</b>	0.0
	Other (42 countries)	686,966	509,689	616,643	<b>1,813,298</b>	0.2
	<b>Subtotal Devices without nicotine</b>	<b>150,155,638</b>	<b>324,592,277</b>	<b>497,042,058</b>	<b>971,789,973</b>	<b>100.0</b>
<b>Total</b>	<b>All</b>	<b>204,101,811</b>	<b>386,645,912</b>	<b>574,039,452</b>	<b>1,164,787,175</b>	

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

**Table 8: Customs Value of E-cigarette Parts Imported into the United States, by Country of Origin and Year, 2016-2018 (In dollars)**

	Country	2016	2017	2018	Total	Percentage
<b>Parts with nicotine</b>	China	26,851,401	60,316,602	113,749,046	<b>200,917,049</b>	99.8
	Italy	7,048	74,015	-	<b>81,063</b>	0.0
	Austria	25,142	37,500	-	<b>62,642</b>	0.0
	United Kingdom	8,696	-	46,441	<b>55,137</b>	0.0
	Mexico	-	24,003	-	<b>24,003</b>	0.0
	Netherlands	22,635	-	-	<b>22,635</b>	0.0
	Denmark	21,258	-	-	<b>21,258</b>	0.0
	South Korea	21,000	-	-	<b>21,000</b>	0.0
	Canada	16,345	-	4,505	<b>20,850</b>	0.0
	Japan	-	-	16,008	<b>16,008</b>	0.0
	Other (5 countries)	22,704	10,400	9,445	<b>42,549</b>	0.0
	<b>Subtotal</b>		<b>26,996,229</b>	<b>60,462,520</b>	<b>113,825,445</b>	<b>201,284,194</b>
<b>Parts without nicotine</b>	China	80,420,948	225,072,922	638,782,709	<b>944,276,579</b>	99.4
	Germany	173,569	352,187	300,619	<b>826,375</b>	0.1
	Israel	157,729	318,484	213,042	<b>689,255</b>	0.1
	Switzerland	182,552	132,239	229,347	<b>544,138</b>	0.1
	United Kingdom	123,884	136,548	121,457	<b>381,889</b>	0.0
	Singapore	7,103	112,722	230,928	<b>350,753</b>	0.0
	Malaysia	51,317	90,380	149,223	<b>290,920</b>	0.0
	Taiwan <sup>a</sup>	67,111	108,357	110,959	<b>286,427</b>	0.0
	Austria	190,522	58,163	23,276	<b>271,961</b>	0.0
	Canada	102,867	113,683	53,160	<b>269,710</b>	0.0
	Other (27 countries)	267,631	620,865	445,927	<b>1,334,423</b>	0.1
	<b>Subtotal</b>		<b>81,745,233</b>	<b>227,116,550</b>	<b>640,660,647</b>	<b>949,522,430</b>
<b>Total</b>	<b>All</b>	<b>108,741,462</b>	<b>287,579,070</b>	<b>754,486,092</b>	<b>1,150,806,624</b>	

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

<sup>a</sup>Although the United States does not have diplomatic relations with Taiwan, we have listed it as a separate country because whenever the laws of the United States refer or relate to foreign countries, nations, states, governments, or similar entities, such terms shall include and shall apply to Taiwan. Taiwan Relations Act, Pub. L. No. 96-8, § 4(b)(1), 93 Stat. 14 (1979). Furthermore, the data we used list Taiwan as a country and show imports from Taiwan separately.

**Table 9: Customs Value of E-cigarette Liquid Imported into the United States, by Country of Origin and Year, 2016-2018 (In dollars)**

	Country	2016	2017	2018	Total	Percentage
<b>Liquid with higher aromatic substance content</b>	China	24,728,648	23,730,184	16,032,933	<b>64,491,765</b>	89.6
	United Kingdom	743,995	754,607	543,922	<b>2,042,524</b>	2.8
	Czech Republic	-	738,486	492,570	<b>1,231,056</b>	1.7
	Malaysia	-	172,571	765,933	<b>938,504</b>	1.3
	Canada	138,512	368,411	321,853	<b>828,776</b>	1.2
	Israel	452,801	-	-	<b>452,801</b>	0.6
	Singapore	-	-	401,730	<b>401,730</b>	0.6
	France	153,153	-	182,853	<b>336,006</b>	0.5
	Austria	99,831	163,905	22,686	<b>286,422</b>	0.4
	Malta	-	-	201,250	<b>201,250</b>	0.3
	Other (15 countries)	358,743	160,057	212,902	<b>731,702</b>	1.0
<b>Subtotal</b>	<b>26,675,683</b>	<b>26,088,221</b>	<b>19,178,632</b>	<b>71,942,536</b>	<b>100.0</b>	
<b>Liquid with lower aromatic substance content</b>	China	1,940,342	1,205,521	17,277,912	<b>20,423,775</b>	69.1
	Canada	101,597	116,418	2,690,749	<b>2,908,764</b>	9.8
	United Kingdom	109,635	818,841	1,307,427	<b>2,235,903</b>	7.6
	Italy	172,071	11,349	1,414,563	<b>1,597,983</b>	5.4
	Malaysia	-	278,644	121,489	<b>400,133</b>	1.4
	Poland	56,936	84,414	222,952	<b>364,302</b>	1.2
	Germany	190,513	100,960	32,519	<b>323,992</b>	1.1
	France	242,799	5,402	13,425	<b>261,626</b>	0.9
	Japan	216,671	3,057	-	<b>219,728</b>	0.7
	South Korea	-	90,002	101,790	<b>191,792</b>	0.6
	Other (17 countries)	382,182	157,104	105,422	<b>644,708</b>	2.2
<b>Subtotal</b>	<b>3,412,746</b>	<b>2,871,712</b>	<b>23,288,248</b>	<b>29,572,706</b>	<b>100.0</b>	
<b>Total</b>	<b>All</b>	<b>30,088,429</b>	<b>28,959,933</b>	<b>42,466,880</b>	<b>101,515,242</b>	

