

using a three percent discount rate are also provided in the Excel spreadsheets that support this PEA, which are contained in the docket (OSHA, 2020, Document ID 0049).

For the purpose of calculating loaded wage rates, OSHA did not include an overhead labor cost in the FEA in support of the 2012 HCS final standard. The Department of Labor has since determined that it is appropriate, in some circumstances, to account for overhead expenses as part of the methodology used to estimate the costs and economic impacts of OSHA regulations. For this PEA, in addition to applying fringe benefits to hourly (“base”) wages, OSHA also applied an overhead rate when estimating the marginal cost of labor in its primary cost calculation.

Overhead costs are indirect expenses that cannot be tied to producing a specific product or service. Common examples include rent, utilities, and office equipment; however, there is no general consensus on the cost elements that fit the definition of overhead in the context of occupational safety and health. The lack of a common definition has led to a wide range of overhead estimates. Consequently, the treatment of overhead costs needs to be case-specific. For this PEA, OSHA has adopted an overhead rate of 17 percent of base wages, which is consistent with the overhead rate and methodology used for (1) sensitivity analyses in the FEA in support of the 2017 final rule delaying the deadline for submission of OSHA Form 300A data (82 FR 55761, 55765 (Nov. 24, 2017)); and (2) the FEA in support of OSHA’s 2016 final standard on Occupational Exposure to Respirable

because of the 5-year phase-in of some provisions. This proposed rule does not have any lengthy phase-in provisions, supporting OSHA’s decision to use a 10-year annualization period for this PEA.

Crystalline Silica (81 FR 16285, 16488–16492 (March 25, 2016)).²⁹

To calculate the total labor cost for an occupational category, OSHA added together three components: Base wage + fringe benefits (derived as 45.8 percent of the base wage)³⁰ + applicable overhead costs (derived as 17 percent of the base wage). For example, the median hourly wage of an Occupational Health and Safety Specialist is \$35.63. Applying a fringe markup of 45.8 percent (applied to the base wage) and an overhead rate of 17 percent (applied to the base wage) yields a fully-loaded hourly wage of \$58.00 ($\$35.63 \times .458 = \16.32 ; $\$35.63 \times 0.17 = \6.11 ; $\$35.63 + \$16.32 + \$6.11 = \58.00). Note that, for this labor category, the fringe markup is equal to 28.13 percent of the fully-loaded hourly wage and that the overhead rate is equal to 10.53 percent of the fully-loaded hourly wage. Using this methodology, OSHA calculated the fully-loaded labor cost for four occupational categories: (1) Manager, Standard Occupational Classification (SOC) code 11–0000, \$82.70; (2) Logistics Personnel, SOC code 13–1081, \$58.51; (3) Production Worker, SOC code 51–0000, \$28.18; and (4) Occupational Health and Safety

²⁹ This methodology was modeled after an approach used by the Environmental Protection Agency. More information on this approach can be found at U.S. Environmental Protection Agency, “Wage Rates for Economic Analyses of the Toxics Release Inventory Program,” June 10, 2002 (Ex. 2066) (Document ID 0046). This analysis itself was based on a survey of several large chemical manufacturing plants: Heiden Associates, *Final Report: A Study of Industry Compliance Costs under the Final Comprehensive Assessment Information Rule*, prepared for the Chemical Manufacturers Association, December 14, 1989 (Ex. 2065) (Document ID 0048).

³⁰ In June of 2019, BLS reported: “Employer costs for employee compensation for civilian workers averaged \$36.77 per hour worked in March 2019 . . . Wages and salaries cost employers \$25.22 while benefit costs were \$11.55.” The fringe markup of 31.4 percent of total compensation ($\$11.55/\36.77) is equivalent to a benefits markup of 45.8 percent in relation to the base wage ($\$11.55/\25.22). (BLS, 2019, Document ID 0224).

Specialist, SOC code 19–5011, \$58.00. (For further details, see Document ID 0049, tab “Wages”.)

Table VII–12 shows the estimated annualized compliance costs and cost savings by cost category and by industry sector. All costs and cost savings are reported in 2019 dollars. As shown in Table VII–12, the total annualized net cost savings of compliance with the proposed rulemaking is estimated to be \$26.8 million—consisting of about \$4.4 million of annualized costs and \$31.1 million of annual cost savings. Note that where tables in this PEA report estimated annualized costs, as in Table VII–12, cost savings appear as a negative number.

As shown by the three-digit NAICS Subsectors 325 (for Chemical Manufacturing) and 424 (for Merchant Wholesalers, Nondurable Goods) in Table VII–12, most of the estimated compliance costs and cost savings associated with the proposed rule would be incurred or realized by the chemical manufacturing industry and its distributors. However, the table also shows that familiarization costs would be spread across most manufacturing and wholesale industries in the U.S. economy subject to OSHA’s jurisdiction, reflecting the fact that employee exposures to hazardous chemicals occur in many industry sectors.

OSHA expects that all compliance costs would be incurred in the first year, as the proposed rule would incorporate a one-year transition period into the compliance schedule for the standard. Specifically, for purposes of estimating the annualized compliance costs, OSHA assumed that the compliance costs associated with chemical reclassification, employee training, and management familiarization would be incurred in the first year following the effective date of the proposed revisions to the HCS.

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Table VII-12: Total Annualized Costs of Provisions, by Six-Digit NAICS for All Entities (7 Percent Discount Rate, 2019 Dollars)

NAICS Code	Industry	Rule Familiarization	Training	Revised SDS/Labels (a)	Release for Shipment	Labels for Very Small Containers	Total Costs
21	Mining, Quarrying, and Oil and Gas Extraction	\$39,410	\$7,194	\$264,973	\$0	\$0	\$311,577
211	Oil and Gas Extraction	\$39,410	\$7,194	\$264,973	\$0	\$0	\$311,577
211120	Crude Petroleum Extraction	\$31,535	\$0	\$166,838	\$0	\$0	\$198,373
211130	Natural Gas Extraction	\$7,875	\$7,194	\$98,135	\$0	\$0	\$113,204
31-33	Manufacturing	\$483,276	\$112,964	\$3,264,949	-\$11,397,777	-\$1,291,839	-\$8,828,427
324	Petroleum and Coal Products Manufacturing	\$19,238	\$11,539	\$1,498,159	\$0	\$0	\$1,528,936
324110	Petroleum Refineries	\$4,992	\$11,539	\$81,933	\$0	\$0	\$98,464
324121	Asphalt Paving Mixture and Block Manufacturing	\$7,969	\$0	\$163,804	\$0	\$0	\$171,774
324122	Asphalt Shingle and Coating Materials Manufacturing	\$2,383	\$0	\$23,837	\$0	\$0	\$26,220
324191	Petroleum Lubricating Oil and Grease Manufacturing	\$3,080	\$0	\$1,218,913	\$0	\$0	\$1,221,994
324199	All Other Petroleum and Coal Products Manufacturing	\$813	\$0	\$9,671	\$0	\$0	\$10,485
325	Chemical Manufacturing	\$137,810	\$101,426	\$1,587,629	-\$11,397,777	-\$1,291,839	-\$10,862,751
325110	Petrochemical Manufacturing	\$822	\$1,808	\$17,494	\$0	\$0	\$20,123
325120	Industrial Gas Manufacturing	\$4,270	\$2,790	\$18,258	\$0	\$0	\$25,318
325130	Synthetic Dye and Pigment Manufacturing	\$1,487	\$0	\$7,811	\$0	\$0	\$9,298
325180	Other Basic Inorganic Chemical Manufacturing	\$7,082	\$0	\$11,346	\$0	-\$300,518	-\$282,090
325193	Ethyl Alcohol Manufacturing	\$3,171	\$0	\$8,752	\$0	\$0	\$11,923
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	\$842	\$0	\$4,066	\$0	\$0	\$4,908
325199	All Other Basic Organic Chemical Manufacturing	\$10,001	\$0	\$46,752	\$0	-\$722,874	-\$666,121
325211	Plastics Material and Resin Manufacturing	\$13,899	\$0	\$141,086	\$0	\$0	\$154,986
325212	Synthetic Rubber Manufacturing	\$1,738	\$0	\$3,071	\$0	\$0	\$4,809
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	\$1,664	\$0	\$587	\$0	\$0	\$2,251
325311	Nitrogenous Fertilizer Manufacturing	\$1,656	\$0	\$942	-\$1,544,546	\$0	-\$1,541,948
325312	Phosphatic Fertilizer Manufacturing	\$628	\$0	\$265	-\$1,431,358	\$0	-\$1,430,465
325314	Fertilizer (Mixing Only) Manufacturing	\$3,609	\$0	\$9,794	-\$1,232,972	\$0	-\$1,219,569
325320	Pesticide and Other Agricultural Chemical Manufacturing	\$1,982	\$3,691	\$33,715	\$0	\$0	\$39,388
325411	Medicinal and Botanical Manufacturing	\$4,848	\$0	\$17,139	\$0	-\$103,904	-\$81,917
325412	Pharmaceutical Preparation Manufacturing	\$15,964	\$28,984	\$113,709	\$0	-\$131,685	\$26,972
325413	In-Vitro Diagnostic Substance Manufacturing	\$3,493	\$0	\$34,155	\$0	-\$10,208	\$27,441
325414	Biological Product (except Diagnostic) Manufacturing	\$4,877	\$0	\$6,306	\$0	-\$22,650	-\$11,467
325510	Paint and Coating Manufacturing	\$10,505	\$16,645	\$430,618	-\$7,188,901	\$0	-\$6,731,133
325520	Adhesive Manufacturing	\$5,711	\$8,087	\$169,541	\$0	\$0	\$183,339
325611	Soap and Other Detergent Manufacturing	\$5,475	\$10,493	\$109,220	\$0	\$0	\$125,189
325612	Polish and Other Sanitation Good Manufacturing	\$3,592	\$6,882	\$67,826	\$0	\$0	\$78,300
325613	Surface Active Agent Manufacturing	\$1,264	\$2,046	\$29,128	\$0	\$0	\$32,437
325620	Toilet Preparation Manufacturing	\$9,167	\$18,280	\$131,164	\$0	\$0	\$158,612

Table VII-12: Total Annualized Costs of Provisions, by Six-Digit NAICS for All Entities (7 Percent Discount Rate, 2019 Dollars)

NAICS Code	Industry	Rule Familiarization	Training	Revised SDS/Labels [a]	Release for Shipment	Labels for Very Small Containers	Total Costs
325910	Printing Ink Manufacturing	\$2,742	\$0	\$50,591	\$0	\$0	\$53,333
325920	Explosives Manufacturing	\$838	\$1,718	\$13,195	\$0	\$0	\$15,752
325991	Custom Compounding of Purchased Resins	\$4,373	\$0	\$7,552	\$0	\$0	\$11,925
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	\$1,643	\$0	\$4,575	\$0	\$0	\$6,218
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	\$10,468	\$0	\$98,970	\$0	\$0	\$109,437
326	Plastics and Rubber Products Manufacturing	\$68,513	\$0	\$0	\$0	\$0	\$68,513
326111	Plastics Bag and Pouch Manufacturing	\$2,191	\$0	\$0	\$0	\$0	\$2,191
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	\$2,711	\$0	\$0	\$0	\$0	\$2,711
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	\$3,054	\$0	\$0	\$0	\$0	\$3,054
326121	Unlaminated Plastics Profile Shape Manufacturing	\$2,048	\$0	\$0	\$0	\$0	\$2,048
326122	Plastics Pipe and Pipe Fitting Manufacturing	\$2,800	\$0	\$0	\$0	\$0	\$2,800
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	\$1,121	\$0	\$0	\$0	\$0	\$1,121
326140	Polystyrene Foam Product Manufacturing	\$2,606	\$0	\$0	\$0	\$0	\$2,606
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	\$3,669	\$0	\$0	\$0	\$0	\$3,669
326160	Plastics Bottle Manufacturing	\$3,165	\$0	\$0	\$0	\$0	\$3,165
326191	Plastics Plumbing Fixture Manufacturing	\$1,724	\$0	\$0	\$0	\$0	\$1,724
326199	All Other Plastics Product Manufacturing	\$33,348	\$0	\$0	\$0	\$0	\$33,348
326211	Tire Manufacturing (except Retreading)	\$1,288	\$0	\$0	\$0	\$0	\$1,288
326212	Tire Retreading	\$1,390	\$0	\$0	\$0	\$0	\$1,390
326220	Rubber and Plastics Hoses and Belting Manufacturing	\$1,553	\$0	\$0	\$0	\$0	\$1,553
326291	Rubber Product Manufacturing for Mechanical Use	\$2,509	\$0	\$0	\$0	\$0	\$2,509
326299	All Other Rubber Product Manufacturing	\$3,339	\$0	\$0	\$0	\$0	\$3,339
327	Nonmetallic Mineral Product Manufacturing	\$59,127	\$0	\$0	\$0	\$0	\$59,127
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	\$1,963	\$0	\$0	\$0	\$0	\$1,963
327120	Clay Building Material and Refractories Manufacturing	\$2,740	\$0	\$0	\$0	\$0	\$2,740
327211	Flat Glass Manufacturing	\$597	\$0	\$0	\$0	\$0	\$597
327212	Other Pressed and Blown Glass and Glassware Manufacturing	\$1,534	\$0	\$0	\$0	\$0	\$1,534
327213	Glass Container Manufacturing	\$442	\$0	\$0	\$0	\$0	\$442
327215	Glass Product Manufacturing Made of Purchased Glass	\$4,844	\$0	\$0	\$0	\$0	\$4,844
327310	Cement Manufacturing	\$1,094	\$0	\$0	\$0	\$0	\$1,094
327320	Ready-Mix Concrete Manufacturing	\$19,738	\$0	\$0	\$0	\$0	\$19,738
327331	Concrete Block and Brick Manufacturing	\$3,058	\$0	\$0	\$0	\$0	\$3,058
327332	Concrete Pipe Manufacturing	\$1,195	\$0	\$0	\$0	\$0	\$1,195
327390	Other Concrete Product Manufacturing	\$8,244	\$0	\$0	\$0	\$0	\$8,244
327410	Lime Manufacturing	\$479	\$0	\$0	\$0	\$0	\$479
327420	Gypsum Product Manufacturing	\$987	\$0	\$0	\$0	\$0	\$987

Table VII-12: Total Annualized Costs of Provisions, by Six-Digit NAICS for All Entities (7 Percent Discount Rate, 2019 Dollars)

NAICS Code	Industry	Role Familiarization	Training	Revised SDS/Labels (a)	Release for Shipment	Labels for Very Small Containers	Total Costs
327910	Abrasive Product Manufacturing	\$1,317	\$0	\$0	\$0	\$0	\$1,317
327991	Cut Stone and Stone Product Manufacturing	\$6,594	\$0	\$0	\$0	\$0	\$6,594
327992	Ground or Treated Mineral and Earth Manufacturing	\$1,098	\$0	\$0	\$0	\$0	\$1,098
327993	Mineral Wool Manufacturing	\$1,369	\$0	\$0	\$0	\$0	\$1,369
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	\$1,833	\$0	\$0	\$0	\$0	\$1,833
331	Primary Metal Manufacturing	\$25,831	\$0	\$0	\$0	\$0	\$25,831
331110	Iron and Steel Mills and Ferroalloy Manufacturing	\$4,107	\$0	\$0	\$0	\$0	\$4,107
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	\$1,693	\$0	\$0	\$0	\$0	\$1,693
331221	Rolled Steel Shape Manufacturing	\$1,034	\$0	\$0	\$0	\$0	\$1,034
331222	Steel Wire Drawing	\$1,418	\$0	\$0	\$0	\$0	\$1,418
331313	Alumina Refining and Primary Aluminum Production	\$213	\$0	\$0	\$0	\$0	\$213
331314	Secondary Smelting and Alloying of Aluminum	\$572	\$0	\$0	\$0	\$0	\$572
331315	Aluminum Sheet, Plate, and Foil Manufacturing	\$861	\$0	\$0	\$0	\$0	\$861
331318	Other Aluminum Rolling, Drawing, and Extruding	\$1,718	\$0	\$0	\$0	\$0	\$1,718
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	\$650	\$0	\$0	\$0	\$0	\$650
331420	Copper Rolling, Drawing, Extruding, and Alloying	\$1,689	\$0	\$0	\$0	\$0	\$1,689
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	\$1,299	\$0	\$0	\$0	\$0	\$1,299
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	\$1,065	\$0	\$0	\$0	\$0	\$1,065
331511	Iron Foundries	\$2,275	\$0	\$0	\$0	\$0	\$2,275
331512	Steel Investment Foundries	\$898	\$0	\$0	\$0	\$0	\$898
331513	Steel Foundries (except Investment)	\$1,049	\$0	\$0	\$0	\$0	\$1,049
331523	Nonferrous Metal Die-Casting Foundries	\$2,463	\$0	\$0	\$0	\$0	\$2,463
331524	Aluminum Foundries (except Die-Casting)	\$1,726	\$0	\$0	\$0	\$0	\$1,726
331529	Other Nonferrous Metal Foundries (except Die-Casting)	\$1,100	\$0	\$0	\$0	\$0	\$1,100
339	Miscellaneous Manufacturing	\$172,756	\$0	\$179,161	\$0	\$0	\$351,917
339112	Surgical and Medical Instrument Manufacturing	\$14,300	\$0	\$8,697	\$0	\$0	\$22,996
339113	Surgical Appliance and Supplies Manufacturing	\$15,576	\$0	\$13,386	\$0	\$0	\$28,962
339114	Dental Equipment and Supplies Manufacturing	\$3,588	\$0	\$3,774	\$0	\$0	\$7,362
339115	Ophthalmic Goods Manufacturing	\$4,365	\$0	\$2,755	\$0	\$0	\$7,119
339116	Dental Laboratories	\$29,458	\$0	\$35,670	\$0	\$0	\$65,129
339910	Jewelry and Silverware Manufacturing	\$10,918	\$0	\$12,499	\$0	\$0	\$23,417
339920	Sporting and Athletic Goods Manufacturing	\$11,161	\$0	\$11,070	\$0	\$0	\$22,231
339930	Doll, Toy, and Game Manufacturing	\$2,924	\$0	\$3,323	\$0	\$0	\$6,247
339940	Office Supplies (except Paper) Manufacturing	\$3,076	\$0	\$3,120	\$0	\$0	\$6,196
339950	Sign Manufacturing	\$34,356	\$0	\$38,064	\$0	\$0	\$72,420

Table VII-12: Total Annualized Costs of Provisions, by Six-Digit NAICS for All Entities (7 Percent Discount Rate, 2019 Dollars)

NAICS Code	Industry	Rule Familiarization	Training	Revised SDS/Labels [a]	Release for Shipment	Labels for Very Small Containers	Total Costs
339991	Gasket, Packing, and Sealing Device Manufacturing	\$5,715	\$0	\$4,104	\$0	\$0	\$9,819
339992	Musical Instrument Manufacturing	\$3,865	\$0	\$3,957	\$0	\$0	\$7,822
339993	Fastener, Button, Needle, and Pin Manufacturing	\$813	\$0	\$753	\$0	\$0	\$1,567
339994	Broom, Brush, and Mop Manufacturing	\$1,862	\$0	\$1,403	\$0	\$0	\$3,266
339995	Burial Casket Manufacturing	\$710	\$0	\$687	\$0	\$0	\$1,397
339999	All Other Miscellaneous Manufacturing	\$30,069	\$0	\$35,897	\$0	\$0	\$65,966
42	Wholesale Trade	\$213,209	\$0	\$0	-\$18,450,070	\$0	-\$18,236,861
423	Merchant Wholesalers, Durable Goods	\$59,554	\$0	\$0	\$0	\$0	\$59,554
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	\$32,883	\$0	\$0	\$0	\$0	\$32,883
423840	Industrial Supplies Merchant Wholesalers	\$26,671	\$0	\$0	\$0	\$0	\$26,671
424	Merchant Wholesalers, Nondurable Goods	\$153,654	\$0	\$0	-\$18,450,070	\$0	-\$18,296,415
424210	Drugs and Druggists' Sundries Merchant Wholesalers	\$35,832	\$0	\$0	\$0	\$0	\$35,832
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	\$8,475	\$0	\$0	\$0	\$0	\$8,475
424690	Other Chemical and Allied Products Merchant Wholesalers	\$28,715	\$0	\$0	\$0	\$0	\$28,715
424710	Petroleum Bulk Stations and Terminals	\$13,649	\$0	\$0	\$0	\$0	\$13,649
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	\$7,426	\$0	\$0	\$0	\$0	\$7,426
424910	Farm Supplies Merchant Wholesalers	\$26,634	\$0	\$0	-\$14,911,683	\$0	-\$14,885,049
424950	Paint, Varnish, and Supplies Merchant Wholesalers	\$5,100	\$0	\$0	-\$3,538,387	\$0	-\$3,533,287
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	\$27,823	\$0	\$0	\$0	\$0	\$27,823
Total	Total	\$735,894	\$120,158	\$3,529,921	-\$29,847,846	-\$1,291,839	-\$26,753,711

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

[a] Figures in this column present the sum of the costs for chemical reclassification and requirements in the appendices to the standard addressing precautionary statements and other mandatory language.

Note: Figures reported for individual NAICS code and cost category may not add to totals due to rounding.

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Estimation of Compliance Costs and Cost Savings

The remainder of this section explains how OSHA calculated the estimated compliance costs and cost savings arising from the proposed rule by describing the data and methodology used.

The major elements of the proposed revisions to the HCS that involve compliance costs or cost savings are (1) the cost of revising SDSs and labels for select hazardous chemicals to reflect chemical reclassifications (per proposed changes to appendix B) and to conform to language criteria in precautionary statements and other mandatory language (per proposed changes to appendices C and D); (2) the cost of management familiarization and other management-related costs necessary to ensure compliance with the revised standard (associated with all of the proposed revisions to the standard); (3) the cost of training employees as necessitated by the proposed changes to the HCS (see existing 29 CFR 1910.1200(h)(1)); (4) cost savings from the new released-for-shipment provision (proposed revisions to 29 CFR 1910.1200(f)(11)); and (5) cost savings from limiting labeling requirements for certain very small containers (proposed 29 CFR 1910.1200(f)(12)).

The estimated compliance costs and cost savings presented in this analysis of the proposed revisions to the HCS are based partly on analysis conducted in support of the 2012 HCS final rule (77 FR 17605–17683) and partly on new analysis prepared with the assistance of OSHA's contractor, ERG.

The estimated costs of compliance with most provisions of the proposed rule involve wages paid for the labor hours required to fulfill the requirements. In some cases, compliance could be achieved by purchasing services or products in lieu of paying employees directly. The estimated compliance costs are intended to capture the resources required for compliance regardless of how individual establishments may choose to achieve compliance.

With the exception of the proposed revision to the standard addressing precautionary statements and other mandatory language, for this cost analysis OSHA estimated a baseline compliance of zero percent. The agency's estimate of baseline compliance for the revisions in appendices C and D addressing precautionary statements and other mandatory language are discussed below in the section, Revisions to SDSs

and Labels Due to Revised Precautionary Statements.

Costs Associated With Reclassifications and Revisions to Safety Data Sheets and Labels

The proposed revisions to the HCS will not change the existing requirement for firms that sell hazardous chemicals to employers to provide information about the associated hazards. Information must be presented in an SDS in the format specified in the standard, and some information must also be presented on product labels. The proposed rule would require affected chemical manufacturers to revise SDSs and labels for select hazardous chemicals to reflect chemical reclassifications (appendix B) and to conform to language criteria in precautionary statements and other mandatory language (appendices C and D). Revisions to SDSs and labels would be required under provisions in the existing HCS, which require chemical manufacturers and importers to update SDSs and labels within three months and six months, respectively, of becoming aware of significant new information regarding the hazards of the chemicals they produce or import (see 29 CFR 1910.1200(f)(11), (g)(5)).

It is OSHA's understanding that chemical manufacturers and importers periodically review, revise, and update the electronic templates they use to create SDSs and labels. Changes are made, for example, as information regarding specific hazards becomes available, new information about protective measures is ascertained, or revisions are made to product information and marketing materials. Labels and SDSs are also produced and modified when products are first introduced to the market or when products change. Therefore, there is a regular cycle of change for these documents (see 77 FR 17634–17637 in the FEA of the 2012 final rule for a discussion of factors that compel employers to update SDSs and labels voluntarily). The proposed rule would require limited changes to some SDSs and labels. Given the phase-in period for the proposed changes to the standard,³¹ OSHA expects that chemical manufacturers and importers would be able to phase in revisions to their labels

and SDSs in accordance with the normal cycle of change, and therefore would not need to replace existing labels or SDSs. OSHA requests comments on this preliminary assumption.

OSHA has, however, estimated costs for the time it will take to update the electronic files that will be used to generate new SDSs and labels in accordance with the proposed revisions to the HCS. OSHA developed cost estimates based on the methodology used in its FEA in support of the 2012 HCS final rule (77 FR 17634–17637). The estimated compliance costs represent the incremental costs that would be incurred to achieve compliance with the proposed rule. These estimated costs, shown below in Tables VII–13 and VII–14, would be in addition to the costs that already need to be incurred to comply with applicable requirements of the existing HCS and represent the time it would take to identify the changes that need to be made to the relevant computer files (*i.e.*, the files that are used to generate SDSs and labels) and then to make those changes.

Producers of affected chemicals already have an obligation, under the existing HCS, to ensure that the information provided in their SDSs and labels is accurate and current (29 CFR 1910.1200(f)(2) and (g)(5)). They also are generally required to revise SDSs and labels in accordance with new information regarding hazards that may be associated with their products (29 CFR 1910.1200(f)(11) and (g)(5)). For every affected product that is newly created, reformulated, mixed with new ingredients, modified with new or different types of additives, or has any changes made in the proportions of the ingredients used, chemical manufacturers and importers are required, under the existing HCS, to review the available hazard information (29 CFR 1910.1200(d)(2)), to classify the chemical in accordance with applicable hazard criteria (29 CFR 1910.1200(d)(1)), and to develop corresponding SDSs (29 CFR 1910.1200(g)) and labels (29 CFR 1910.1200(f)). OSHA is not estimating costs for activities already required; rather, the agency is estimating costs for activities that would be newly conducted in conformance with the proposed revisions to chemical reclassifications (appendix B) and language criteria in precautionary statements and other mandatory language (appendices C and D).

³¹ OSHA proposes that the revisions become effective 60 days after publication (paragraph (j)(1)) and that chemical manufacturers, importers, and distributors evaluating substances comply with all modified provisions within one year after the effective date (paragraph (j)(2)). OSHA also proposes that chemical manufacturers, importers, and distributors evaluating mixtures comply with all modified provisions within two years after the effective date (paragraph (j)(3)).

Revisions to SDSs and Labels Due to Chemical Reclassification

The NAICS industries listed in Columns 1 and 2 of Table VII-13 are those that OSHA expects would manufacture aerosols, desensitized explosives, or flammable gases. Of course, not all chemicals covered in

these NAICS industries are aerosols, desensitized explosives, or flammable gases. Column 3 of Table VII-13 reflects OSHA's judgment that approximately 50 percent of the SDSs (or more specifically, 50 percent of the electronic templates (files) that are used to produce SDSs and labels) in these NAICS industries would be affected by

the proposed requirements for aerosols, desensitized explosives, and flammable gases. OSHA invites public comments on its preliminary projection that 50 percent of the electronic files for SDSs and labels would be affected in these industries.

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Table VII-13: Total Costs Associated with Chemical Reclassifications and Related Revisions to Safety Data Sheets and Labels under the Proposed Revisions to the HCS (2019 Dollars)

NAICS	NAICS Industry	Percentage Affected	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Total One-Time Cost	Total Annualized Cost (7%)
SDSs at Establishments with < 20 Employees							
211130	Natural Gas Extraction	50%	1,165	1.75	\$101.51	\$118,257	\$16,837
324110	Petroleum Refineries	50%	55	1.75	\$101.51	\$5,583	\$795
325110	Petrochemical Manufacturing	50%	35	1.75	\$101.51	\$3,553	\$506
325120	Industrial Gas Manufacturing	50%	39	1.75	\$101.51	\$3,959	\$564
325320	Pesticide and Other Agricultural Chemical Manufacturing	50%	413	1.75	\$101.51	\$41,923	\$5,969
325412	Pharmaceutical Preparation Manufacturing	50%	1,460	1.75	\$101.51	\$148,202	\$21,101
325510	Paint and Coating Manufacturing	50%	1,715	1.75	\$101.51	\$174,086	\$24,786
325520	Adhesive Manufacturing	50%	535	1.75	\$101.51	\$54,307	\$7,732
325611	Soap and Other Detergent Manufacturing	50%	1,135	1.75	\$101.51	\$115,212	\$16,404
325612	Polish and Other Sanitation Good Manufacturing	50%	291	1.75	\$101.51	\$29,539	\$4,206
325613	Surface Active Agent Manufacturing	50%	148	1.75	\$101.51	\$14,972	\$2,132
325620	Toilet Preparation Manufacturing	50%	624	1.75	\$101.51	\$63,341	\$9,018
325920	Explosives Manufacturing	50%	19	1.75	\$101.51	\$1,929	\$275
Subtotal		-	7,634	1.75	\$101.51	\$774,861	\$110,323
SDSs at Establishments with 20-99 Employees							
211130	Natural Gas Extraction	50%	728	1.75	\$101.51	\$73,847	\$10,514
324110	Petroleum Refineries	50%	75	1.75	\$101.51	\$7,613	\$1,084
325110	Petrochemical Manufacturing	50%	0	1.75	\$101.51	\$0	\$0
325120	Industrial Gas Manufacturing	50%	6	1.75	\$101.51	\$609	\$87
325320	Pesticide and Other Agricultural Chemical Manufacturing	50%	203	1.75	\$101.51	\$20,555	\$2,927
325412	Pharmaceutical Preparation Manufacturing	50%	970	1.75	\$101.51	\$98,463	\$14,019
325510	Paint and Coating Manufacturing	50%	2,080	1.75	\$101.51	\$211,137	\$30,061
325520	Adhesive Manufacturing	50%	1,605	1.75	\$101.51	\$162,920	\$23,196
325611	Soap and Other Detergent Manufacturing	50%	728	1.75	\$101.51	\$73,847	\$10,514
325612	Polish and Other Sanitation Good Manufacturing	50%	503	1.75	\$101.51	\$51,008	\$7,262
325613	Surface Active Agent Manufacturing	50%	180	1.75	\$101.51	\$18,271	\$2,601
325620	Toilet Preparation Manufacturing	50%	1,880	1.75	\$101.51	\$190,835	\$27,171
325920	Explosives Manufacturing	50%	40	1.75	\$101.51	\$4,060	\$578
Subtotal		-	8,996	1.75	\$101.51	\$913,166	\$130,014
SDSs at Establishments with 100-499 Employees							
211130	Natural Gas Extraction	50%	525	1.25	\$72.51	\$38,065	\$5,420
324110	Petroleum Refineries	50%	675	1.25	\$72.51	\$48,941	\$6,968

Table VII-13: Total Costs Associated with Chemical Reclassifications and Related Revisions to Safety Data Sheets and Labels under the Proposed Revisions to the HCS (2019 Dollars)

NAICS	NAICS Industry	Percentage Affected	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Total One-Time Cost	Total Annualized Cost (7%)
325110	Petrochemical Manufacturing	50%	188	1.25	\$72.51	\$13,595	\$1,936
325120	Industrial Gas Manufacturing	50%	23	1.25	\$72.51	\$1,631	\$232
325320	Pesticide and Other Agricultural Chemical Manufacturing	50%	450	1.25	\$72.51	\$32,628	\$4,645
325412	Pharmaceutical Preparation Manufacturing	50%	1,110	1.25	\$72.51	\$80,481	\$11,459
325510	Paint and Coating Manufacturing	50%	8,175	1.25	\$72.51	\$592,734	\$84,392
325520	Adhesive Manufacturing	50%	2,310	1.25	\$72.51	\$167,488	\$23,847
325611	Soap and Other Detergent Manufacturing	50%	1,350	1.25	\$72.51	\$97,883	\$13,936
325612	Polish and Other Sanitation Good Manufacturing	50%	1,425	1.25	\$72.51	\$103,321	\$14,711
325613	Surface Active Agent Manufacturing	50%	400	1.25	\$72.51	\$29,002	\$4,129
325620	Toilet Preparation Manufacturing	50%	1,975	1.25	\$72.51	\$143,199	\$20,388
325920	Explosives Manufacturing	50%	213	1.25	\$72.51	\$15,407	\$2,194
Subtotal		—	18,818	1.25	\$72.51	\$1,364,376	\$194,256
SDSs at Establishments with 500+ Employees							
211130	Natural Gas Extraction	50%	5,488	0.75	\$43.50	\$238,725	\$33,989
324110	Petroleum Refineries	50%	9,075	0.75	\$43.50	\$394,794	\$56,210
325110	Petrochemical Manufacturing	50%	1,815	0.75	\$43.50	\$78,959	\$11,242
325120	Industrial Gas Manufacturing	50%	2,250	0.75	\$43.50	\$97,883	\$13,936
325320	Pesticide and Other Agricultural Chemical Manufacturing	50%	1,404	0.75	\$43.50	\$61,079	\$8,696
325412	Pharmaceutical Preparation Manufacturing	50%	4,425	0.75	\$43.50	\$192,503	\$27,408
325510	Paint and Coating Manufacturing	50%	26,675	0.75	\$43.50	\$1,160,454	\$165,223
325520	Adhesive Manufacturing	50%	10,320	0.75	\$43.50	\$448,955	\$63,921
325611	Soap and Other Detergent Manufacturing	50%	5,250	0.75	\$43.50	\$228,393	\$32,518
325612	Polish and Other Sanitation Good Manufacturing	50%	3,225	0.75	\$43.50	\$140,299	\$19,975
325613	Surface Active Agent Manufacturing	50%	1,900	0.75	\$43.50	\$82,657	\$11,768
325620	Toilet Preparation Manufacturing	50%	4,650	0.75	\$43.50	\$202,291	\$28,802
325920	Explosives Manufacturing	50%	1,100	0.75	\$43.50	\$47,854	\$6,813
Subtotal		—	77,577	0.75	\$43.50	\$3,374,843	\$480,502
Total/Average							
211130	Natural Gas Extraction	50%	7,905	1.02	\$59.32	\$468,894	\$66,760
324110	Petroleum Refineries	50%	9,880	0.80	\$46.25	\$456,931	\$65,057
325110	Petrochemical Manufacturing	50%	2,038	0.81	\$47.17	\$96,106	\$13,683
325120	Industrial Gas Manufacturing	50%	2,318	0.77	\$44.91	\$104,082	\$14,819
325320	Pesticide and Other Agricultural Chemical Manufacturing	50%	2,470	1.09	\$63.25	\$156,185	\$22,237

Table VII-13: Total Costs Associated with Chemical Reclassifications and Related Revisions to Safety Data Sheets and Labels under the Proposed Revisions to the HCS (2019 Dollars)

NAICS	NAICS Industry	Percentage Affected	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Total One-Time Cost	Total Annualized Cost (7%)
325412	Pharmaceutical Preparation Manufacturing	50%	7,965	1.12	\$65.24	\$519,648	\$73,986
325510	Paint and Coating Manufacturing	50%	38,645	0.95	\$55.33	\$2,138,411	\$304,462
325520	Adhesive Manufacturing	50%	14,770	0.97	\$56.44	\$833,671	\$118,696
325611	Soap and Other Detergent Manufacturing	50%	8,463	1.05	\$60.90	\$515,334	\$73,372
325612	Polish and Other Sanitation Good Manufacturing	50%	5,444	1.03	\$59.55	\$324,166	\$46,154
325613	Surface Active Agent Manufacturing	50%	2,628	0.95	\$55.15	\$144,903	\$20,631
325620	Toilet Preparation Manufacturing	50%	9,129	1.13	\$65.69	\$599,666	\$85,379
325920	Explosives Manufacturing	50%	1,372	0.87	\$50.49	\$69,250	\$9,860
Total		—	113,024	0.98	\$56.87	\$6,427,247	\$915,095

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

Note: Figures may not add to totals due to rounding.

OSHA derived the number of directly affected electronic files for SDSs and

labels in Column 4 of Table VII-13 by applying the 50 percent factor to the

overall number of affected SDSs (electronic files) from Table VII-5. For

example, in NAICS 211130, Table VII-5 shows the overall number of affected SDSs (technically, the number of electronic files) is 15,810. Applying a factor of 50 percent, OSHA estimated that 7,905 SDSs (electronic files) would be directly affected by the reclassification provision (see Table VII-13, NAICS 211130 within the section "Total/Average"). All of the estimates of directly affected SDSs (electronic files) presented in Table VII-13 are similarly derived from Table VII-5, but only those NAICS industries with affected SDSs (electronic files) are reported in Table VII-13.

The estimated compliance costs associated with the reclassification of hazards and related changes to SDSs and labels are directly related to the number of chemicals for which electronic files will need to be updated in order to prepare updated SDSs and labels. OSHA developed estimates of the number of potentially affected SDSs for each of the industries producing the corresponding chemicals and products (based on estimates of the total number of SDSs (and the supporting electronic files) by industry as shown in Table VII-5 of this PEA). OSHA expects downstream users, distributors, and wholesalers would continue to rely on SDSs and labels provided by manufacturers to fulfill their obligations under the OSHA standard, and would not incur costs associated with chemical reclassification under the proposed revisions to the HCS. It is OSHA's understanding that this has been the practice for decades.

Table VII-13 also contains estimates of the amount of time OSHA expects it will take to update electronic files for SDSs and labels under the proposed revisions to the standard. OSHA believes that the estimates provided in Table VII-13 are reasonable because they reflect only the incremental time needed to identify affected labels and SDSs (electronic files) and to update electronic files through modification of the templates that are used to prepare labels and SDSs, without allocating costs to any time that would be spent updating files in the absence of any revisions to the HCS.

OSHA also believes that the estimated time to update SDSs and labels

(electronic files) used in this analysis represents a reasonable average for most chemicals. In the FEA in support of the 2012 HCS final rule (77 FR 17635-17637), OSHA estimated that a Health and Safety Specialist would spend between three and seven hours per SDS requiring reclassification—with smaller entities, having fewer SDSs, incurring larger costs per SDS. The revisions to the HCS currently being proposed are significantly more limited in scope than the 2012 final rule, with fewer affected hazard categories and more limited changes; however, the proposed revisions to the standard still present opportunities for scale efficiencies in reclassification. As a result, OSHA estimates that a Health and Safety Specialist would spend about 25 percent as much time to reclassify a chemical as OSHA estimated for the 2012 HCS rule—depending on establishment size, from 0.75 hours to 1.75 hours per SDS (electronic file) requiring reclassification (1.75 hours per SDS for establishments with fewer than 100 employees; 1.25 hours per SDS for establishments with 100-499 employees; and 0.75 hours per SDS for establishments with 500 or more employees).³² At a loaded hourly wage (including overhead) of \$58.00 for a Health and Safety Specialist, this would result in unit costs of \$101.51, \$72.51, and \$43.50 per SDS for small, medium, and large establishments, respectively. Multiplying these unit costs by the estimated number of affected chemicals (*i.e.*, electronic files) and summing the totals yields an undiscounted one-time estimated cost of \$6.4 million for affected employers to comply with this provision. Annualizing this one-time cost using a 7 percent discount rate over a 10-year period results in estimated annualized costs of approximately \$915,095 for reclassification in accordance with the criteria specified in the proposed revisions to the HCS. OSHA invites interested parties to comment on these cost estimates and the assumptions underlying them.

Revisions to SDSs and Labels Due to Revised Precautionary Statements, etc.

The proposed revisions to the HCS would require establishments to revise their electronic templates for SDSs and

labels to conform to formatting and language criteria in precautionary statements and other mandatory language specified in appendices C and D. Under the proposed changes to the standard, affected establishments would have to update labels and SDSs for select hazardous chemicals to include updated signal word(s), hazard statement(s), pictogram(s), and precautionary statement(s) for each hazard class and associated hazard category (see existing 29 CFR 1910.1200(f) and (g)). The modification of SDSs and labels under the revisions proposed in appendices C and D would involve conforming to formatting and language standards, but would not require any additional testing, studies, or research. As previously stated, OSHA believes that chemical manufacturers and importers generally review, revise, and update their electronic templates for SDSs and labels periodically, such that there is a regular cycle of change for these documents.³³ The proposed changes to the appendices would require only limited changes to the electronic content of SDSs and labels, and, as explained previously, OSHA expects that the phase-in period for the proposed changes to the standard would allow chemical manufacturers and importers to take advantage of the normal cycle of change to phase in the revisions to their labels and SDSs, and therefore that it would not be necessary to replace existing labels or SDSs.³⁴ OSHA requests comments on this preliminary assumption.

The estimated compliance costs for revising electronic templates for SDSs and labels to conform to formatting and language criteria in precautionary statements and other mandatory language specified in the proposed revisions to appendices C and D represent the incremental costs that would be incurred to achieve compliance with the proposed changes to the appendices. These estimated costs, shown below in Table VII-14, would be in addition to the costs that are already incurred to comply with applicable requirements of the existing HCS.

³² Note that OSHA estimated no baseline compliance for chemical manufacturers already having revised electronic files to reflect reclassified chemicals as specified in the proposed rule; the current HCS does not allow SDSs or labels to display chemical classifications that are not in conformance with the current rule.