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Note: The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

**Table 10: Quantities of E-cigarette Devices Imported into the United States, by Country of Origin and Year, 2016-2018 (Number of devices)**

	Country	2016 (July-Dec.)	2017	2018	Total	Percentage
<b>Devices with nicotine</b>	China	5,624,706	30,000,323	30,482,228	<b>66,107,257</b>	99.5
	Japan	100	213,600	79,263	<b>292,963</b>	0.4
	Singapore	-	-	40,000	<b>40,000</b>	0.1
	Austria	3,822	8,132	-	<b>11,954</b>	0.0
	United Kingdom	-	545	-	<b>545</b>	0.0
	Germany	320	-	100	<b>420</b>	0.0
	Canada	-	-	300	<b>300</b>	0.0
	Australia	249	-	-	<b>249</b>	0.0
	France	154	-	-	<b>154</b>	0.0
	Poland	-	101	-	<b>101</b>	0.0
	Other (4 countries)	105	76	-	<b>181</b>	0.0
		<b>Subtotal</b>	<b>5,629,456</b>	<b>30,222,777</b>	<b>30,601,891</b>	<b>66,454,124</b>
<b>Devices without nicotine</b>	China	4,848,766	89,758,820	107,597,974	<b>202,205,560</b>	98.7
	Canada	313,710	927,250	4,108	<b>1,245,068</b>	0.6
	Germany	36,641	243,884	225,129	<b>505,654</b>	0.2
	Mexico	85,331	169,200	167,886	<b>422,417</b>	0.2
	Taiwan	1,146	1,718	106,884	<b>109,748</b>	0.1
	France	43	2,162	79,736	<b>81,941</b>	0.0
	Hungary	233	72,700	-	<b>72,933</b>	0.0
	United Kingdom	8,433	17,218	45,038	<b>70,689</b>	0.0
	Switzerland	788	9,511	32,786	<b>43,085</b>	0.0
	Austria	4,414	16,256	5	<b>20,675</b>	0.0
	Other (35 countries)	11,433	46,879	41,481	<b>99,793</b>	0.0
		<b>Subtotal</b>	<b>5,310,938</b>	<b>91,265,598</b>	<b>108,301,027</b>	<b>204,877,563</b>
<b>Total</b>	<b>All</b>	<b>10,940,394</b>	<b>121,488,375</b>	<b>138,902,918</b>	<b>271,331,687</b>	

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Note: Tracking of the quantity of imported e-cigarette devices began on July 1, 2016.



**Table 11: Quantities of E-cigarette Liquid Imported into the United States, by Country of Origin and Year, 2016-2018 (Quantity of liquid in kilograms)**

	Country	2016	2017	2018	Total	Percentage
<b>Liquid with higher aromatic substance content</b>	China	261,435	279,386	174,998	<b>715,819</b>	55.3
	Malaysia	-	15,126	105,411	<b>120,537</b>	9.3
	Canada	38,118	51,475	14,900	<b>104,493</b>	8.1
	United Kingdom	32,778	29,427	34,449	<b>96,654</b>	7.5
	Israel	92,880	-	-	<b>92,880</b>	7.2
	France	36,188	-	39,491	<b>75,679</b>	5.8
	Czech Republic	-	20,344	14,953	<b>35,297</b>	2.7
	Japan	20,200	-	-	<b>20,200</b>	1.6
	Singapore	-	-	12,738	<b>12,738</b>	1.0
	Malta	-	-	5,665	<b>5,665</b>	0.4
	Other (15 countries)	4,714	3,986	5,259	<b>13,959</b>	1.1
	<b>Subtotal</b>	<b>486,313</b>	<b>399,744</b>	<b>407,864</b>	<b>1,293,921</b>	<b>100.0</b>
<b>Liquid with lower aromatic substance content</b>	China	67,435	47,070	215,805	<b>330,310</b>	44.5
	Canada	22,229	45,822	101,836	<b>169,887</b>	22.9
	United Kingdom	2,586	32,120	69,914	<b>104,620</b>	14.1
	Italy	6,403	115	40,280	<b>46,798</b>	6.3
	Malaysia	-	24,354	6,186	<b>30,540</b>	4.1
	Poland	3,208	308	24,393	<b>27,909</b>	3.8
	Germany	6,384	4,231	1,140	<b>11,755</b>	1.6
	Panama	4,371	-	-	<b>4,371</b>	0.6
	France	3,049	1	33	<b>3,083</b>	0.4
	Austria	2,788	-	-	<b>2,788</b>	0.4
	Other (18 countries)	5,155	3,023	2,627	<b>10,805</b>	1.5
	<b>Subtotal</b>	<b>123,608</b>	<b>157,044</b>	<b>462,214</b>	<b>742,866</b>	<b>100.0</b>
<b>Total</b>	<b>All</b>	<b>609,921</b>	<b>556,788</b>	<b>870,078</b>	<b>2,036,787</b>	