³³ See discussion in the 2012 preamble (77 FR 17634).

³⁴ OSHA proposes that the revisions become effective 60 days after publication (paragraph (j)(1)) and that chemical manufacturers, importers, and distributors evaluating substances comply with all

modified provisions within one year after the effective date (paragraph (j)(2)). OSHA also proposes that chemical manufacturers, importers, and distributors evaluating mixtures comply with all modified provisions within two years after the effective date (paragraph (j)(3)).

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
SDSs at Establishments with < 20 Employees							
211120	Crude Petroleum Extraction	20,685	0.7	\$40.60	99%	\$831,478	\$118,384
211130	Natural Gas Extraction	2,330	0.7	\$40.60	99%	\$93,659	\$13,335
324110	Petroleum Refineries	110	0.7	\$40.60	99%	\$4,422	\$630
324121	Asphalt Paving Mixture and Block Manufacturing	2,380	0.7	\$40.60	99%	\$95,669	\$13,621
324122	Asphalt Shingle and Coating Materials Manufacturing	670	0.7	\$40.60	99%	\$26,932	\$3,835
324191	Petroleum Lubricating Oil and Grease Manufacturing	26,800	0.7	\$40.60	99%	\$1,077,284	\$153,381
324199	All Other Petroleum and Coal Products Manufacturing	380	0.7	\$40.60	99%	\$15,275	\$2,175
325110	Petrochemical Manufacturing	70	0.7	\$40.60	99%	\$2,814	\$401
325120	Industrial Gas Manufacturing	78	0.7	\$40.60	99%	\$3,135	\$446
325130	Synthetic Dye and Pigment Manufacturing	464	0.7	\$40.60	99%	\$18,651	\$2,656
325180	Other Basic Inorganic Chemical Manufacturing	584	0.7	\$40.60	99%	\$23,475	\$3,342
325193	Ethyl Alcohol Manufacturing	95	0.7	\$40.60	99%	\$3,819	\$544
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	140	0.7	\$40.60	99%	\$5,628	\$801
325199	All Other Basic Organic Chemical Manufacturing	1,827	0.7	\$40.60	99%	\$73,440	\$10,456
325211	Plastics Material and Resin Manufacturing	1,745	0.7	\$40.60	99%	\$70,144	\$9,987
325212	Synthetic Rubber Manufacturing	128	0.7	\$40.60	99%	\$5,145	\$733
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	40	0.7	\$40.60	99%	\$1,608	\$229
325311	Nitrogenous Fertilizer Manufacturing	101	0.7	\$40.60	99%	\$4,060	\$578
325312	Phosphatic Fertilizer Manufacturing	11	0.7	\$40.60	99%	\$442	\$63
325314	Fertilizer (Mixing Only) Manufacturing	474	0.7	\$40.60	99%	\$19,053	\$2,713
325320	Pesticide and Other Agricultural Chemical Manufacturing	826	0.7	\$40.60	99%	\$33,203	\$4,727
325411	Medicinal and Botanical Manufacturing	1,355	0.7	\$40.60	99%	\$54,467	\$7,755
325412	Pharmaceutical Preparation Manufacturing	2,920	0.7	\$40.60	99%	\$117,376	\$16,712
325413	In-Vitro Diagnostic Substance Manufacturing	930	0.7	\$40.60	99%	\$37,383	\$5,323
325414	Biological Product (except Diagnostic) Manufacturing	408	0.7	\$40.60	99%	\$16,400	\$2,335
325510	Paint and Coating Manufacturing	3,430	0.7	\$40.60	99%	\$137,876	\$19,630
325520	Adhesive Manufacturing	1,070	0.7	\$40.60	99%	\$43,011	\$6,124
325611	Soap and Other Detergent Manufacturing	2,270	0.7	\$40.60	99%	\$91,248	\$12,992
325612	Polish and Other Sanitation Good Manufacturing	582	0.7	\$40.60	99%	\$23,395	\$3,331
325613	Surface Active Agent Manufacturing	295	0.7	\$40.60	99%	\$11,858	\$1,688
325620	Toilet Preparation Manufacturing	1,248	0.7	\$40.60	99%	\$50,166	\$7,143

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
325910	Printing Ink Manufacturing	555	0.7	\$40.60	99%	\$22,309	\$3,176
325920	Explosives Manufacturing	38	0.7	\$40.60	99%	\$1,527	\$217
325991	Custom Compounding of Purchased Resins	358	0.7	\$40.60	99%	\$14,391	\$2,049
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	435	0.7	\$40.60	99%	\$17,486	\$2,490
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	3,560	0.7	\$40.60	99%	\$143,102	\$20,374
339112	Surgical and Medical Instrument Manufacturing	651	0.7	\$40.60	99%	\$26,168	\$3,726
339113	Surgical Appliance and Supplies Manufacturing	1,200	0.7	\$40.60	99%	\$48,237	\$6,868
339114	Dental Equipment and Supplies Manufacturing	469	0.7	\$40.60	99%	\$18,852	\$2,684
339115	Ophthalmic Goods Manufacturing	257	0.7	\$40.60	99%	\$10,331	\$1,471
339116	Dental Laboratories	5,301	0.7	\$40.60	99%	\$213,085	\$30,339
339910	Jewelry and Silverware Manufacturing	1,765	0.7	\$40.60	99%	\$70,948	\$10,101
339920	Sporting and Athletic Goods Manufacturing	1,293	0.7	\$40.60	99%	\$51,975	\$7,400
339930	Doll, Toy, and Game Manufacturing	434	0.7	\$40.60	99%	\$17,446	\$2,484
339940	Office Supplies (except Paper) Manufacturing	333	0.7	\$40.60	99%	\$13,386	\$1,906
339950	Sign Manufacturing	4,784	0.7	\$40.60	99%	\$192,303	\$27,380
339991	Gasket, Packing, and Sealing Device Manufacturing	294	0.7	\$40.60	99%	\$11,818	\$1,683
339992	Musical Instrument Manufacturing	504	0.7	\$40.60	99%	\$20,259	\$2,884
339993	Fastener, Button, Needle, and Pin Manufacturing	76	0.7	\$40.60	99%	\$3,055	\$435
339994	Broom, Brush, and Mop Manufacturing	96	0.7	\$40.60	99%	\$3,859	\$549
339995	Burial Casket Manufacturing	60	0.7	\$40.60	99%	\$2,412	\$343
339999	All Other Miscellaneous Manufacturing	5,209	0.7	\$40.60	99%	\$209,387	\$29,812
Subtotal		102,118	0.7	\$40.60	99%	\$4,104,854	\$584,439
SDSs at Establishments with 20-99 Employees							
211120	Crude Petroleum Extraction	5,490	0.7	\$40.60	95%	\$211,766	\$30,151
211130	Natural Gas Extraction	1,455	0.7	\$40.60	95%	\$56,124	\$7,991
324110	Petroleum Refineries	150	0.7	\$40.60	95%	\$5,786	\$824
324121	Asphalt Paving Mixture and Block Manufacturing	4,770	0.7	\$40.60	95%	\$183,993	\$26,197
324122	Asphalt Shingle and Coating Materials Manufacturing	1,020	0.7	\$40.60	95%	\$39,344	\$5,602
324191	Petroleum Lubricating Oil and Grease Manufacturing	72,000	0.7	\$40.60	95%	\$2,777,259	\$395,419
324199	All Other Petroleum and Coal Products Manufacturing	240	0.7	\$40.60	95%	\$9,258	\$1,318
325110	Petrochemical Manufacturing	0	0.7	\$40.60	95%	\$0	\$0
325120	Industrial Gas Manufacturing	12	0.7	\$40.60	95%	\$463	\$66

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
325130	Synthetic Dye and Pigment Manufacturing	420	0.7	\$40.60	95%	\$16,201	\$2,307
325180	Other Basic Inorganic Chemical Manufacturing	528	0.7	\$40.60	95%	\$20,367	\$2,900
325193	Ethyl Alcohol Manufacturing	660	0.7	\$40.60	95%	\$25,458	\$3,625
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	180	0.7	\$40.60	95%	\$6,943	\$989
325199	All Other Basic Organic Chemical Manufacturing	2,295	0.7	\$40.60	95%	\$88,525	\$12,604
325211	Plastics Material and Resin Manufacturing	6,204	0.7	\$40.60	95%	\$239,307	\$34,072
325212	Synthetic Rubber Manufacturing	150	0.7	\$40.60	95%	\$5,786	\$824
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	26	0.7	\$40.60	95%	\$1,003	\$143
325311	Nitrogenous Fertilizer Manufacturing	41	0.7	\$40.60	95%	\$1,581	\$225
325312	Phosphatic Fertilizer Manufacturing	9	0.7	\$40.60	95%	\$347	\$49
325314	Fertilizer (Mixing Only) Manufacturing	500	0.7	\$40.60	95%	\$19,287	\$2,746
325320	Pesticide and Other Agricultural Chemical Manufacturing	405	0.7	\$40.60	95%	\$15,622	\$2,224
325411	Medicinal and Botanical Manufacturing	970	0.7	\$40.60	95%	\$37,416	\$5,327
325412	Pharmaceutical Preparation Manufacturing	1,940	0.7	\$40.60	95%	\$74,832	\$10,654
325413	In-Vitro Diagnostic Substance Manufacturing	980	0.7	\$40.60	95%	\$37,802	\$5,382
325414	Biological Product (except Diagnostic) Manufacturing	290	0.7	\$40.60	95%	\$11,186	\$1,593
325510	Paint and Coating Manufacturing	4,160	0.7	\$40.60	95%	\$160,464	\$22,846
325520	Adhesive Manufacturing	3,210	0.7	\$40.60	95%	\$123,819	\$17,629
325611	Soap and Other Detergent Manufacturing	1,455	0.7	\$40.60	95%	\$56,124	\$7,991
325612	Polish and Other Sanitation Good Manufacturing	1,005	0.7	\$40.60	95%	\$38,766	\$5,519
325613	Surface Active Agent Manufacturing	360	0.7	\$40.60	95%	\$13,886	\$1,977
325620	Toilet Preparation Manufacturing	3,760	0.7	\$40.60	95%	\$145,035	\$20,650
325910	Printing Ink Manufacturing	1,200	0.7	\$40.60	95%	\$46,288	\$6,590
325920	Explosives Manufacturing	80	0.7	\$40.60	95%	\$3,086	\$439
325991	Custom Compounding of Purchased Resins	410	0.7	\$40.60	95%	\$15,815	\$2,252
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	250	0.7	\$40.60	95%	\$9,643	\$1,373
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	6,030	0.7	\$40.60	95%	\$232,595	\$33,116
339112	Surgical and Medical Instrument Manufacturing	454	0.7	\$40.60	95%	\$17,512	\$2,493
339113	Surgical Appliance and Supplies Manufacturing	658	0.7	\$40.60	95%	\$25,381	\$3,614
339114	Dental Equipment and Supplies Manufacturing	102	0.7	\$40.60	95%	\$3,934	\$560
339115	Ophthalmic Goods Manufacturing	90	0.7	\$40.60	95%	\$3,472	\$494
339116	Dental Laboratories	650	0.7	\$40.60	95%	\$25,072	\$3,570

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
339910	Jewelry and Silverware Manufacturing	334	0.7	\$40.60	95%	\$12,883	\$1,834
339920	Sporting and Athletic Goods Manufacturing	428	0.7	\$40.60	95%	\$16,509	\$2,351
339930	Doll, Toy, and Game Manufacturing	110	0.7	\$40.60	95%	\$4,243	\$604
339940	Office Supplies (except Paper) Manufacturing	132	0.7	\$40.60	95%	\$5,092	\$725
339950	Sign Manufacturing	1,416	0.7	\$40.60	95%	\$54,619	\$7,777
339991	Gasket, Packing, and Sealing Device Manufacturing	256	0.7	\$40.60	95%	\$9,875	\$1,406
339992	Musical Instrument Manufacturing	126	0.7	\$40.60	95%	\$4,860	\$692
339993	Fastener, Button, Needle, and Pin Manufacturing	32	0.7	\$40.60	95%	\$1,234	\$176
339994	Broom, Brush, and Mop Manufacturing	94	0.7	\$40.60	95%	\$3,626	\$516
339995	Burial Casket Manufacturing	36	0.7	\$40.60	95%	\$1,389	\$198
339999	All Other Miscellaneous Manufacturing	888	0.7	\$40.60	95%	\$34,253	\$4,877
Subtotal		128,461	0.7	\$40.60	95%	\$4,955,131	\$705,499
SDSs at Establishments with 100-499 Employees							
211120	Crude Petroleum Extraction	2,640	0.5	\$29.00	75%	\$57,425	\$8,176
211130	Natural Gas Extraction	1,050	0.5	\$29.00	75%	\$22,839	\$3,252
324110	Petroleum Refineries	1,350	0.5	\$29.00	75%	\$29,365	\$4,181
324121	Asphalt Paving Mixture and Block Manufacturing	18,525	0.5	\$29.00	75%	\$402,950	\$57,371
324122	Asphalt Shingle and Coating Materials Manufacturing	1,950	0.5	\$29.00	75%	\$42,416	\$6,039
324191	Petroleum Lubricating Oil and Grease Manufacturing	123,000	0.5	\$29.00	75%	\$2,675,461	\$380,925
324199	All Other Petroleum and Coal Products Manufacturing	1,425	0.5	\$29.00	75%	\$30,996	\$4,413
325110	Petrochemical Manufacturing	375	0.5	\$29.00	75%	\$8,157	\$1,161
325120	Industrial Gas Manufacturing	45	0.5	\$29.00	75%	\$979	\$139
325130	Synthetic Dye and Pigment Manufacturing	480	0.5	\$29.00	75%	\$10,441	\$1,487
325180	Other Basic Inorganic Chemical Manufacturing	1,152	0.5	\$29.00	75%	\$25,058	\$3,568
325193	Ethyl Alcohol Manufacturing	800	0.5	\$29.00	75%	\$17,401	\$2,478
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	90	0.5	\$29.00	75%	\$1,958	\$279
325199	All Other Basic Organic Chemical Manufacturing	3,300	0.5	\$29.00	75%	\$71,781	\$10,220
325211	Plastics Material and Resin Manufacturing	15,130	0.5	\$29.00	75%	\$329,103	\$46,857
325212	Synthetic Rubber Manufacturing	230	0.5	\$29.00	75%	\$5,003	\$712
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	54	0.5	\$29.00	75%	\$1,175	\$167
325311	Nitrogenous Fertilizer Manufacturing	26	0.5	\$29.00	75%	\$566	\$81
325312	Phosphatic Fertilizer Manufacturing	36	0.5	\$29.00	75%	\$783	\$111

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
325314	Fertilizer (Mixing Only) Manufacturing	1,080	0.5	\$29,000	75%	\$23,492	\$3,345
325320	Pesticide and Other Agricultural Chemical Manufacturing	900	0.5	\$29,000	75%	\$19,577	\$2,787
325411	Medicinal and Botanical Manufacturing	1,035	0.5	\$29,000	75%	\$22,513	\$3,205
325412	Pharmaceutical Preparation Manufacturing	2,220	0.5	\$29,000	75%	\$48,289	\$6,875
325413	In-Vitro Diagnostic Substance Manufacturing	3,200	0.5	\$29,000	75%	\$69,605	\$9,910
325414	Biological Product (except Diagnostic) Manufacturing	300	0.5	\$29,000	75%	\$6,526	\$929
325510	Paint and Coating Manufacturing	16,350	0.5	\$29,000	75%	\$355,640	\$50,635
325520	Adhesive Manufacturing	4,620	0.5	\$29,000	75%	\$100,493	\$14,308
325611	Soap and Other Detergent Manufacturing	2,700	0.5	\$29,000	75%	\$58,730	\$8,362
325612	Polish and Other Sanitation Good Manufacturing	2,850	0.5	\$29,000	75%	\$61,992	\$8,826
325613	Surface Active Agent Manufacturing	800	0.5	\$29,000	75%	\$17,401	\$2,478
325620	Toilet Preparation Manufacturing	3,950	0.5	\$29,000	75%	\$85,919	\$12,233
325910	Printing Ink Manufacturing	8,232	0.5	\$29,000	75%	\$179,060	\$25,494
325920	Explosives Manufacturing	425	0.5	\$29,000	75%	\$9,244	\$1,316
325991	Custom Compounding of Purchased Resins	510	0.5	\$29,000	75%	\$11,093	\$1,579
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	90	0.5	\$29,000	75%	\$1,958	\$279
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	8,625	0.5	\$29,000	75%	\$187,609	\$26,711
339112	Surgical and Medical Instrument Manufacturing	555	0.5	\$29,000	75%	\$12,072	\$1,719
339113	Surgical Appliance and Supplies Manufacturing	750	0.5	\$29,000	75%	\$16,314	\$2,323
339114	Dental Equipment and Supplies Manufacturing	140	0.5	\$29,000	75%	\$3,045	\$434
339115	Ophthalmic Goods Manufacturing	80	0.5	\$29,000	75%	\$1,740	\$248
339116	Dental Laboratories	280	0.5	\$29,000	75%	\$6,090	\$867
339910	Jewelry and Silverware Manufacturing	160	0.5	\$29,000	75%	\$3,480	\$496
339920	Sporting and Athletic Goods Manufacturing	355	0.5	\$29,000	75%	\$7,722	\$1,099
339930	Doll, Toy, and Game Manufacturing	70	0.5	\$29,000	75%	\$1,523	\$217
339940	Office Supplies (except Paper) Manufacturing	135	0.5	\$29,000	75%	\$2,936	\$418
339950	Sign Manufacturing	880	0.5	\$29,000	75%	\$19,142	\$2,725
339991	Gasket, Packing, and Sealing Device Manufacturing	235	0.5	\$29,000	75%	\$5,112	\$728
339992	Musical Instrument Manufacturing	105	0.5	\$29,000	75%	\$2,284	\$325
339993	Fastener, Button, Needle, and Pin Manufacturing	35	0.5	\$29,000	75%	\$761	\$108
339994	Broom, Brush, and Mop Manufacturing	85	0.5	\$29,000	75%	\$1,849	\$263
339995	Burial Casket Manufacturing	35	0.5	\$29,000	75%	\$761	\$108

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
339999	All Other Miscellaneous Manufacturing	360	0.5	\$29,000	75%	\$7,831	\$1,115
Subtotal		233,805	0.5	\$29,000	75%	\$5,085,659	\$724,083
SDSs at Establishments with 500+ Employees							
211120	Crude Petroleum Extraction	16,350	0.3	\$17,400	25%	\$71,128	\$10,127
211130	Natural Gas Extraction	10,975	0.3	\$17,400	25%	\$47,745	\$6,798
324110	Petroleum Refineries	18,150	0.3	\$17,400	25%	\$78,959	\$11,242
324121	Asphalt Paving Mixture and Block Manufacturing	107,550	0.3	\$17,400	25%	\$467,879	\$66,615
324122	Asphalt Shingle and Coating Materials Manufacturing	13,500	0.3	\$17,400	25%	\$58,730	\$8,362
324191	Petroleum Lubricating Oil and Grease Manufacturing	466,891	0.3	\$17,400	25%	\$2,031,135	\$289,188
324199	All Other Petroleum and Coal Products Manufacturing	2,850	0.3	\$17,400	25%	\$12,398	\$1,765
325110	Petrochemical Manufacturing	3,630	0.3	\$17,400	25%	\$15,792	\$2,248
325120	Industrial Gas Manufacturing	4,500	0.3	\$17,400	25%	\$19,577	\$2,787
325130	Synthetic Dye and Pigment Manufacturing	2,200	0.3	\$17,400	25%	\$9,571	\$1,363
325180	Other Basic Inorganic Chemical Manufacturing	2,480	0.3	\$17,400	25%	\$10,789	\$1,536
325193	Ethyl Alcohol Manufacturing	3,400	0.3	\$17,400	25%	\$14,791	\$2,106
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	3,225	0.3	\$17,400	25%	\$14,030	\$1,998
325199	All Other Basic Organic Chemical Manufacturing	21,750	0.3	\$17,400	25%	\$94,620	\$13,472
325211	Plastics Material and Resin Manufacturing	81,000	0.3	\$17,400	25%	\$352,378	\$50,171
325212	Synthetic Rubber Manufacturing	1,295	0.3	\$17,400	25%	\$5,634	\$802
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	78	0.3	\$17,400	25%	\$339	\$48
325311	Nitrogenous Fertilizer Manufacturing	94	0.3	\$17,400	25%	\$409	\$58
325312	Phosphatic Fertilizer Manufacturing	66	0.3	\$17,400	25%	\$287	\$41
325314	Fertilizer (Mixing Only) Manufacturing	1,600	0.3	\$17,400	25%	\$6,961	\$991
325320	Pesticide and Other Agricultural Chemical Manufacturing	2,808	0.3	\$17,400	25%	\$12,216	\$1,739
325411	Medicinal and Botanical Manufacturing	1,375	0.3	\$17,400	25%	\$5,982	\$852
325412	Pharmaceutical Preparation Manufacturing	8,850	0.3	\$17,400	25%	\$38,501	\$5,482
325413	In-Vitro Diagnostic Substance Manufacturing	21,861	0.3	\$17,400	25%	\$95,103	\$13,541
325414	Biological Product (except Diagnostic) Manufacturing	2,340	0.3	\$17,400	25%	\$10,180	\$1,449
325510	Paint and Coating Manufacturing	53,350	0.3	\$17,400	25%	\$232,091	\$33,045
325520	Adhesive Manufacturing	20,640	0.3	\$17,400	25%	\$89,791	\$12,784
325611	Soap and Other Detergent Manufacturing	10,500	0.3	\$17,400	25%	\$45,679	\$6,504
325612	Polish and Other Sanitation Good Manufacturing	6,450	0.3	\$17,400	25%	\$28,060	\$3,995

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
325613	Surface Active Agent Manufacturing	3,800	0.3	\$17.40	25%	\$16,531	\$2,354
325620	Toilet Preparation Manufacturing	9,300	0.3	\$17.40	25%	\$40,458	\$5,760
325910	Printing Ink Manufacturing	24,750	0.3	\$17.40	25%	\$107,671	\$15,330
325920	Explosives Manufacturing	2,200	0.3	\$17.40	25%	\$9,571	\$1,363
325991	Custom Compounding of Purchased Resins	2,700	0.3	\$17.40	25%	\$11,746	\$1,672
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	700	0.3	\$17.40	25%	\$3,045	\$434
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	30,300	0.3	\$17.40	25%	\$131,815	\$18,768
339112	Surgical and Medical Instrument Manufacturing	1,225	0.3	\$17.40	25%	\$5,329	\$759
339113	Surgical Appliance and Supplies Manufacturing	940	0.3	\$17.40	25%	\$4,089	\$582
339114	Dental Equipment and Supplies Manufacturing	155	0.3	\$17.40	25%	\$674	\$96
339115	Ophthalmic Goods Manufacturing	875	0.3	\$17.40	25%	\$3,807	\$542
339116	Dental Laboratories	1,445	0.3	\$17.40	25%	\$6,286	\$895
339910	Jewelry and Silverware Manufacturing	110	0.3	\$17.40	25%	\$479	\$68
339920	Sporting and Athletic Goods Manufacturing	355	0.3	\$17.40	25%	\$1,544	\$220
339930	Doll, Toy, and Game Manufacturing	30	0.3	\$17.40	25%	\$131	\$19
339940	Office Supplies (except Paper) Manufacturing	115	0.3	\$17.40	25%	\$500	\$71
339950	Sign Manufacturing	295	0.3	\$17.40	25%	\$1,283	\$183
339991	Gasket, Packing, and Sealing Device Manufacturing	465	0.3	\$17.40	25%	\$2,023	\$288
339992	Musical Instrument Manufacturing	90	0.3	\$17.40	25%	\$392	\$56
339993	Fastener, Button, Needle, and Pin Manufacturing	55	0.3	\$17.40	25%	\$239	\$34
339994	Broom, Brush, and Mop Manufacturing	120	0.3	\$17.40	25%	\$522	\$74
339995	Burial Casket Manufacturing	60	0.3	\$17.40	25%	\$261	\$37
339999	All Other Miscellaneous Manufacturing	150	0.3	\$17.40	25%	\$653	\$93
Subtotal		969,993	0.3	\$17.40	25%	\$4,219,801	\$600,805
Total/Average							
211120	Crude Petroleum Extraction	45,165	0.5	\$31.53	82%	\$1,171,797	\$166,838
211130	Natural Gas Extraction	15,810	0.4	\$23.73	59%	\$220,367	\$31,375
324110	Petroleum Refineries	19,760	0.3	\$18.50	32%	\$118,531	\$16,876
324121	Asphalt Paving Mixture and Block Manufacturing	133,225	0.3	\$20.26	43%	\$1,150,492	\$163,804
324122	Asphalt Shingle and Coating Materials Manufacturing	17,140	0.4	\$21.01	46%	\$167,422	\$23,837
324191	Petroleum Lubricating Oil and Grease Manufacturing	688,691	0.4	\$22.80	55%	\$8,561,138	\$1,218,913
324199	All Other Petroleum and Coal Products Manufacturing	4,895	0.4	\$23.72	59%	\$67,927	\$9,671

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
325110	Petrochemical Manufacturing	4,075	0.3	\$18.87	35%	\$26,762	\$3,810
325120	Industrial Gas Manufacturing	4,635	0.3	\$17.96	29%	\$24,154	\$3,439
325130	Synthetic Dye and Pigment Manufacturing	3,564	0.4	\$24.72	62%	\$54,864	\$7,811
325180	Other Basic Inorganic Chemical Manufacturing	4,744	0.4	\$25.66	65%	\$79,689	\$11,346
325193	Ethyl Alcohol Manufacturing	4,955	0.4	\$22.81	54%	\$61,469	\$8,752
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	3,635	0.3	\$19.73	40%	\$28,558	\$4,066
325199	All Other Basic Organic Chemical Manufacturing	29,172	0.4	\$21.99	51%	\$328,366	\$46,752
325211	Plastics Material and Resin Manufacturing	104,079	0.4	\$20.86	46%	\$990,932	\$141,086
325212	Synthetic Rubber Manufacturing	1,803	0.4	\$22.46	53%	\$21,568	\$3,071
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	198	0.5	\$28.30	74%	\$4,125	\$587
325311	Nitrogenous Fertilizer Manufacturing	262	0.5	\$31.13	81%	\$6,616	\$942
325312	Phosphatic Fertilizer Manufacturing	122	0.4	\$24.63	62%	\$1,860	\$265
325314	Fertilizer (Mixing Only) Manufacturing	3,654	0.5	\$27.01	70%	\$68,792	\$9,794
325320	Pesticide and Other Agricultural Chemical Manufacturing	4,939	0.4	\$25.30	65%	\$80,617	\$11,478
325411	Medicinal and Botanical Manufacturing	4,735	0.5	\$31.33	81%	\$120,378	\$17,139
325412	Pharmaceutical Preparation Manufacturing	15,930	0.4	\$26.10	67%	\$278,997	\$39,723
325413	In-Vitro Diagnostic Substance Manufacturing	26,971	0.4	\$20.42	44%	\$239,893	\$34,155
325414	Biological Product (except Diagnostic) Manufacturing	3,338	0.4	\$23.30	57%	\$44,292	\$6,306
325510	Paint and Coating Manufacturing	77,290	0.4	\$22.13	52%	\$886,071	\$126,157
325520	Adhesive Manufacturing	29,540	0.4	\$22.58	54%	\$357,114	\$50,845
325611	Soap and Other Detergent Manufacturing	16,925	0.4	\$24.36	61%	\$251,780	\$35,848
325612	Polish and Other Sanitation Good Manufacturing	10,887	0.4	\$23.82	59%	\$152,213	\$21,672
325613	Surface Active Agent Manufacturing	5,255	0.4	\$22.06	51%	\$59,677	\$8,497
325620	Toilet Preparation Manufacturing	18,258	0.5	\$26.28	67%	\$321,578	\$45,785
325910	Printing Ink Manufacturing	34,737	0.4	\$21.32	48%	\$355,328	\$50,591
325920	Explosives Manufacturing	2,745	0.3	\$20.20	42%	\$23,429	\$3,336
325991	Custom Compounding of Purchased Resins	3,978	0.4	\$23.37	57%	\$53,045	\$7,552
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	1,475	0.5	\$28.88	75%	\$32,132	\$4,575
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	48,515	0.4	\$24.05	60%	\$695,121	\$98,970
339112	Surgical and Medical Instrument Manufacturing	2,885	0.5	\$28.52	74%	\$61,082	\$8,697
339113	Surgical Appliance and Supplies Manufacturing	3,548	0.6	\$32.00	83%	\$94,021	\$13,386
339114	Dental Equipment and Supplies Manufacturing	866	0.6	\$34.58	89%	\$26,506	\$3,774

Table VII-14: Total Costs Associated with Proposed Revisions to Appendix Language on Precautionary Statements and Other Mandatory Language (2019 Dollars)

NAICS	NAICS Industry	Affected Electronic Templates for SDSs/Labels	Hours per Electronic Template for SDS/Label	Unit cost of Health and Safety Specialist	Non-Compliance Rate	Total One-Time Cost	Total Annualized Cost (7%)
339115	Ophthalmic Goods Manufacturing	1,302	0.4	\$24.30	61%	\$19,349	\$2,755
339116	Dental Laboratories	7,676	0.6	\$35.81	91%	\$250,534	\$35,670
339910	Jewelry and Silverware Manufacturing	2,369	0.7	\$38.74	96%	\$87,790	\$12,499
339920	Sporting and Athletic Goods Manufacturing	2,431	0.6	\$35.52	90%	\$77,750	\$11,070
339930	Doll, Toy, and Game Manufacturing	644	0.7	\$38.26	95%	\$23,342	\$3,323
339940	Office Supplies (except Paper) Manufacturing	715	0.6	\$34.68	88%	\$21,914	\$3,120
339950	Sign Manufacturing	7,375	0.7	\$38.29	95%	\$267,348	\$38,064
339991	Gasket, Packing, and Sealing Device Manufacturing	1,250	0.5	\$29.79	77%	\$28,827	\$4,104
339992	Musical Instrument Manufacturing	825	0.6	\$36.60	92%	\$27,795	\$3,957
339993	Fastener, Button, Needle, and Pin Manufacturing	198	0.6	\$32.11	83%	\$5,290	\$753
339994	Broom, Brush, and Mop Manufacturing	395	0.5	\$31.06	80%	\$9,856	\$1,403
339995	Burial Casket Manufacturing	191	0.5	\$31.19	81%	\$4,823	\$687
339999	All Other Miscellaneous Manufacturing	6,607	0.7	\$39.44	97%	\$252,123	\$35,897
Subtotal		1,434,377	0.4	\$23.02	56%	\$18,365,445	\$2,614,826

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

Note: Figures may not add to totals due to rounding.

criteria in precautionary statements and other mandatory language specified in the proposed revisions to appendices C and D by NAICS industry and establishment size. The NAICS industries listed in Columns 1 and 2 of Table VII–14 are those that OSHA expects would need to update SDSs and labels under the proposed revisions to appendices C and D. The industries included are the ones OSHA identified as incurring costs for SDSs in the FEA in support of OSHA's 2012 HCS final rule (77 FR 17644–17650). The estimated costs associated with the proposed revisions to the appendices are directly related to the number of SDSs (or, in other words, the number of electronic templates) affected. These numbers were previously derived and presented in Tables VII–5, VII–6, and VII–7.³⁵

OSHA estimates that the time needed to revise electronic templates for labels and SDSs to comply with the proposed revisions to appendices C and D would vary by establishment size and would be equal to 10 percent of the unit time (from 3 to 7 hours per SDS (electronic template)) estimated in the 2012 FEA (77 FR 17635–17637), as the changes the proposed revisions would require are relatively minor in comparison to the types of changes costed in 2012.³⁶ As shown in Column 4 of Table VII–14, OSHA estimates that Health and Safety Specialists would spend 0.7 hours per SDS (electronic template) in small establishments with fewer than 100

³⁵ As described above in the discussion explaining Table VI–5, OSHA's estimate of the total number of SDSs per NAICS industry was developed to support the agency's FEA for the 2012 final standard. The analysis started with the number of SDSs per establishment by establishment size, as originally derived in the economic analysis in support of the 2009 proposed revisions to the HCS using a sampling of company websites and the SDSs posted there. (ERG, 2012, Document ID 0029). The analysis then combined the estimated number of SDSs per establishment by establishment size with the estimated number of establishments to estimate the weighted average number of SDSs per establishment in a given NAICS industry. This estimate was then multiplied by the average number of establishments per firm to estimate the number of SDSs per firm for each NAICS industry. Multiplying by the number of firms per NAICS industry yields the total number of SDSs in each NAICS industry (as shown in Column 5 of Table VI–5). Although OSHA has preliminarily determined that this methodology remains sound, the agency invites public comment on the reasonableness of this methodology for the current analysis.

³⁶ By comparison, the 2012 rule changes included completely revised SDS formats, the addition of pictograms, and various other revisions for specific SDS sections and chemical designations. Note that there are no estimated new software costs associated with the proposed revisions to the standard, as there were for the 2012 final rule, because OSHA expects that the necessary software is already in place in those larger firms for which the software is economically justified.

employees; 0.5 hours per SDS in medium establishments with 100 to 499 employees; and 0.3 hours per SDS in large establishments with 500 or more employees to comply with the proposed mandatory changes to appendices C and D. Multiplying these labor burdens by the loaded hourly wage of \$58.00 results in unit costs for Health and Safety Specialists of \$40.60, \$29.00, and \$17.40 per SDS for small, medium, and large establishments, respectively.

As in the FEA for the 2012 HCS final rule, OSHA anticipates that some manufacturers, particularly larger ones heavily involved in international trade, have already adopted the mandatory language proposed in appendices C and D. For the affected NAICS industries, OSHA estimates baseline compliance rates of 75 percent for establishments with 500 or more employees, 25 percent for establishments with 100 to 499 employees, 5 percent for establishments with 20 to 99 employees, and 1 percent for establishments with fewer than 20 employees.³⁷ These baseline compliance rates are the same ones OSHA used in the 2012 FEA (77 FR 17636).

Multiplying the number of affected SDSs (electronic files) by the unit cost of Health and Safety Specialists, and accounting for the relevant non-compliance rates,³⁸ results in an estimated total one-time cost associated with revising SDSs and labels to conform to the proposed appendix language on precautionary statements and other mandatory language. As shown in Column 7 of Table VII–14, this total one-time cost is estimated to be about \$18.4 million. Annualizing this one-time cost using a 7 percent discount rate over a 10-year period results in estimated annualized costs of approximately \$2.6 million for affected employers to revise SDSs and labels to comply with the proposed revisions to appendices C and D. OSHA invites

³⁷ As noted above, because the current HCS does not allow SDSs or labels to display chemical classifications that are not in conformance with the current rule, OSHA estimated no baseline compliance for chemical manufacturers already having revised electronic files to reflect reclassified chemicals as specified in the proposed rule. With respect to the mandatory language proposed in Appendices C and D, however, SDSs and labels could present standards stricter than seen under previous GHS revisions (for example, if mandatory language is adopted internationally by consensus) and still remain in conformance with the current HCS standard. Therefore, baseline compliance can be non-zero for industry practices involving use of precautionary statements and other mandatory language.

³⁸ That is, mathematically, (1—the relevant baseline compliance rate). Estimated non-compliance rates are shown in Column 6 of Table VI–14 by employment size for each affected NAICS industry.

interested parties to provide comments on these cost estimates and the assumptions underlying them.

The estimates of total costs in Table VII–14 are included within a broader cost category shown earlier in the aggregate costs presented in Table VII–12. Column 5 of Table VII–12 displays, by NAICS code, the combined annualized cost estimates for reclassifying chemicals (from Table VII–13) and revising SDSs and labels to be consistent with the precautionary statements and other language specified in the proposed revisions to the mandatory appendices (from Table VII–14).

Management Familiarization and Other Management-Related Costs

In order to implement the proposed new requirements in the HCS, or determine whether they need to implement any of the revisions to the standard, all employers currently covered by the standard would need to become familiar with the updates OSHA is making as part of this rulemaking. The nature and extent of the familiarization required would vary depending on the employer's business.

In the 2012 HCS final rule (77 FR 17637–17638), OSHA estimated that eight hours of time per manager, or an equivalent cost, would be associated with the necessary familiarization and implementation of revisions to hazard communication programs in affected establishments in the manufacturing sector.³⁹ This proposed rule would require some changes to hazard communication programs in affected establishments, but those changes would be significantly less extensive than those required by the 2012 rule. Therefore, OSHA believes that much less time would be needed for familiarization and implementation under this proposed rule than was necessary under the 2012 rule.

For the present proposed rule, OSHA estimates that management familiarization time would vary by establishment size. It would also vary depending on whether an establishment would simply be familiarizing itself with the proposed rule or would also need to take further action because it would be affected by one or more of the proposed changes to the standard. Above in Section VII.C Profile of Affected Industries, Establishments, and Employees, Table VII–10 presents, by NAICS industry, the percentage of establishments (and for training,

³⁹ Larger employers were estimated to have greater familiarization costs for the 2012 HCS final rule because they have more managers.

entities) expected to be affected by rule familiarization and whether those establishments or entities would incur additional costs or no additional costs—that is, whether those establishments or entities would or would not incur additional costs for revising SDSs/labels or for training employees as a result of the proposed rule.⁴⁰ In terms of manufacturing establishments that would have costs in addition to management familiarization costs resulting from the provisions of the proposed rule, OSHA estimates that there are 38,018 small establishments (those with fewer than 20 employees), 11,273 medium establishments (those with 20 to 499 employees), and 394 large establishments (those with 500 or more employees). In terms of establishments that would not have costs other than management familiarization costs resulting from the provisions of this proposed rule, OSHA estimates that there are 79,500 small establishments, 22,657 medium establishments, and 467 large establishments; their only costs associated with this proposal would be as a result of rule familiarization.⁴¹

To estimate unit costs, OSHA first considered establishments that would incur costs, in addition to rule familiarization costs, because of the proposed rule. As noted earlier, for the 2012 FEA OSHA applied a Manager

hourly wage to estimate familiarization costs. For this PEA, because the new requirements found within this proposed standard would be significantly less extensive than those required by the 2012 rule, OSHA expects that the employer will delegate to a Health and Safety Specialist the responsibility for management familiarization of the new requirements found within this proposed standard. OSHA requests public comment on the agency’s preliminary assumptions for estimating the cost of management familiarization.

For small establishments, OSHA estimated management familiarization costs of 0.5 hours of a Health and Safety Specialist’s labor time. For medium establishments, OSHA estimated 2 hours of a Health and Safety Specialist’s labor time. For large establishments, OSHA estimated 8 hours of a Health and Safety Specialist’s labor time. Multiplying these labor burdens by the loaded hourly wage of \$58.00 results in estimated management familiarization costs per establishment of \$29.00, \$116.01, and \$464.04 for small, medium, and large establishments, respectively.

For establishments that would not incur other costs as a result of the proposed rule, OSHA estimates that rule familiarization will take half as long; in those cases, management will not need

to devote as much time to considering (or making compliance decisions about) the provisions in the proposed rule that are expected to result in costs. Therefore, OSHA adopted estimates of 0.25 hours, 1 hour, and 4 hours of a Health and Safety Specialist’s labor time for small, medium, and large establishments, respectively. Multiplying these labor burdens by the loaded hourly wage of \$58.00 results in management familiarization costs per establishment of \$14.50 for small establishments, \$58.00 for medium establishments, and \$232.02 for large establishments.

These management familiarization costs per establishment are multiplied by the relevant number of small, medium, and large establishments, resulting in an estimated undiscounted one-time familiarization cost of \$5.2 million. Annualizing this one-time cost using a 7 percent discount rate over a 10-year period results in an estimate of annualized costs of \$735,894. Table VII–15 presents the detailed unit values factoring into OSHA’s estimate of management-related costs. The distribution of these management-familiarization costs by NAICS code is displayed in Column 3 of Table VII–12. OSHA invites interested parties to provide comments on these cost estimates and the assumptions underlying them.

TABLE VII–15—TOTAL COSTS ASSOCIATED WITH MANAGEMENT FAMILIARIZATION WITH THE PROPOSED REVISIONS TO THE HCS
[by establishments size, 2019 dollars]

	Small establishments (<20 employees) affected	Medium establishments (20–499 employees) affected	Large establishments (≥ 500 employees) affected	Total
Directly Affected Establishments				
Total Establishments	38,018	11,273	394	49,685
Wage	\$58.00	\$58.00	\$58.00	.....
Hours	0.50	2.00	8.00	.....
Unit Cost Per Establishment	\$29.00	\$116.01	\$464.04	.....
Total One-Time Cost	\$1,102,609	\$1,307,771	\$182,830	\$2,593,210
Total Annualized Cost (7%)	\$156,987	\$186,197	\$26,031	\$369,215
Indirectly Affected Establishments				
Total Establishments	79,500	22,657	467	102,624
Wage	\$58.00	\$58.00	\$58.00	.....
Hours	0.25	1.00	4.00	.....
Unit Cost Per Establishment	\$14.50	\$58.00	\$232.02	.....
Total One-Time Cost	\$1,152,841	\$1,314,209	\$108,353	\$2,575,403
Total Annualized Cost (7%)	\$164,139	\$187,114	\$15,427	\$366,679
Total				
Total Establishments	117,518	33,930	861	152,309
Total One-Time Cost	\$2,255,450	\$2,621,980	\$291,183	\$5,168,613
Total Annualized Cost (7%)	\$321,125	\$373,311	\$41,458	\$735,894

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

⁴⁰ Wholesalers in NAICS 424910 and NAICS 424950 are not expected to incur costs for revising SDSs/labels or for training employees, but OSHA expects that they will be affected by the provisions

of the proposed rule that are anticipated to result in cost savings.