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Note: The descriptions for the two types of nicotine-containing e-cigarette liquid, corresponding to statistical reporting numbers 3824.99.2840 and 3824.99.9280, reflect recent discussions with U.S. International Trade Commission and U.S. Customs and Border Protection officials and differ from the descriptions presented in our prior related report ([GAO-17-515R](#)). In that report, the descriptions for e-cigarette liquid, developed in consultation with officials from the same agencies, distinguished between the two statistical reporting numbers on the basis of the percentage of nicotine content. The two statistical reporting numbers each cover nicotine-containing formulated liquid mixtures; are distinguished from each other by the percentage of aromatic or modified aromatic substances, including nicotine; and may also contain other substances.

**Table 12: Customs Value of U.S. E-cigarette Imports, by Port of Entry and Year, 2016-2018**

36 ports of entry, customs value in dollars					
Port of entry	2016	2017	2018	Total	Percentage
Los Angeles, CA	79,171,965	178,761,131	306,788,945	<b>564,722,041</b>	23.4
Cleveland, OH	84,092,569	214,004,915	252,378,553	<b>550,476,037</b>	22.8
Chicago, IL	5,820,868	52,950,725	467,881,234	<b>526,652,827</b>	21.8
Savannah, GA	48,324,446	45,613,837	72,523,855	<b>166,462,138</b>	6.9
Norfolk, VA	33,524,990	63,303,574	59,790,878	<b>156,619,442</b>	6.5
Seattle, WA	32,532,897	39,625,364	39,303,053	<b>111,461,314</b>	4.6
San Francisco, CA	5,906,883	22,656,333	48,134,246	<b>76,697,462</b>	3.2
Miami, FL	11,223,418	22,246,446	12,764,027	<b>46,233,891</b>	1.9
New Orleans, LA	3,114,444	14,001,187	26,028,167	<b>43,143,798</b>	1.8
New York, NY	5,235,341	7,056,619	18,485,298	<b>30,777,258</b>	1.3
Anchorage, AK	439,289	3,607,200	21,843,253	<b>25,889,742</b>	1.1
Detroit, MI	10,164,086	10,759,924	2,101,735	<b>23,025,745</b>	1.0
Charlotte, NC	6,465,758	7,977,892	2,980,260	<b>17,423,910</b>	0.7
Tampa, FL	618,252	2,679,239	9,473,451	<b>12,770,942</b>	0.5
Dallas-Fort Worth, TX	835,266	5,314,062	4,606,733	<b>10,756,061</b>	0.4
Charleston, SC	156,941	2,666,136	5,601,859	<b>8,424,936</b>	0.3
Washington, DC	31,565	63,210	8,153,177	<b>8,247,952</b>	0.3
Buffalo, NY	1,382,033	1,567,954	4,102,601	<b>7,052,588</b>	0.3
Laredo, TX	6,661,991	47,848	-	<b>6,709,839</b>	0.3
Boston, MA	995,126	1,868,237	1,212,431	<b>4,075,794</b>	0.2
San Diego, CA	870,626	1,296,155	1,426,746	<b>3,593,527</b>	0.1
Great Falls, MT	598,996	1,331,986	1,144,239	<b>3,075,221</b>	0.1
Nogales, AZ	1,688,568	150,670	985,896	<b>2,825,134</b>	0.1
Houston-Galveston, TX	144,425	1,745,494	931,110	<b>2,821,029</b>	0.1
St. Louis, MO	352,094	1,165,900	813,923	<b>2,331,917</b>	0.1
Other (11 ports of entry)	2,578,865	722,877	1,536,754	<b>4,838,496</b>	0.2
<b>Total</b>	<b>342,931,702</b>	<b>703,184,915</b>	<b>1,370,992,424</b>	<b>2,417,109,041</b>	<b>100.0</b>

Source: GAO analysis of U.S. Census Bureau data retrieved from the U.S. International Trade Commission's Interactive Trade DataWeb (accessed Apr. 29, 2019). | GAO-19-619R

Note: The port of entry is the location where imported goods clear U.S. customs and may differ from the port of unloading, where goods are unloaded from the importing vessel or aircraft.

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