⁴¹ Note that the numbers of small, medium, and large establishments reported above are derived in

the “Rule Fam” tab of the OSHA spreadsheet in support of this proposed rule (see Document ID 0049).

Note: Figures may not add to totals due to rounding.

Costs Associated With Training Employees

For this preliminary economic analysis, OSHA estimated the incremental costs to train chemical production employees who are covered by, and are already trained in accordance with, the existing standard but would need to receive additional training to become familiar with the updates to SDSs and labels for impacted aerosols, desensitized explosives, and flammable gases.⁴² This analysis is described below. OSHA is not estimating any training costs for users of aerosols, desensitized explosives, or flammable gases in the workplace. OSHA does not believe that these users would need to dedicate more than a trivial amount of time to training associated with the reclassification of these chemicals. This is because the hazards associated with these chemicals have not changed. The only thing that would change under the proposed revisions to the HCS is the way the hazards are classified. For example, users of pyrophoric gases should already have received training on the fire and explosive-related hazards associated with these chemicals. At most, such users might require notification of a change in the classification of those chemicals.

Similarly, even though desensitized explosives is a new hazard classification, the explosion hazards were and are well-known and should have been included in prior hazard training. For example, should the water or other wetting solution dry out, an explosion could occur. In this case, even

the hazard pictogram (flames) remains unchanged.

OSHA considered whether some increase in user training might be required for non-flammable aerosols not under pressure, since a small portion of these may not currently be classified as either flammable aerosols or gas under pressure; as noted in the Summary and Explanation section for appendix B, such aerosol containers differ from pressurized gas cylinders in terms of container characteristics and failure mechanisms. Training for non-flammable aerosols might include their revised classification and hazard avoidance measures (such as: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources; no smoking; do not pierce or burn, even after use). However, based on observation of the industry over time, OSHA believes that non-flammable aerosols not under pressure are fairly uncommon and, therefore, OSHA has preliminarily concluded that the total user training time required for non-flammable aerosols not under pressure would also be negligible. The agency requests comments on its preliminary conclusions regarding training time for users of reclassified chemicals.

As discussed above, under the proposed revisions to the HCS, some chemical production employees who are covered by, and are already trained in accordance with, the existing standard would need to receive additional training to become familiar with the updates to SDSs and labels for impacted aerosols, desensitized explosives, and flammable gases. OSHA expects that the incremental training costs for these

employees to become familiar with the revisions to the HCS will be small. In certain cases, affected employers will be able to integrate the necessary training into existing training programs and related methods of distributing safety and health information to employees; those employers would not incur any meaningful additional costs.

OSHA estimates that each affected chemical manufacturing firm⁴³ would need to devote 2.5 hours of a Health and Safety Specialist's time to preparing new training under the proposed rule, and that each affected logistics or production worker would spend 12 minutes receiving the training. Multiplying the labor burden for each labor category by the loaded hourly wages of \$58.00 for a Health and Safety Specialist, \$58.51 for logistics personnel, and \$28.18 for production workers, results in unit costs of \$145.01, \$11.70, and \$5.64, respectively.

Multiplying these unit costs by the 2,754 affected firms, 1,179 affected logistics managers, and 76,447 affected production workers yields an undiscounted estimated one-time cost of \$843,940.⁴⁴ Annualizing this one-time cost using a 7 percent discount rate over a 10-year period results in estimated annualized costs of \$120,158. The unit values that factored into OSHA's estimate of training costs are shown in Table VII-16. The distribution of these training costs by NAICS code is displayed in Column 4 of Table VII-12. OSHA invites interested parties to provide comments on these cost estimates and the assumptions underlying them.

TABLE VII-16—TRAINING COSTS ASSOCIATED WITH THE PROPOSED REVISIONS TO THE HCS STANDARD
[2019 Dollars]

	Health & safety specialist hours per firm to prepare training	Logistics personnel hours per emp. to receive training	Production worker hours per emp. to receive training	Total
Affected Firms	2,754	.....	.....	2,754
Employees Needing Training .....	.....	1,179	76,447	78,489
Wage	\$58.00	\$58.51	\$28.18	.....
Hours	2.5	0.2	0.2	2.9
Unit Cost	\$145.01	\$11.70	\$5.64	\$162.35
Total One-Time Cost	\$399,289	\$13,796	\$430,855	\$843,940
Total Annualized Cost (7%)	\$56,850	\$1,964	\$61,344	\$120,158

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.
Note: Figures may not add to totals due to rounding.

⁴² OSHA has preliminarily concluded that these would be the only training costs associated with the proposed revisions to the HCS. The agency requests comments on this determination.

⁴³ OSHA anticipates that, in practice, training would be organized more efficiently at the

corporate (firm) level than at the establishment level.

⁴⁴ The estimated number of affected firms, logistics managers and production workers are derived in Document ID 0049, tab "Training". The affected number of firms (2,754) can also be

calculated by matching the NAICS codes with training costs from Table VI-12 with the number of affected firms in the identical NAICS codes in Table VI-1 and multiplying by 50 percent (only 50 percent are estimated to require training).

Released for Shipment

In paragraph (f)(11) of the current HCS, chemical manufacturers, importers, distributors, or employers who become newly aware of any significant information regarding the hazards of a chemical must revise the labels for the chemical within six months of becoming aware of the new information and ensure that labels on containers of hazardous chemicals shipped thereafter contain the new information. OSHA proposes to modify paragraph (f)(11) such that chemicals that have been released for shipment and are awaiting future distribution need not be relabeled; however, the manufacturer or importer must provide an updated label for each individual container with each shipment.

OSHA anticipates that these proposed modifications to paragraph (f)(11) would provide cost savings to manufacturers and distributors of certain products—those with large (and typically infrequent) production runs and lengthy shelf lives (often five years or longer) that, during production, are labeled, boxed, palletized, and shipped, and then go through the distribution chain usually without the chemical contents, packaging, or label being disturbed. In Columns 1 and 2 of Table VII–17, OSHA has identified the six industries (four manufacturing and two wholesale) that it expects would be impacted by the proposed modifications to paragraph (f)(11).⁴⁵ These are primarily fertilizer manufacturers, paint manufacturers, and wholesalers of related farm and paint supplies. OSHA invites comments on whether other industries are potentially affected by this proposed modification to paragraph (f)(11) and whether there might be other health or economic effects of this proposed modification that OSHA has not considered in this proposal.

The first factor used to estimate the cost savings resulting from the proposed changes to paragraph (f)(11) is the avoided economic loss for affected manufacturers or wholesalers who would otherwise have to relabel products being held in storage. To estimate the potential economic loss avoided, OSHA relied on comments submitted to the agency by the Council of Producers & Distributors of

Agrotechnology (CPDA) on April 21, 2017.⁴⁶ The CPDA comments included a summary of cost estimates associated with relabeling non-pesticide agricultural chemical products in distribution. Those estimates were obtained from an industry survey and were based on the following unit costs: Shipping costs to move product out of and back into the warehouse (for off-site package opening and replacement); relabeling space per square foot per month; safety equipment and training per employee involved in relabeling; labor and materials to break down pallets and shrink-wrap and redo product packaging in new plastic bags; and labor and materials to move liquid to new containers and dispose of old containers (CPDA, 2017, pp. 4–5, Document ID 0006).

For OSHA's purposes, the critical costing information from CPDA is the estimate of summary relabeling costs presented as a percentage of the value of the products requiring relabeling. According to the CPDA survey results, these summary costs range from 1.5 percent to 204 percent of the value of the product, depending on product type (e.g., liquid versus dry), container type (plastic bags, etc.), and the volume and value of the product (CPDA, 2017, p. 8, Document ID 0006). As a practical matter, OSHA expects that manufacturers and wholesalers would simply discard a product rather than incur relabeling costs *in excess* of the value of the product. Of course, there may be some disposal costs for the discarded material, but there may also be some salvage value for the improperly-labeled product. If one assumes that the disposal cost and the salvage value are relatively minor and, on net, offset each other, then the upper limit on the relabeling costs for any product would be approximately 100 percent of the value of the product. Furthermore, with an effective range of labeling costs from 1.5 percent to 100 percent of the value of the product, OSHA estimates, without further information on the distribution of the costs, that the average labeling cost would be approximately 50 percent of the value of the products requiring relabeling. While this cost estimate as a percentage of the value of the product was developed from data on relabeling non-pesticide agricultural chemical products in distribution, OSHA has assumed that this same estimate would

also apply to relabeling paints and related chemical products in distribution. The agency invites comments on this assumption.

The 50 percent average cost savings estimate would apply only to those products requiring relabeling. In order to estimate the expected cost savings for all products in the NAICS codes affected by the proposed revisions to paragraph (f)(11), OSHA also needs to estimate three other factors (in addition to the average cost savings of 50 percent): (1) What percentage of the products in these NAICS industries would be warehoused for more than six months; (2) what percentage of products warehoused for more than six months would be relabeled in any particular year due to a manufacturer-initiated labeling change;⁴⁷ and (3) the percentage of all products in the NAICS industries that are covered by this proposed rule.

OSHA was unable to identify data relevant to factors (1) and (2) above and instead worked with its contractor, ERG, to develop estimates of both of these factors. For (1) above, OSHA expected that the percentage of products warehoused for more than six months would be quite low because it is expensive to hold inventory over long periods of time. Therefore, OSHA estimated that just five percent of the products in the six NAICS industries potentially impacted by the proposed modifications to paragraph (f)(11) would be warehoused for more than six months. For (2) above, OSHA anticipates that manufacturer-initiated relabeling would be rare, and estimated that only one percent of products warehoused for more than six months would be relabeled in any particular year due to a manufacturer-initiated labeling change to one or more of its chemical ingredients. See existing 29 CFR 1910.1200(f)(11). OSHA invites comments on these estimates.

For factor (3) above, OSHA assumed that 100 percent of the products in the four NAICS manufacturing industries are covered by the HCS.⁴⁸ For the two wholesale industries, however, some substantial portion of the covered products do not qualify as hazardous chemicals covered by the HCS or are not subject to the HCS labeling requirements. For NAICS 424910: Farm Supplies Merchant Wholesalers, a significant majority of the wholesale

⁴⁵ In principle, pesticide manufacturers would also be affected by the proposed revision to the standard, but pesticide labeling in the United States is covered by the U.S. Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136 *et seq.*). For that reason, any cost savings due to OSHA's proposed revisions to paragraph (f)(11) would not apply to manufacturers in NAICS 325320: Pesticide and other agricultural chemical manufacturing.

⁴⁶ Email to Maureen Ruskin of OSHA Re: Comments Supplementing a Petition Submitted to OSHA on May 24, 2016 Requesting a Revision of Paragraph (f)(11) of 29 CFR 1910.1200 (CPDA, 2017, Document ID 0006).

⁴⁷ These labeling changes occur when the manufacturer becomes newly aware of significant information regarding the hazards of a chemical. See existing 29 CFR 1910.1200(f)(11).

⁴⁸ A review of the products covered under the manufacturing NAICS codes reveals they are all, or almost all, chemicals.

supplies are non-fertilizers, such as grains (e.g., alfalfa, hay, livestock feeds) and nursery stock (e.g., plant seeds and plant bulbs). Based on data from the 2012 Economic Census,⁴⁹ ERG estimated that 41.7 percent of the wholesale supplies in NAICS 424910 would be fertilizers affected by the proposed released-for-shipment provision (Document ID 0049, tab “RF Shipment”). For NAICS 424950: Paint, Varnish, and Supplies Merchant Wholesalers, some proportion of the wholesale supply consists of non-paints and non-chemicals, such as wallpaper and painting supplies such as paintbrushes, rollers, and spray-painting equipment. Based on data from the 2012 Economic Census, ERG estimated that 77.6 percent of the wholesale supplies in NAICS 424950 would be paints and

related chemicals affected by the proposed released-for-shipment provision (Document ID 0049, tab “RF Shipment”). OSHA used ERG’s estimates to develop the expected cost savings attributable to the proposed revisions to paragraph (f)(11). The agency invites comments on these estimates.⁵⁰

Column 3 of Table VII–18 shows the average product value (revenue) for each of the six NAICS industries that OSHA expects would be affected by the proposed modification to paragraph (f)(11).⁵¹ Column 4 of Table VII–18 shows the number of affected firms (entities) for each of these six NAICS industries.⁵² Column 5 of Table VII–18 shows the estimated loss avoided due to the proposed released-for-shipment provision for each of these six NAICS industries as a percentage of that

industry’s revenues. That percentage is the product of the four factors estimated above: (1) The costs of relabeling as a percentage of the value of the products requiring relabeling; (2) the percentage of the products in these NAICS industries that would be warehoused for more than six months; (3) the percentage of products warehoused for more than six months that would require relabeling in any particular year due to a manufacturer-initiated labeling change; and (4) the percentage of all products in the NAICS industries covered by this proposed rule.

Table VII–17 presents, by NAICS industry, these four factors and the calculated percentage loss in revenue OSHA anticipates would be avoided under the proposed released-for-shipment provision.

TABLE VII–17—CALCULATION OF THE PERCENTAGE LOSS AVOIDED DUE TO THE PROPOSED RELEASED-FOR-SHIPMENT PROVISION [2019 Dollars]

NAICS	NAICS industry	Percentage cost savings (A)	Percentage of products warehoused ≥ six months (B)	Percentage of products warehoused ≥ six months and require relabeling (C)	Percentage of products covered by the proposed rule (D)	Product of percentages (A), (B), (C), and (D)
325311	Nitrogenous Fertilizer Manufacturing	50	5	1	100	0.03
325312	Phosphatic Fertilizer Manufacturing	50	5	1	100	0.03
325314	Fertilizer (Mixing Only) Manufacturing	50	5	1	100	0.03
325510	Paint and Coating Manufacturing	50	5	1	100	0.03
424910	Farm Supplies Merchant Wholesalers	50	5	1	41.70	0.01
424950	Paint, Varnish, and Supplies Merchant Wholesalers	50	5	1	77.60	0.02

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

The estimated cost savings for each of the six affected industries arising from the proposed modifications to paragraph (f)(11) then is simply the product of Columns 3, 4, and 5 in Table VII–18.

Summing the cost savings for each of the six industries yields an estimated annual cost savings of \$29.8 million. OSHA requests comments on the reasonableness of this estimate and the

assumptions underlying it (including the various factor percentage estimates listed in Table VII–17).

TABLE VII–18—COST SAVINGS ASSOCIATED WITH THE PROPOSED RELEASED-FOR-SHIPMENT PROVISION [2019 Dollars]

NAICS	NAICS industry	Average product value (revenue)	Affected firms	Loss avoided as a % of revenue	Loss avoided
325311	Nitrogenous Fertilizer Manufacturing	\$37,902,969	163	0.03	\$1,544,546
325312	Phosphatic Fertilizer Manufacturing	127,231,784	45	0.03	1,431,358
325314	Fertilizer (Mixing Only) Manufacturing	13,737,854	359	0.03	1,232,972
325510	Paint and Coating Manufacturing	28,813,229	998	0.03	7,188,901
424910	Farm Supplies Merchant Wholesalers	28,809,209	4,965	0.01	14,911,683
424950	Paint, Varnish, and Supplies Merchant Wholesalers	18,022,834	1,012	0.02	3,538,387

⁴⁹ 2012 Economic Census of the United States, Table EC1242SLLS1—Wholesale Trade: Subject Series—Product Lines: Product Lines Statistics by Industry for the U.S. and States: 2012 (Document ID 0043).

⁵⁰ Under the proposed revisions to paragraph (f)(11), when relabeling is not required for

chemicals that have been released for shipment, the chemical manufacturer or importer would still be required to provide an updated label for each individual container with each shipment. The agency estimates that any incremental costs associated with providing updated labels are likely

to be negligible, as OSHA believes this is already standard industry practice.

⁵¹ Derived for each NAICS by dividing Column 3 of Table VII–9 (total industry revenues) by Column 7 of Table VII–1 (number of affected firms).

⁵² Obtained from Column 7 of Table VII–1.

TABLE VII-18—COST SAVINGS ASSOCIATED WITH THE PROPOSED RELEASED-FOR-SHIPMENT PROVISION—Continued
[2019 Dollars]

NAICS	NAICS industry	Average product value (revenue)	Affected firms	Loss avoided as a % of revenue	Loss avoided
Total	7,542	.....	29,847,846

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

Note: Figures may not add to totals due to rounding.

Labels on Very Small Containers

Proposed paragraph (f)(12), which addresses the labeling of small containers, would limit labeling requirements for chemical manufacturers, importers, or distributors where they can demonstrate that it is not feasible to use pull-out labels, fold-back labels, or tags to provide the full label information as required by paragraph (f)(1). As proposed in paragraph (f)(12)(ii), manufacturers, importers, and distributors would be able to use an abbreviated label (requiring only the product identifier, pictogram(s), signal word, chemical manufacturer’s name and phone number, and a statement that the full label information is provided on the immediate outer package) on containers with a volume capacity of 100 ml or less—referred to as “small containers” in this PEA. As proposed in paragraph (f)(12)(iii), manufacturers, importers, and distributors would need to put only the product identifier on containers with a volume capacity of 3 ml or less—referred to as “very small containers” in this PEA—if they can demonstrate that any label would interfere with the normal use of the container.

Following publication of the 2012 updates to the HCS, stakeholders requested that OSHA clarify its enforcement policy on labels for small containers. In response, through letters of interpretation, OSHA adopted practical accommodations that specified: (1) The minimum information required for a label on the immediate container of the shipped chemical; and (2) the minimum information required for the outer packaging of shipped small containers (see, e.g., Collatz, 2015, Document ID 0174; Watters, 2013, Document ID 0200; Blankfield, 2017, Document ID 0170). Proposed paragraph (f)(12)(ii) would incorporate into the HCS the accommodations for small containers described in these letters of interpretation; however, the letters did not contain any guidance unique to very small containers, which would be covered by proposed paragraph (f)(12)(iii).

For costing purposes, OSHA estimates that no cost savings will arise from proposed paragraph (f)(12)(ii) (small containers); OSHA expects that employers are already benefitting from the practical accommodations on the labeling of small packages described in the aforementioned letters of interpretation. OSHA invites public comments on this preliminary determination and the magnitude of any cost savings that should be attributed to proposed paragraph (f)(12)(ii).

OSHA has estimated cost savings under proposed paragraph (f)(12)(iii) for manufacturers, importers, and distributors of very small containers (volume capacity of 3 ml or less) where the use of any label (even an abbreviated label as specified in proposed paragraph (f)(12)(ii)) would interfere with the normal use of the container and only the product identifier would be required. OSHA has preliminarily determined that affected manufacturers would fall in only a few NAICS industries: Other Basic Chemical Manufacturing, Inorganic and Organic (NAICS 325180 and 325199, respectively) and Pharmaceutical and Medical Manufacturing (NAICS 3254—encompassing 6-digit NAICS 325411, 325412, 325413, and 325414). As shown in Column 3 of Table VII-19, OSHA estimates that there are approximately 63.5 million labels on very small containers in these six 6-digit NAICS manufacturing industries that OSHA anticipates could be affected by this part of the proposed rule.⁵³

Even in these six NAICS industries, however, manufacturers would not be able to take advantage of proposed paragraph (f)(12)(iii) in all cases because that provision applies only when the manufacturer, importer, or distributor can demonstrate that it is not feasible to use pull-out labels, fold-back labels, or tags containing the full label information and that even an abbreviated label would interfere with the normal use of the container. Of the

⁵³ The number of very small containers in Column 3 of Table VII-19 for each of these six NAICS industries was obtained from Column 4 of Table VII-5.

63.5 million potentially affected labels on very small containers, OSHA estimates that for only 40 percent of them, or for an estimated total of 25.4 million very small containers, would manufacturers fall under proposed paragraph (f)(12)(iii) (see Column 5 of Table VII-19 and, equivalently, Column 7 of Table VII-5).

Manufacturers with containers falling under proposed paragraph (f)(12)(iii) could expect to obtain cost savings from avoided labeling costs on very small containers (with only the product identifier required) versus the labeling costs of abbreviated labels (requiring the product identifier, pictogram(s), signal word, manufacturer’s name and phone number, and a statement that the full label information is provided on the immediate outer packaging). OSHA estimates an incremental unit cost savings of \$0.051 per label for very small containers.⁵⁴ That unit cost savings is expected to be net of the cost of providing a full label on the immediate outer package (containing a set of very small containers) per proposed paragraph (f)(12)(iv)(A). As shown in Table VII-19, multiplying the number of affected labels by the unit cost savings of \$0.051 per label for very

⁵⁴ The Flavor and Extract Manufacturers Association of the United States (FEMA) provided OSHA (in a letter to Robert Stone of OSHA, dated April 27, 2018) (Document ID 0257) a summary of survey results obtained from member companies concerning how they might benefit from relaxed OSHA labeling requirements on small containers. Those results included an estimate of \$0.85 per label for small capacity containers compliant with the 2012 HCS. However, this estimate applies to expensive labels—such as pull-out labels, fold-back labels, and full-information tags—and therefore is not applicable to the cost savings associated with using only the product identifier in lieu of the abbreviated labeling specified in proposed paragraph (f)(12)(ii). OSHA believes it is likely that most of the cost savings reported from the FEMA survey would be attributable to the expensive types of labels.

Based on the unit cost data provided by FEMA, OSHA estimated a unit cost savings of \$0.05 in 2018 dollars for the use of labels with the minimum information—the product identifier—required for very small containers (versus abbreviated labels). Updating the 2018 estimate to 2019 dollars using the BEA (2020) implicit price deflator for Gross Domestic Product, OSHA derived an estimate of \$0.05087 in cost savings per label (with the unrounded estimate used in the analysis).

small containers yields estimated annual cost savings of \$1.3 million.

OSHA invites interested parties to provide comments on these cost

estimates and the assumptions underlying them.

TABLE VII–19—ESTIMATED COST SAVINGS ASSOCIATED WITH ABBREVIATED LABELS ON VERY SMALL CONTAINERS UNDER THE PROPOSED HCS STANDARD
[2019 Dollars]

NAICS	NAICS industry	Labels—very small containers	Percentage of labels with cost savings	Labels w/cost savings	Annual cost savings
325180	Other Basic Inorganic Chemical Manufacturing	14,768,423	40	5,907,369	\$300,518
325199	All Other Basic Organic Chemical Manufacturing	35,524,371	40	14,209,748	722,874
325411	Medicinal and Botanical Manufacturing	5,106,176	40	2,042,471	103,904
325412	Pharmaceutical Preparation Manufacturing	6,471,452	40	2,588,581	131,685
325413	In-Vitro Diagnostic Substance Manufacturing	501,664	40	200,665	10,208
325414	Biological Product (except Diagnostic) Manufacturing	1,113,080	40	445,232	22,650
Total .....	.....	63,485,165	40	25,394,066	1,291,839

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

Note: Figures may not add to totals due to rounding.

Sensitivity Analysis

In this section, OSHA presents the results of a sensitivity analysis to demonstrate how robust the estimates of net cost savings are to changes in various cost parameters. In this analysis, OSHA made a series of isolated changes to individual cost input parameters in order to determine their effects on the agency's estimates of annualized net cost savings, with a seven-percent discount rate as the reference point. The agency has conducted these calculations for informational purposes only.

The methodology and calculations underlying the cost estimates associated with this rulemaking are generally linear and additive in nature. Thus, the sensitivity of the results and conclusions of the analysis will generally be proportional to isolated variations in a particular input parameter. For example, if the estimated time that employees will need to devote to attending new training doubles, the corresponding labor costs would double as well.

OSHA evaluated a series of such changes in input parameters to test whether and to what extent the general conclusions of the preliminary economic analysis held up. OSHA considered changes to input parameters that affected only costs and cost savings and determined that each of the sensitivity tests on cost parameters had only a very minor effect on total costs or net costs. On the whole, OSHA found that the conclusions of the analysis are robust, as changes in any of the cost input parameters still show significant net cost savings for the final rule. The results of the individual sensitivity tests are summarized and are described in more detail in Table VII–20.

In the first of these sensitivity tests, OSHA reduced from 1 percent to 0.5 percent its estimate of the percentage of products warehoused for more than six months that require relabeling in any particular year. The effect of this change would be to reduce by 50 percent the estimated cost savings associated with the proposed released-for-shipment provision. Table VII–20 shows that the estimated net cost savings from the proposed rule would decline by \$14.9 million annually, from \$26.8 million to \$11.8 million annually, or by about 56 percent.

In a second sensitivity test, OSHA reversed the first sensitivity test, that is, the agency increased from 1 percent to 2 percent the percentage of products warehoused for more than six months that require relabeling in any particular year. The effect of this change would be to increase by 100 percent the estimated cost savings associated with the proposed released-for-shipment provision. Table VII–20 shows that the estimated net cost savings from the proposed rule would increase by \$29.8 million annually, from \$26.8 million to \$56.6 million annually, or by about 112 percent.

In a third sensitivity test, OSHA reduced from 40 percent to 20 percent the percentage of very small containers that would be affected by proposed paragraph (f)(12). As shown in Table VII–20, if OSHA's estimates of other input parameters remained unchanged, the estimated net cost savings from the proposed rule would decline by \$0.6 million annually, from \$26.8 million to \$26.1 million annually, or by about 2 percent.

In a fourth sensitivity test, OSHA applied the same rule familiarization costs to all firms regardless of whether

they are affected by other provisions of this proposal, *i.e.*, OSHA did not reduce estimated familiarization time for firms that are not affected by other parts of the proposal. The effect of this change would be to raise compliance costs for 102,624 establishments in manufacturing and wholesale trade; the estimated net cost savings from the proposed rule would be reduced by \$0.4 million annually, from \$26.8 million to \$26.4 million annually, or by about 1 percent.

In a fifth sensitivity test, OSHA doubled the estimated labor hours assigned to revising SDSs and labels due to the reclassification of chemicals and revised mandatory language in the appendices of the HCS (from Tables VII–13 and VII–14). The effect of this change would be to double labor costs for the affected six-digit NAICS industries; estimated net cost savings would be reduced by \$3.5 million annually, from \$26.8 million to \$23.2 million, or by 13.2 percent.

In a sixth sensitivity test, OSHA excluded overhead costs from the fully loaded hourly wage rates used throughout the PEA. Overhead costs were not applied in the 2012 FEA and this sensitivity test provides consistency with the treatment of overhead in the 2012 analysis. The effect of this change would be to remove the factor of 17 percent of base wages from the hourly costs for the four job categories used in the cost analysis. Applying this change, the estimated net cost savings from the proposed rule would increase by \$0.5 million annually, or by 1.7 percent, resulting in a total estimate of annualized net cost savings of \$27.2 million.

TABLE VII-20—SENSITIVITY TESTS AND REGULATORY ALTERNATIVES—IMPACTS ON NET COST SAVINGS
[7 Percent discount rate, 2019 dollars]

Uncertainty (cost) scenarios	Change from OSHA's best estimate	Difference from proposed rule	Percentage impact on net cost savings	Net cost savings
Proposed Rule—OSHA's midpoint estimate	N/A	\$0	0.0	\$26,753,711
Reduce from 1 percent to 0.5 percent the percentage of products warehoused for more than six months that would require relabeling in any particular year.	Halves cost savings associated with proposed released-for-shipment provision.	-\$14,923,923	-55.8	11,829,788
Increase from 1 percent to 2 percent the percentage of products warehoused for more than six months that would require relabeling in any particular year.	Doubles cost savings associated with proposed released-for-shipment provision.	29,847,846	111.6	56,601,557
Reduce from 40% to 20% the percentage of very small containers that would be affected by proposed paragraph (f)(12).	Halves cost savings for affected firms	-645,919	-2.4	26,107,792
Rule familiarization time would not be reduced for firms that are not affected by any other cost provisions; it would be identical to rule familiarization time for those that are affected by other provisions.	Raises costs for the 31,577 establishments in NAICS 31-33—Manufacturing, and the 71,047 establishments in NAICS 42—Wholesale Trade not affected by other provisions.	-366,679	-1.4	26,387,032
Doubles labor hours for the reclassification of chemicals and compliance with the new mandatory language in the appendices to the proposed standard.	Doubles labor costs for the approximately 13 six-digit NAICS industries affected by proposed changes to paragraph (d) and appendices B, C, and D.	-3,529,921	-13.2	23,223,790
Excludes overhead costs from fully loaded hourly wage rates.	For the four job categories in the cost model, overhead costs (17 percent of base wages) are not applied and estimated wage rates are correspondingly lower.	458,003	1.7	27,211,714
Remove the proposed provisions that result in cost savings for very small labels.	Eliminates cost savings for affected employers	-1,291,839	-4.8	25,461,873
Eliminate the proposed released-for-shipment provisions and associated cost savings.	Eliminates cost savings for affected employers	-29,847,846	-111.6	-3,094,135

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health (Document ID 0049, tab "Tables").

Not part of this table, but discussed in A. Introduction and Summary, the agency examined the effect of lowering the discount rate for annualizing costs from 7 percent to 3 percent. Lowering the discount rate to 3 percent would yield annualized net cost savings of \$27.5 million, approximately \$700,000 more in annual cost savings than the net cost savings at a 7 percent discount rate.

Regulatory Alternatives

This section discusses two regulatory alternatives to the changes OSHA is proposing in this NPRM: (1) Removing the proposed changes to paragraph (f)(12) regarding labeling of very small containers, which would eliminate cost savings for manufacturers, importers, and distributors that label such containers; and (2) removing the proposed changes to paragraph (f)(11) regarding labeling of containers that have been released-for-shipment, which would eliminate cost savings for manufacturers, importers, and distributors that have such containers. In Table VII-20, each regulatory alternative is described and analyzed relative to the proposed revisions to the HCS. Midpoint estimates are presented in all cases. Under Regulatory Alternative (1) (elimination of changes related to labeling of very small containers), cost impacts total \$1.3 million (4.8 percent of baseline cost savings), resulting in a reduction of estimated annualized net cost savings to a total of \$25.5 million. Under

Regulatory Alternative (2) (elimination of changes related to labels on packages that have been released for shipment), cost impacts on employers total \$29.8 million (112 percent of baseline cost savings), resulting in an overall estimate of annualized net costs of \$3.1 million.

In summary, these regulatory alternatives would result in a reduction of cost savings—a significant reduction in the case of the second alternative (resulting in positive, but modest, overall net costs). The elimination of neither alternative, however, would alter the agency's determination of economic feasibility for the proposed revisions to the HCS as a whole. Nor would the elimination of these alternatives result in a significant impact on a substantial number of small entities (see Section VII. G. Economic Feasibility and Impacts).

G. Economic Feasibility and Impacts

This section presents OSHA's analysis of the potential economic impacts of the proposed rule and an assessment of economic feasibility. A separate analysis of the potential economic impacts on small entities (as defined in accordance with SBA criteria) and on very small entities (those with fewer than 20 employees) is presented in the following section as part of the Initial Regulatory Flexibility Screening Analysis, conducted in accordance with the criteria laid out in the Regulatory Flexibility Act.

A standard is economically feasible "if it does not threaten massive dislocation to, or imperil the existence of, [an] industry." *Lead I*, 647 F.2d at 1265 (internal citations and quotation marks omitted). To determine whether a rule is economically feasible, OSHA begins with two screening tests to consider minimum threshold effects of the rule under two extreme cases: (1) A scenario in which all costs are passed through to customers in the form of higher prices (consistent with a price elasticity of demand of zero); and (2) a scenario in which all costs are absorbed by the firm in the form of reduced profits (consistent with an infinite price elasticity of demand).

In profit-earning entities, compliance costs can generally be expected to be absorbed through a combination of increases in prices and reductions in profits. The extent to which the impacts of cost increases affect prices or profits depends on the price elasticity of demand for the products or services produced and sold by the entity.

The price elasticity of demand refers to the relationship between changes in the price charged for a product and the resulting changes in the demand for that product. A larger price elasticity of demand implies that an entity or industry is less able to pass increases in costs through to its customers in the form of a price increase and must absorb more of the cost increase through a reduction in profits.

If the price elasticity of demand is zero, and all costs can be passed to customers in the form of higher prices, the immediate impact of the rule would be observed in the form of increased industry revenues. In the absence of evidence to the contrary, OSHA generally considers a standard to be economically feasible for an industry when the annualized costs of compliance are less than a threshold level of one percent of annual revenues. Common-sense considerations indicate that potential impacts of such a small magnitude are unlikely to eliminate an industry or significantly alter its competitive structure, particularly since most industries have at least some ability to raise prices to reflect increased costs and normal price variations for products typically exceed three percent a year (OSHA, 2016, Chapter VI, pp. VI-20/VI-23 and Table VI-3).⁵⁵ Of course, OSHA recognizes that even when costs are within this range, there could be unusual circumstances requiring further analysis.

If, however, there is infinite price elasticity of demand, and all costs are

absorbed by affected firms, the immediate impact of the rule would be observed in reduced industry profits. OSHA uses the ratio of annualized costs to annual profits as a second check on economic feasibility. In the absence of evidence to the contrary, OSHA generally considers a standard to be economically feasible for an industry when the annualized costs of compliance are less than a threshold level of ten percent of annual profits. This is a fairly modest threshold level, given that normal year-to-year variations in profit rates in an industry can exceed 40 percent or more (OSHA, 2016, Chapter VI, pp. VI-20/VI-23 and Table VI-5).⁵⁶

In order to assess the nature and magnitude of the economic impacts associated with compliance with the proposed rule, OSHA developed quantitative estimates of the potential economic impact of the requirements on each of the affected industry sectors. The estimated costs of compliance presented in Section VII.F of this preamble were compared with industry revenues and profits to provide a

measure of potential economic impacts. Table VII-21 presents data on revenues and profits for each affected industry sector at the six-digit NAICS industry level, along with the corresponding estimated annualized costs of compliance in each sector. Potential impacts in the table are represented by the ratios of compliance costs to revenues and compliance costs to profits.

The nature of the proposed revisions to the HCS is such that all affected firms would incur some costs, but only a small subset would derive the cost savings that are monetized in this PEA (although most or all would enjoy non-monetized benefits, *e.g.*, in foreign trade). To examine the economic impacts of the proposed revisions to the standard for those affected establishments that obtain no monetized cost savings from any of the proposed revisions to the HCS, OSHA estimated the ratio of compliance costs to revenues and the ratio of compliance costs to profits using only gross positive costs (*i.e.*, costs exclusive of cost savings) as the numerator in the ratio. Table VII-22 presents this part of the agency's screening analysis.

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⁵⁵ Document ID OSHA-2010-0034-4247, Attachment "Silica FEA Chapter VI: Economic Feasibility Analysis and Regulatory Flexibility Determination" (Document ID 0045).

⁵⁶ Document ID OSHA-2010-0034-4247, Attachment "Silica FEA Chapter VI: Economic Feasibility Analysis and Regulatory Flexibility Determination" (Document ID 0045).

Table VII-21: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	15,437	5,200	\$311,577	\$326,848,327,601	\$21,110,919,773	0.00%	0.00%
211	Oil and Gas Extraction	5,200	5,200	\$311,577	\$240,298,917,934	\$14,974,398,582	0.00%	0.00%
211120	Crude Petroleum Extraction	4,570	4,570	\$198,373	\$170,279,184,328	\$10,611,068,906	0.00%	0.00%
211130	Natural Gas Extraction	630	630	\$113,204	\$70,019,733,607	\$4,363,329,676	0.00%	0.00%
31-33	Manufacturing	258,563	60,752	\$8,828,427	\$5,797,450,564,984	\$264,415,656,740	0.00%	0.00%
324	Petroleum and Coal Products Manufacturing	984	984	\$1,528,936	\$548,268,340,205	\$37,365,772,412	0.00%	0.00%
324110	Petroleum Refineries	70	70	\$98,464	\$502,164,011,213	\$34,203,490,777	0.00%	0.00%
324121	Asphalt Paving Mixture and Block Manufacturing	472	472	\$171,774	\$13,860,504,187	\$955,963,177	0.00%	0.02%
324122	Asphalt Shingle and Coating Materials Manufacturing	123	123	\$26,220	\$11,617,097,706	\$801,234,752	0.00%	0.00%
324191	Petroleum Lubricating Oil and Grease Manufacturing	253	253	\$1,221,994	\$16,586,696,926	\$1,129,878,602	0.01%	0.11%
324199	All Other Petroleum and Coal Products Manufacturing	66	66	\$10,485	\$4,040,030,172	\$275,205,103	0.00%	0.00%
325	Chemical Manufacturing	10,389	10,389	\$10,862,751	\$789,429,171,514	\$65,825,402,786	0.00%	-0.02%
325110	Petrochemical Manufacturing	28	28	\$20,123	\$55,741,502,666	\$1,902,021,496	0.00%	0.00%
325120	Industrial Gas Manufacturing	63	63	\$25,318	\$9,700,639,626	\$331,006,956	0.00%	0.01%
325130	Synthetic Dye and Pigment Manufacturing	112	112	\$9,298	\$7,293,474,420	\$248,869,235	0.00%	0.00%
325180	Other Basic Inorganic Chemical Manufacturing	363	363	\$-282,090	\$33,275,419,838	\$1,135,429,811	0.00%	-0.02%
325193	Ethyl Alcohol Manufacturing	121	121	\$11,923	\$32,337,672,494	\$1,103,431,829	0.00%	0.00%
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	53	53	\$4,908	\$8,105,063,187	\$276,562,412	0.00%	0.00%
325199	All Other Basic Organic Chemical Manufacturing	591	591	\$-666,121	\$80,041,612,356	\$2,731,194,173	0.00%	-0.02%
325211	Plastics Material and Resin Manufacturing	852	852	\$154,986	\$94,876,413,479	\$5,636,119,712	0.00%	0.00%
325212	Synthetic Rubber Manufacturing	140	140	\$4,809	\$8,750,057,350	\$519,795,900	0.00%	0.00%
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	109	109	\$2,251	\$7,325,632,100	\$435,178,122	0.00%	0.00%
325311	Nitrogenous Fertilizer Manufacturing	163	163	\$-1,541,948	\$6,178,183,955	\$600,201,186	-0.02%	-0.26%
325312	Phosphatic Fertilizer Manufacturing	45	45	\$-1,430,465	\$5,725,430,291	\$556,216,855	-0.02%	-0.26%
325314	Fertilizer (Mixing Only) Manufacturing	359	359	\$-1,219,569	\$4,931,889,637	\$479,125,586	-0.02%	-0.25%
325320	Pesticide and Other Agricultural Chemical Manufacturing	188	188	\$39,388	\$15,622,076,997	\$1,517,661,048	0.00%	0.00%
325411	Medicinal and Botanical Manufacturing	451	451	\$-81,917	\$11,504,963,235	\$1,595,818,501	0.00%	-0.01%
325412	Pharmaceutical Preparation Manufacturing	1,007	1,007	\$26,972	\$186,027,072,841	\$25,803,250,170	0.00%	0.00%
325413	In-Vitro Diagnostic Substance Manufacturing	192	192	\$27,441	\$14,420,723,180	\$2,000,254,706	0.00%	0.00%
325414	Biological Product (except Diagnostic) Manufacturing	266	266	\$-11,467	\$31,996,374,817	\$4,438,119,954	0.00%	0.00%
325510	Paint and Coating Manufacturing	998	998	\$-6,731,133	\$28,755,602,915	\$1,199,560,340	-0.02%	-0.56%
325520	Adhesive Manufacturing	403	403	\$183,339	\$15,404,571,015	\$642,612,589	0.00%	0.03%
325611	Soap and Other Detergent Manufacturing	618	618	\$125,189	\$25,419,002,064	\$3,137,684,958	0.00%	0.00%
325612	Polish and Other Sanitation Good Manufacturing	419	419	\$78,300	\$6,433,601,711	\$794,154,517	0.00%	0.01%
325613	Surface Active Agent Manufacturing	105	105	\$32,437	\$7,488,008,843	\$924,309,013	0.00%	0.00%

Table VII-21: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
325620	Toilet Preparation Manufacturing	926	926	\$158,612	\$43,279,075,380	\$5,342,306,652	0.00%	0.00%
325910	Printing Ink Manufacturing	182	182	\$53,333	\$4,534,098,456	\$229,935,022	0.00%	0.02%
325920	Explosives Manufacturing	52	52	\$15,752	\$2,483,129,453	\$125,925,458	0.00%	0.01%
325991	Custom Compounding of Purchased Resins	330	330	\$11,925	\$11,882,633,328	\$602,596,873	0.00%	0.00%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	189	189	\$6,218	\$7,036,771,608	\$356,851,588	0.00%	0.00%
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	1,064	1,064	\$109,437	\$22,858,474,270	\$1,159,208,126	0.00%	0.01%
326	Plastics and Rubber Products Manufacturing	9,694	9,694	\$68,513	\$247,748,726,309	\$5,974,209,486	0.00%	0.00%
326111	Plastics Bag and Pouch Manufacturing	271	271	\$2,191	\$11,673,118,042	\$299,485,288	0.00%	0.00%
326112	Plastics Packaging Film and Sheet (including Laminated) Mfg.	299	299	\$2,711	\$13,981,710,136	\$358,714,481	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Mfg.	429	429	\$3,054	\$16,764,409,928	\$430,107,373	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Manufacturing	326	326	\$2,048	\$8,405,469,386	\$215,650,558	0.00%	0.00%
326122	Plastics Pipe and Pipe Fitting Manufacturing	266	266	\$2,800	\$11,149,151,610	\$286,042,415	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	208	208	\$1,121	\$4,558,892,856	\$116,962,866	0.00%	0.00%
326140	Polyethylene Foam Product Manufacturing	308	308	\$2,606	\$10,048,849,303	\$257,813,081	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	445	445	\$3,669	\$11,390,162,766	\$292,225,793	0.00%	0.00%
326160	Plastics Bottle Manufacturing	195	195	\$3,165	\$11,711,421,690	\$300,468,006	0.00%	0.00%
326191	Plastics Plumbing Fixture Manufacturing	311	311	\$1,724	\$4,393,033,016	\$112,707,569	0.00%	0.00%
326199	All Other Plastics Product Manufacturing	5,187	5,187	\$33,348	\$99,843,663,537	\$2,561,587,076	0.00%	0.00%
326211	Tire Manufacturing (except Retreading)	81	81	\$1,288	\$18,217,353,429	\$308,595,467	0.00%	0.00%
326212	Tire Retreading	261	261	\$1,390	\$1,750,825,443	\$29,658,358	0.00%	0.00%
326220	Rubber and Plastics Hoses and Belting Manufacturing	196	196	\$1,553	\$5,525,287,685	\$93,596,402	0.00%	0.00%
326291	Rubber Product Manufacturing for Mechanical Use	346	346	\$2,509	\$7,932,574,831	\$134,374,987	0.00%	0.00%
326299	All Other Rubber Product Manufacturing	565	565	\$3,339	\$10,402,802,651	\$176,219,765	0.00%	0.00%
327	Nonmetallic Mineral Product Manufacturing	9,636	9,636	\$59,127	\$131,885,843,897	\$2,461,308,698	0.00%	0.00%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	566	566	\$1,963	\$2,319,233,154	\$36,481,726	0.00%	0.01%
327120	Clay Building Material and Refractories Manufacturing	375	375	\$2,740	\$5,881,207,701	\$92,511,875	0.00%	0.00%
327211	Flat Glass Manufacturing	74	74	\$597	\$4,388,366,999	\$124,247,799	0.00%	0.00%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	387	387	\$1,534	\$3,522,384,800	\$99,729,252	0.00%	0.00%
327213	Glass Container Manufacturing	29	29	\$442	\$5,272,106,533	\$149,269,109	0.00%	0.00%
327215	Glass Product Manufacturing Made of Purchased Glass	983	983	\$4,844	\$13,900,601,495	\$393,567,616	0.00%	0.00%
327310	Cement Manufacturing	101	101	\$1,094	\$9,050,480,224	\$133,073,152	0.00%	0.00%
327320	Ready-Mix Concrete Manufacturing	2,098	2,098	\$19,738	\$32,398,760,101	\$476,373,077	0.00%	0.00%
327331	Concrete Block and Brick Manufacturing	430	430	\$3,058	\$4,879,471,211	\$71,744,990	0.00%	0.00%
327332	Concrete Pipe Manufacturing	98	98	\$1,195	\$1,708,315,398	\$25,118,105	0.00%	0.00%

Table VII-21: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
327390	Other Concrete Product Manufacturing	1,560	1,560	\$8,244	\$12,334,383,335	\$181,357,809	0.00%	0.00%
327410	Lime Manufacturing	38	38	\$479	\$2,355,559,712	\$44,069,981	0.00%	0.00%
327420	Gypsum Product Manufacturing	127	127	\$987	\$6,468,574,425	\$121,020,050	0.00%	0.00%
327910	Abrasive Product Manufacturing	256	256	\$1,317	\$5,886,203,059	\$110,124,510	0.00%	0.00%
327991	Cut Stone and Stone Product Manufacturing	1,907	1,907	\$6,594	\$5,236,293,789	\$97,965,408	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	154	154	\$1,098	\$4,456,620,907	\$83,378,570	0.00%	0.00%
327993	Mineral Wool Manufacturing	174	174	\$1,369	\$6,445,499,687	\$120,588,346	0.00%	0.00%
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	279	279	\$1,833	\$5,381,781,367	\$100,687,324	0.00%	0.00%
331	Primary Metal Manufacturing	3,558	3,558	\$25,831	\$232,471,614,560	\$5,007,068,940	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	369	369	\$4,107	\$93,922,044,820	\$1,165,821,393	0.00%	0.00%
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	180	180	\$1,693	\$11,067,013,255	\$230,377,817	0.00%	0.00%
331221	Rolled Steel Shape Manufacturing	170	170	\$1,034	\$5,992,331,220	\$124,740,086	0.00%	0.00%
331222	Steel Wire Drawing	210	210	\$1,418	\$5,581,251,741	\$116,182,800	0.00%	0.00%
331313	Alumina Refining and Primary Aluminum Production	31	31	\$213	\$3,537,971,191	\$87,352,773	0.00%	0.00%
331314	Secondary Smelting and Alloying of Aluminum	65	65	\$572	\$6,039,040,368	\$149,104,358	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	62	62	\$861	\$15,749,488,321	\$381,314,941	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	212	212	\$1,718	\$11,879,785,984	\$293,312,803	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	129	129	\$650	\$9,746,832,678	\$202,896,335	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	164	164	\$1,689	\$23,335,378,243	\$485,763,717	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	227	227	\$1,299	\$6,982,835,711	\$145,359,042	0.00%	0.00%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal	183	183	\$1,065	\$7,574,445,310	\$157,674,355	0.00%	0.00%
331511	Iron Foundries	298	298	\$2,275	\$9,786,154,772	\$462,217,269	0.00%	0.00%
331512	Steel Investment Foundries	95	95	\$898	\$4,091,022,841	\$193,226,191	0.00%	0.00%
331513	Steel Foundries (except Investment)	189	189	\$1,049	\$3,451,310,647	\$163,011,461	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	351	351	\$2,463	\$7,892,732,868	\$372,787,629	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	371	371	\$1,726	\$3,103,121,814	\$146,565,891	0.00%	0.00%
331529	Other Nonferrous Metal Foundries (except Die-Casting)	252	252	\$1,100	\$2,738,832,777	\$129,359,880	0.00%	0.00%
339	Miscellaneous Manufacturing	26,491	26,491	\$351,917	\$157,410,019,449	\$9,456,508,594	0.00%	0.00%
339112	Surgical and Medical Instrument Manufacturing	1,063	1,063	\$22,996	\$41,727,828,702	\$3,059,643,748	0.00%	0.00%
339113	Surgical Appliance and Supplies Manufacturing	1,651	1,651	\$28,962	\$36,136,301,720	\$2,649,651,637	0.00%	0.00%
339114	Dental Equipment and Supplies Manufacturing	557	557	\$7,362	\$5,122,480,302	\$375,599,817	0.00%	0.00%
339115	Ophthalmic Goods Manufacturing	336	336	\$7,119	\$6,175,778,513	\$452,831,664	0.00%	0.00%
339116	Dental Laboratories	5,637	5,637	\$65,129	\$5,024,370,977	\$368,406,067	0.00%	0.02%
339910	Jewelry and Silverware Manufacturing	1,967	1,967	\$23,417	\$7,504,994,935	\$302,745,487	0.00%	0.01%
339920	Sporting and Athletic Goods Manufacturing	1,586	1,586	\$22,231	\$10,658,798,838	\$429,967,412	0.00%	0.01%

Table VII-21: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
339930	Doll, Toy, and Game Manufacturing	503	503	\$6,247	\$1,720,555,223	\$69,405,820	0.00%	0.01%
339940	Office Supplies (except Paper) Manufacturing	423	423	\$6,196	\$3,320,217,162	\$133,934,902	0.00%	0.00%
339950	Sign Manufacturing	5,602	5,602	\$72,420	\$13,212,923,236	\$532,998,745	0.00%	0.01%
339991	Gasket, Packing, and Sealing Device Manufacturing	490	490	\$9,819	\$7,540,016,634	\$304,158,235	0.00%	0.00%
339992	Musical Instrument Manufacturing	585	585	\$7,822	\$2,040,059,050	\$82,294,349	0.00%	0.01%
339993	Fastener, Button, Needle, and Pin Manufacturing	103	103	\$1,567	\$932,759,282	\$37,626,763	0.00%	0.00%
339994	Broom, Brush, and Mop Manufacturing	168	168	\$3,266	\$2,968,149,189	\$119,732,762	0.00%	0.00%
339995	Burial Casket Manufacturing	82	82	\$1,397	\$595,589,836	\$24,025,617	0.00%	0.01%
339999	All Other Miscellaneous Manufacturing	5,738	5,738	\$65,966	\$12,729,195,852	\$513,483,570	0.00%	0.01%
42	Wholesale Trade	266,333	49,806	-\$18,236,861	\$8,241,112,357,137	\$187,764,000,889	0.00%	-0.01%
423	Merchant Wholesalers, Durable Goods	168,238	13,697	\$59,554	\$3,730,586,842,837	\$78,224,194,326	0.00%	0.00%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	7,886	7,886	\$32,883	\$227,956,291,687	\$5,659,037,892	0.00%	0.00%
423840	Industrial Supplies Merchant Wholesalers	5,811	5,811	\$26,671	\$76,784,521,382	\$2,369,037,938	0.00%	0.00%
424	Merchant Wholesalers, Nondurable Goods	98,095	36,109	-\$18,296,415	\$4,510,525,514,300	\$109,539,806,563	0.00%	-0.02%
424210	Drugs and Druggists' Sundries Merchant Wholesalers	6,958	6,958	\$35,832	\$993,553,873,870	\$34,478,605,779	0.00%	0.00%
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	2,218	2,218	\$8,475	\$47,943,855,645	\$1,464,284,802	0.00%	0.00%
424690	Other Chemical and Allied Products Merchant Wholesalers	6,069	6,069	\$28,715	\$190,251,901,023	\$5,810,608,336	0.00%	0.00%
424710	Petroleum Bulk Stations and Terminals	2,334	2,334	\$13,649	\$553,795,115,137	\$5,343,134,660	0.00%	0.00%
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,857	1,857	\$7,426	\$589,029,156,042	\$5,683,080,283	0.00%	0.00%
424910	Farm Supplies Merchant Wholesalers	4,965	4,965	-\$14,885,049	\$143,037,724,037	\$3,880,616,514	-0.01%	-0.38%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	1,012	1,012	-\$3,533,287	\$18,239,107,674	\$423,672,981	-0.02%	-0.83%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	10,696	10,696	\$27,823	\$45,182,648,502	\$1,049,539,689	0.00%	0.00%
Total	Total	6,077,430	115,758	-\$26,753,711	\$42,567,021,362,731	\$5,795,377,657,021	0.00%	0.00%

Source: U.S. DOI, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.

Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.

Table VII-22: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	15,437	5,200	\$311,577	\$326,848,327,601	\$21,110,919,773	0.00%	0.00%
211	Oil and Gas Extraction	5,200	5,200	\$311,577	\$240,298,917,934	\$14,974,398,582	0.00%	0.00%
211120	Crude Petroleum Extraction	4,570	4,570	\$198,373	\$170,279,184,328	\$10,611,068,906	0.00%	0.00%
211130	Natural Gas Extraction	630	630	\$113,204	\$70,019,733,607	\$4,363,329,676	0.00%	0.00%
31-33	Manufacturing	258,563	60,752	\$3,861,188	\$5,797,450,564,984	\$264,415,656,740	0.00%	0.00%
324	Petroleum and Coal Products Manufacturing	984	984	\$1,528,936	\$548,268,340,205	\$37,365,772,412	0.00%	0.00%
324110	Petroleum Refineries	70	70	\$98,464	\$502,164,011,213	\$34,203,490,777	0.00%	0.00%
324121	Asphalt Paving Mixture and Block Manufacturing	472	472	\$171,774	\$13,860,504,187	\$955,963,177	0.00%	0.02%
324122	Asphalt Shingle and Coating Materials Manufacturing	123	123	\$26,220	\$11,617,097,706	\$801,234,752	0.00%	0.00%
324191	Petroleum Lubricating Oil and Grease Manufacturing	253	253	\$1,221,994	\$16,586,696,926	\$1,129,878,602	0.01%	0.11%
324199	All Other Petroleum and Coal Products Manufacturing	66	66	\$10,485	\$4,040,030,172	\$275,205,103	0.00%	0.00%
325	Chemical Manufacturing	10,389	10,389	\$1,826,865	\$789,429,171,514	\$65,825,402,786	0.00%	0.00%
325110	Petrochemical Manufacturing	28	28	\$20,123	\$55,741,502,666	\$1,902,021,496	0.00%	0.00%
325120	Industrial Gas Manufacturing	63	63	\$25,318	\$9,700,639,626	\$331,006,956	0.00%	0.01%
325130	Synthetic Dye and Pigment Manufacturing	112	112	\$9,298	\$7,293,474,420	\$248,869,235	0.00%	0.00%
325180	Other Basic Inorganic Chemical Manufacturing	363	363	\$18,428	\$33,275,419,838	\$1,135,429,811	0.00%	0.00%
325193	Ferrous Alloy Manufacturing	121	121	\$11,923	\$32,337,672,494	\$1,103,431,829	0.00%	0.00%
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Mfg.	53	53	\$4,908	\$8,105,063,187	\$276,562,412	0.00%	0.00%
325199	All Other Basic Organic Chemical Manufacturing	591	591	\$56,753	\$80,041,612,356	\$2,731,194,173	0.00%	0.00%
325211	Plastics Material and Resin Manufacturing	852	852	\$154,986	\$94,876,413,479	\$5,636,119,712	0.00%	0.00%
325212	Synthetic Rubber Manufacturing	140	140	\$4,809	\$8,750,057,350	\$519,795,900	0.00%	0.00%
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	109	109	\$2,251	\$7,325,632,100	\$435,178,122	0.00%	0.00%
325311	Nitrogenous Fertilizer Manufacturing	163	163	\$2,598	\$6,178,183,955	\$600,201,186	0.00%	0.00%
325312	Phosphatic Fertilizer Manufacturing	45	45	\$892	\$5,725,436,291	\$556,216,855	0.00%	0.00%
325314	Fertilizer (Mixing Only) Manufacturing	359	359	\$13,403	\$4,931,889,637	\$479,125,586	0.00%	0.00%
325320	Pesticide and Other Agricultural Chemical Manufacturing	188	188	\$39,388	\$15,622,076,997	\$1,517,661,048	0.00%	0.00%
325411	Medicinal and Botanical Manufacturing	451	451	\$21,987	\$11,504,963,235	\$1,595,818,501	0.00%	0.00%
325412	Pharmaceutical Preparation Manufacturing	1,007	1,007	\$158,657	\$186,027,072,841	\$25,803,250,170	0.00%	0.00%
325413	In-Vitro Diagnostic Substance Manufacturing	192	192	\$37,649	\$14,420,723,180	\$2,000,254,706	0.00%	0.00%
325414	Biological Product (except Diagnostic) Manufacturing	266	266	\$11,183	\$31,996,374,817	\$4,438,119,954	0.00%	0.00%
325510	Paint and Coating Manufacturing	998	998	\$457,768	\$28,755,602,915	\$1,199,560,340	0.00%	0.04%
325520	Adhesive Manufacturing	403	403	\$183,339	\$15,404,571,015	\$642,612,589	0.00%	0.03%
325611	Soap and Other Detergent Manufacturing	618	618	\$125,189	\$25,419,002,064	\$3,137,684,958	0.00%	0.00%

Table VII-22: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
325612	Polish and Other Sanitation Good Manufacturing	419	419	\$78,300	\$6,433,601,711	\$794,154,517	0.00%	0.01%
325613	Surface Active Agent Manufacturing	105	105	\$32,437	\$7,488,008,843	\$924,309,013	0.00%	0.00%
325620	Toilet Preparation Manufacturing	926	926	\$158,612	\$43,279,075,380	\$5,342,306,652	0.00%	0.00%
325910	Printing Ink Manufacturing	182	182	\$53,333	\$4,534,098,456	\$229,935,022	0.00%	0.02%
325920	Explosives Manufacturing	52	52	\$15,752	\$2,483,129,453	\$125,925,458	0.00%	0.01%
325991	Custom Compounding of Purchased Resins	330	330	\$11,925	\$11,882,633,328	\$602,596,873	0.00%	0.00%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	189	189	\$6,218	\$7,036,771,608	\$356,851,588	0.00%	0.00%
325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	1,064	1,064	\$109,437	\$22,858,474,270	\$1,159,208,126	0.00%	0.01%
326	Plastics and Rubber Products Manufacturing	9,694	9,694	\$68,513	\$247,748,726,309	\$5,974,209,486	0.00%	0.00%
326111	Plastics Bag and Pouch Manufacturing	271	271	\$2,191	\$11,673,118,042	\$299,485,288	0.00%	0.00%
326112	Plastics Packaging Film and Sheet (including Laminated) Mfg.	299	299	\$2,711	\$13,981,710,136	\$358,714,481	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Mfg.	429	429	\$3,054	\$16,764,409,928	\$430,107,373	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Mfg.	326	326	\$2,048	\$8,405,469,386	\$215,650,558	0.00%	0.00%
326122	Plastics Pipe and Pipe Fitting Mfg.	266	266	\$2,800	\$11,149,151,610	\$286,042,415	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Mfg.	208	208	\$1,121	\$4,558,892,856	\$116,962,866	0.00%	0.00%
326140	Polystyrene Foam Product Manufacturing	308	308	\$2,606	\$10,048,849,303	\$257,813,081	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polystyrene) Mfg.	445	445	\$3,669	\$11,390,162,766	\$292,225,793	0.00%	0.00%
326160	Plastics Bottle Manufacturing	195	195	\$3,165	\$11,711,421,690	\$300,468,006	0.00%	0.00%
326191	Plastics Plumbing Fixture Manufacturing	311	311	\$1,724	\$4,393,033,016	\$112,707,569	0.00%	0.00%
326199	All Other Plastics Product Manufacturing	5,187	5,187	\$33,348	\$99,843,663,537	\$2,561,587,076	0.00%	0.00%
326211	Tire Manufacturing (except Retreading)	81	81	\$1,288	\$18,217,353,429	\$308,595,467	0.00%	0.00%
326212	Tire Retreading	261	261	\$1,390	\$1,750,825,443	\$29,658,358	0.00%	0.00%
326220	Rubber and Plastics Hoses and Belting Manufacturing	196	196	\$1,553	\$5,525,287,685	\$93,596,402	0.00%	0.00%
326291	Rubber Product Manufacturing for Mechanical Use	346	346	\$2,509	\$7,932,574,831	\$134,374,987	0.00%	0.00%
326299	All Other Rubber Product Manufacturing	565	565	\$3,339	\$10,402,802,651	\$176,219,765	0.00%	0.00%
327	Nonmetallic Mineral Product Manufacturing	9,636	9,636	\$59,127	\$131,885,843,897	\$2,461,308,698	0.00%	0.00%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	566	566	\$1,963	\$2,319,233,154	\$36,481,726	0.00%	0.01%
327120	Clay Building Material and Refractories Manufacturing	375	375	\$2,740	\$5,881,207,701	\$92,511,875	0.00%	0.00%
327211	Flat Glass Manufacturing	74	74	\$597	\$4,388,366,999	\$124,247,799	0.00%	0.00%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	387	387	\$1,534	\$3,522,384,800	\$99,729,252	0.00%	0.00%
327213	Glass Container Manufacturing	29	29	\$442	\$5,272,106,533	\$149,269,109	0.00%	0.00%
327215	Glass Product Manufacturing Made of Purchased Glass	983	983	\$4,844	\$13,900,601,495	\$393,567,616	0.00%	0.00%
327310	Cement Manufacturing	101	101	\$1,094	\$9,050,480,224	\$133,073,152	0.00%	0.00%
327320	Ready-Mix Concrete Manufacturing	2,098	2,098	\$19,738	\$32,398,760,101	\$476,373,077	0.00%	0.00%
327331	Concrete Block and Brick Manufacturing	430	430	\$3,058	\$4,879,471,211	\$71,744,990	0.00%	0.00%

Table VII-22: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
327332	Concrete Pipe Manufacturing	98	98	\$1,195	\$1,708,315,398	\$25,118,105	0.00%	0.00%
327390	Other Concrete Product Manufacturing	1,560	1,560	\$8,244	\$12,334,383,335	\$181,357,809	0.00%	0.00%
327410	Lime Manufacturing	38	38	\$479	\$2,355,559,712	\$44,069,981	0.00%	0.00%
327420	Gypsum Product Manufacturing	127	127	\$987	\$6,468,574,425	\$121,020,050	0.00%	0.00%
327910	Abrasive Product Manufacturing	256	256	\$1,317	\$5,886,203,059	\$110,124,510	0.00%	0.00%
327991	Cut Stone and Stone Product Manufacturing	1,907	1,907	\$6,594	\$5,236,293,789	\$97,965,408	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	154	154	\$1,098	\$4,456,020,907	\$83,378,570	0.00%	0.00%
327993	Mineral Wool Manufacturing	174	174	\$1,369	\$6,445,499,687	\$120,588,346	0.00%	0.00%
327999	All Other Miscellaneous Nonmetallic Mineral Product Mfg.	279	279	\$1,833	\$5,381,781,367	\$100,687,324	0.00%	0.00%
331	Primary Metal Manufacturing	3,558	3,558	\$25,831	\$232,471,614,560	\$5,007,068,940	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	369	369	\$4,107	\$93,922,044,820	\$1,165,821,393	0.00%	0.00%
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	180	180	\$1,693	\$11,067,013,255	\$230,377,817	0.00%	0.00%
331221	Rolled Steel Shape Manufacturing	170	170	\$1,034	\$5,992,331,220	\$124,740,086	0.00%	0.00%
331222	Steel Wire Drawing	210	210	\$1,418	\$5,581,251,741	\$116,182,800	0.00%	0.00%
331313	Alumina Refining and Primary Aluminum Production	31	31	\$213	\$3,537,971,191	\$87,352,773	0.00%	0.00%
331314	Secondary Smelting and Alloying of Aluminum	65	65	\$572	\$6,039,040,368	\$149,104,358	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	62	62	\$861	\$15,749,488,321	\$381,314,941	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	212	212	\$1,718	\$11,879,785,984	\$293,312,803	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	129	129	\$650	\$9,746,852,678	\$202,896,335	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	164	164	\$1,689	\$23,335,378,243	\$485,763,717	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	227	227	\$1,299	\$6,982,835,711	\$145,359,042	0.00%	0.00%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal	183	183	\$1,065	\$7,574,445,310	\$157,674,355	0.00%	0.00%
331511	Iron Foundries	298	298	\$2,275	\$9,786,154,772	\$462,217,269	0.00%	0.00%
331512	Steel Investment Foundries	95	95	\$898	\$4,091,022,841	\$193,226,191	0.00%	0.00%
331513	Steel Foundries (except Investment)	189	189	\$1,049	\$3,451,310,647	\$163,011,461	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	351	351	\$2,463	\$7,892,732,868	\$372,787,629	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	371	371	\$1,726	\$3,103,121,814	\$146,565,891	0.00%	0.00%
331529	Other Nonferrous Metal Foundries (except Die-Casting)	252	252	\$1,100	\$2,738,832,777	\$129,359,880	0.00%	0.00%
339	Miscellaneous Manufacturing	26,491	26,491	\$351,917	\$157,410,019,449	\$9,456,508,594	0.00%	0.00%
339112	Surgical and Medical Instrument Manufacturing	1,063	1,063	\$22,996	\$41,727,828,702	\$3,059,643,748	0.00%	0.00%
339113	Surgical Appliance and Supplies Manufacturing	1,651	1,651	\$28,962	\$36,136,301,720	\$2,649,651,637	0.00%	0.00%
339114	Dental Equipment and Supplies Manufacturing	557	557	\$7,362	\$5,122,480,302	\$375,599,817	0.00%	0.00%
339115	Ophthalmic Goods Manufacturing	336	336	\$7,119	\$6,175,778,513	\$452,831,664	0.00%	0.00%
339116	Dental Laboratories	5,637	5,637	\$65,129	\$5,024,370,977	\$368,406,067	0.00%	0.02%
339910	Jewelry and Silverware Manufacturing	1,967	1,967	\$23,417	\$7,504,994,935	\$302,745,487	0.00%	0.01%

Table VII-22: Screening Analysis for Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Firms	Affected Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
339920	Sporting and Athletic Goods Manufacturing	1,586	1,586	\$22,231	\$10,658,798,838	\$429,967,412	0.00%	0.01%
339930	Doll, Toy, and Game Manufacturing	503	503	\$6,247	\$1,720,555,223	\$69,405,820	0.00%	0.01%
339940	Office Supplies (except Paper) Manufacturing	423	423	\$6,196	\$3,320,217,162	\$133,934,902	0.00%	0.00%
339950	Sign Manufacturing	5,602	5,602	\$72,420	\$13,212,923,236	\$532,998,745	0.00%	0.01%
339991	Gasket, Packing, and Sealing Device Manufacturing	490	490	\$9,819	\$7,540,016,634	\$304,158,235	0.00%	0.00%
339992	Musical Instrument Manufacturing	585	585	\$7,822	\$2,040,059,050	\$82,294,349	0.00%	0.01%
339993	Fastener, Button, Needle, and Pin Manufacturing	103	103	\$1,567	\$932,759,282	\$37,626,763	0.00%	0.00%
339994	Broom, Brush, and Mop Manufacturing	168	168	\$3,266	\$2,968,149,189	\$119,732,762	0.00%	0.00%
339995	Burial Casket Manufacturing	82	82	\$1,397	\$595,589,836	\$24,025,617	0.00%	0.01%
339999	All Other Miscellaneous Manufacturing	5,738	5,738	\$65,966	\$12,729,195,852	\$513,485,370	0.00%	0.01%
42	Wholesale Trade	266,333	49,806	\$213,209	\$8,241,112,357,137	\$187,764,000,889	0.00%	0.00%
423	Merchant Wholesalers, Durable Goods	168,238	13,697	\$59,554	\$3,730,586,842,837	\$78,224,194,326	0.00%	0.00%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	7,886	7,886	\$32,883	\$227,956,291,687	\$5,659,037,892	0.00%	0.00%
423840	Industrial Supplies Merchant Wholesalers	5,811	5,811	\$26,671	\$76,784,521,382	\$2,369,037,938	0.00%	0.00%
424	Merchant Wholesalers, Nondurable Goods	98,095	36,109	\$153,654	\$4,510,525,514,300	\$109,539,806,563	0.00%	0.00%
424210	Drugs and Druggists' Sundries Merchant Wholesalers	6,958	6,958	\$35,832	\$993,553,873,870	\$34,478,605,779	0.00%	0.00%
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	2,218	2,218	\$8,475	\$47,943,855,645	\$1,464,284,802	0.00%	0.00%
424690	Other Chemical and Allied Products Merchant Wholesalers	6,069	6,069	\$28,715	\$190,251,901,023	\$5,810,608,336	0.00%	0.00%
424710	Petroleum Bulk Stations and Terminals	2,334	2,334	\$13,649	\$553,795,115,137	\$5,343,134,660	0.00%	0.00%
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,857	1,857	\$7,426	\$389,029,156,042	\$5,683,080,283	0.00%	0.00%
424910	Farm Supplies Merchant Wholesalers	4,965	4,965	\$26,634	\$143,037,724,037	\$3,880,616,514	0.00%	0.00%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	1,012	1,012	\$5,100	\$18,239,107,674	\$423,672,981	0.00%	0.00%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	10,696	10,696	\$27,823	\$45,182,648,502	\$1,049,539,689	0.00%	0.00%
Total	Total	6,077,430	115,758	\$4,385,974	\$42,567,021,362,731	\$5,795,377,657,021	0.00%	0.00%

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health.
 Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.

In the case of costs that may be incurred due to the requirements of the

proposed revisions to the HCS, all businesses within each of the covered

industry sectors would be subject to the same requirements. Thus, to the extent

potential price increases correspond to costs associated with achieving compliance with the revised standard, the elasticity of demand for each entity will approach that faced by the industry as a whole.

Furthermore, if OSHA adopts the proposed revisions to the HCS, hazardous chemicals distributed in the United States will have to be in compliance with the updated provisions, and chemical producers and users in most advanced economies will be operating under comparable requirements based on the GHS specific to their own country or economic union. For this reason, affected domestic establishments should not be susceptible to a loss of domestic market share resulting from the competition of foreign commercial entities not bound by the requirements of the HCS or similar GHS requirements.

Given the small increases in prices potentially resulting from compliance with the proposed revisions to the HCS in any particular industry, and the lack of readily available substitutes for the products and services provided by the covered industry sectors, demand is expected to be sufficiently inelastic in each affected industry to enable entities to substantially offset compliance costs through minor price increases without experiencing any significant reduction in revenues or profits. For example, for NAICS 324191: Petroleum Lubricating Oil and Grease Manufacturing, even if zero cost savings are obtained and gross positive costs reach OSHA's estimated total (\$1,221,994; see Table VII-22), revenue impacts (0.0074 percent, rounded to 0.01 percent) and profit impacts (0.108 percent, rounded to 0.11 percent) fall well below OSHA's screening criteria associated with economic feasibility concerns. OSHA therefore preliminarily concludes that the proposed rule, if implemented, would be economically feasible. The

agency invites comments on this preliminary conclusion.

H. Preliminary Regulatory Flexibility Act Certification

To determine whether the proposed revisions to the HCS will have a significant economic impact on a substantial number of small entities, OSHA evaluated the impact of compliance costs on the revenues and profits of small entities in affected industries. As discussed previously, the proposed rule would impose costs on impacted industries for training; for reclassification of aerosols, desensitized explosives, and flammable gases; and for becoming familiar with the proposed changes to the standard. The proposed rule would also result in cost savings to the extent it would limit employers' duties with respect to the labeling of some very small containers and provide more flexible relabeling requirements for packaged chemicals released for shipment.

OSHA believes that the estimated costs are one-time costs that would be incurred during the first-year transition period after the rule is promulgated. In addition, as mentioned above, there will be annual cost savings due to the flexibilities introduced in the proposed provision related to the labeling of very small containers and in the proposed released-for-shipment provision.

Tables VII-23 and VII-24 present OSHA's screening analysis of the impact of compliance costs and cost savings on revenues and profits of small and very small entities. Tables VII-25 and VII-26 present OSHA's screening analysis of impacts on revenues and profits for small and very small entities under the scenario that zero-cost savings are realized, *i.e.*, only positive costs are incurred by affected employers. OSHA's screening criteria for determining whether there are significant economic impacts on small firms assesses whether, for small entities in any given industry, the annualized costs exceed

one percent of revenues or five percent of profits.⁵⁷

The total annualized cost savings resulting from the proposed revisions to the HCS for small entities and very small entities are estimated to be approximately \$17.1 million and \$1.7 million, respectively (see Tables VII-23 and VII-24). To assess the potential economic impact of the proposed rule on small entities and very small entities, OSHA calculated the ratios of compliance costs to profits and to revenues. These ratios are presented for each affected industry in Tables VII-23 (small entities) and VII-24 (very small entities). Those tables show that in no industries do the annualized costs of the proposed revisions to the standard exceed one percent of annual revenues or five percent of annual profits, either for small entities or for very small entities. Similarly, under a cost scenario exclusive of cost savings (shown in Tables VII-25 and VII-26), in no industries do the annualized costs of the proposed rule exceed one percent of annual revenues or five percent of annual profits. Because no adverse revenue and profit impacts are expected to result from this proposed revision to the HCS, OSHA preliminarily certifies that the proposed changes to the standard will not have a significant economic impact on a substantial number of small entities. The agency invites comments on this preliminary certification.

⁵⁷ OSHA's screening criteria underlying the determination of significant economic impacts were developed in accordance with published guidelines for implementation of the Small Business Regulatory Enforcement Fairness Act amendment to the Regulatory Flexibility Act; Executive Orders 12866, 13563, and 13771; and the Unfunded Mandates Reform Act. For a recent example of the application of these screening criteria, see the Final Economic Analysis and Final Regulatory Flexibility Analysis for the Final Rule for Occupational Exposure to Respirable Crystalline Silica, Chapter VI: Economic Feasibility Analysis and Regulatory Flexibility Determination, Document ID 0045.

Table VII-23: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Costs as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	13,480	5,111	\$254,229	\$126,641,777,686	\$8,118,387,317	0.00%	0.00%
211	Oil and Gas Extraction	5,111	5,111	\$254,229	\$100,248,982,771	\$6,247,086,913	0.00%	0.00%
21120	Crude Petroleum Extraction	4,519	4,519	\$180,109	\$74,442,621,084	\$4,638,945,066	0.00%	0.00%
21130	Natural Gas Extraction	592	592	\$74,120	\$25,806,361,687	\$1,608,141,848	0.00%	0.00%
31-33	Manufacturing	160,080	35,641	-\$307,017	\$1,019,372,711,131	\$46,934,620,433	0.00%	0.00%
324	Petroleum and Coal Products Manufacturing	488	488	\$80,914	\$36,291,381,929	\$2,477,359,321	0.00%	0.00%
324110	Petroleum Refineries	8	8	\$6,300	\$27,122,075,639	\$1,847,343,982	0.00%	0.00%
324121	Asphalt Paving Mixture and Block Manufacturing	422	422	\$35,347	\$6,354,692,152	\$438,285,045	0.00%	0.01%
324191	Petroleum Lubricating Oil and Grease Manufacturing	4	4	\$34,585	\$1,246,859,746	\$84,935,545	0.00%	0.04%
324199	All Other Petroleum and Coal Products Manufacturing	54	54	\$4,683	\$1,567,754,391	\$106,794,749	0.00%	0.00%
325	Chemical Manufacturing	5,729	5,729	-\$669,340	\$133,195,382,934	\$11,287,569,408	0.00%	-0.01%
325110	Petrochemical Manufacturing	3	3	\$1,893	\$0	\$0	0.00%	0.00%
325130	Synthetic Dye and Pigment Manufacturing	5	5	\$446	\$908,334,950	\$30,994,367	0.00%	0.00%
325180	Other Basic Inorganic Chemical Manufacturing	24	24	-\$18,861	\$2,244,838,764	\$76,598,789	0.00%	-0.02%
325193	Ethyl Alcohol Manufacturing	3	3	\$227	\$315,684,675	\$10,771,849	0.00%	0.00%
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	37	37	\$2,391	\$1,276,990,010	\$43,573,681	0.00%	0.01%
325199	All Other Basic Organic Chemical Manufacturing	515	515	-\$161,844	\$22,367,221,007	\$763,218,305	0.00%	-0.02%
325211	Plastics Material and Resin Manufacturing	771	771	\$121,371	\$23,872,209,387	\$1,418,125,169	0.00%	0.01%
325311	Nitrogenous Fertilizer Manufacturing	3	3	\$77	\$0	\$0	0.00%	0.00%
325312	Phosphatic Fertilizer Manufacturing	5	5	-\$24,914	\$100,008,328	\$9,715,637	-0.02%	-0.26%
325314	Fertilizer (Mixing Only) Manufacturing	340	340	-\$866,594	\$3,500,940,093	\$340,111,012	-0.02%	-0.23%
325411	Medicinal and Botanical Manufacturing	8	8	-\$6,015	\$715,521,577	\$99,247,824	0.00%	-0.01%
325412	Pharmaceutical Preparation Manufacturing	930	930	\$90,292	\$30,020,579,790	\$4,164,063,428	0.00%	0.00%
325413	In-Vitro Diagnostic Substance Manufacturing	167	167	\$26,614	\$2,572,663,655	\$356,846,361	0.00%	0.01%
325414	Biological Product (except Diagnostic) Manufacturing	221	221	\$3,818	\$5,863,984,063	\$813,375,416	0.00%	0.00%
325510	Paint and Coating Manufacturing	17	17	-\$107,820	\$2,152,126,723	\$89,777,490	-0.01%	-0.12%
325520	Adhesive Manufacturing	350	350	\$58,659	\$5,069,280,212	\$211,468,614	0.00%	0.03%
325612	Polish and Other Sanitation Good Manufacturing	4	4	\$714	\$121,727,113	\$15,025,819	0.00%	0.00%
325620	Toilet Preparation Manufacturing	896	896	\$142,177	\$16,735,776,539	\$2,065,840,121	0.00%	0.01%
325910	Printing Ink Manufacturing	161	161	\$16,517	\$1,401,449,523	\$71,070,871	0.00%	0.02%
325991	Custom Compounding of Purchased Resins	292	292	\$5,705	\$4,898,316,623	\$248,405,400	0.00%	0.00%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	3	3	\$274	\$0	\$0	0.00%	0.00%
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	974	974	\$45,534	\$9,057,729,902	\$459,339,236	0.00%	0.01%
326	Plastics and Rubber Products Manufacturing	1,543	1,543	\$9,864	\$29,139,202,553	\$684,076,077	0.00%	0.00%
326111	Plastics Bag and Pouch Manufacturing	5	5	\$58	\$784,503,219	\$20,127,199	0.00%	0.00%

Table VII-23: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenue	Cost as a Percent of Profits
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	8	8	\$103	\$1,208,634,905	\$31,008,713	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	11	11	\$127	\$1,576,497,917	\$40,446,600	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Manufacturing	286	286	\$1,694	\$2,702,661,509	\$69,339,431	0.00%	0.00%
326122	Plastics Pipe and Pipe Fitting Manufacturing	3	3	\$75	\$225,529,681	\$5,786,185	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	177	177	\$920	\$1,742,170,853	\$44,697,101	0.00%	0.00%
326140	Polystyrene Foam Product Manufacturing	8	8	\$155	\$1,052,864,685	\$27,012,276	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	11	11	\$112	\$857,095,712	\$21,989,631	0.00%	0.00%
326160	Plastics Bottle Manufacturing	183	183	\$1,657	\$3,432,455,453	\$88,063,010	0.00%	0.00%
326191	Plastics Plumbing Fixture Manufacturing	5	5	\$70	\$550,566,149	\$14,125,314	0.00%	0.00%
326199	All Other Plastics Product Manufacturing	73	73	\$764	\$7,718,903,091	\$198,036,027	0.00%	0.00%
326211	Tire Manufacturing (except Retreading)	3	3	\$45	\$1,062,901,057	\$18,005,165	0.00%	0.00%
326212	Tire Retreading	245	245	\$1,054	\$878,258,502	\$14,877,386	0.00%	0.01%
326220	Rubber and Plastics Hoses and Belting Manufacturing	7	7	\$68	\$469,067,062	\$7,945,829	0.00%	0.00%
326291	Rubber Product Manufacturing for Mechanical Use	7	7	\$73	\$666,269,920	\$11,286,375	0.00%	0.00%
326299	All Other Rubber Product Manufacturing	511	511	\$2,889	\$4,210,822,837	\$71,329,836	0.00%	0.00%
327	Nonmetallic Mineral Product Manufacturing	6,636	6,636	\$31,859	\$39,957,576,507	\$648,610,549	0.00%	0.00%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	4	4	\$20	\$277,050,335	\$4,358,024	0.00%	0.00%
327120	Clay Building Material and Refractories Manufacturing	7	7	\$155	\$706,797,682	\$11,117,985	0.00%	0.00%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	372	372	\$1,418	\$1,168,942,607	\$33,096,262	0.00%	0.00%
327213	Glass Container Manufacturing	21	21	\$160	\$333,956,284	\$9,455,302	0.00%	0.00%
327215	Glass Product Manufacturing Made of Purchased Glass	7	7	\$65	\$686,676,277	\$19,441,860	0.00%	0.00%
327310	Cement Manufacturing	4	4	\$41	\$527,929,122	\$7,762,372	0.00%	0.00%
327320	Ready-Mix Concrete Manufacturing	2,038	2,038	\$11,993	\$17,735,436,381	\$260,771,844	0.00%	0.00%
327331	Concrete Block and Brick Manufacturing	401	401	\$2,291	\$2,979,630,278	\$43,810,801	0.00%	0.01%
327332	Concrete Pipe Manufacturing	3	3	\$80	\$157,861,666	\$2,321,109	0.00%	0.00%
327390	Other Concrete Product Manufacturing	1,511	1,511	\$7,194	\$7,821,743,134	\$115,006,495	0.00%	0.01%
327410	Lime Manufacturing	3	3	\$66	\$0	\$0	0.00%	0.00%
327991	Cut Stone and Stone Product Manufacturing	1,886	1,886	\$6,442	\$4,360,344,846	\$81,577,349	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	125	125	\$689	\$1,326,716,138	\$24,821,428	0.00%	0.00%
327993	Mineral Wool Manufacturing	4	4	\$31	\$246,343,878	\$4,608,828	0.00%	0.00%
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	250	250	\$1,214	\$1,628,147,880	\$30,460,891	0.00%	0.00%
331	Primary Metal Manufacturing	1,219	1,219	\$6,983	\$30,289,721,564	\$751,879,539	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	26	26	\$425	\$12,141,766,502	\$150,711,488	0.00%	0.00%

Table VII-23: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	11	11	\$197	\$1,426,594,136	\$29,696,869	0.00%	0.00%
331221	Rolled Steel Shape Manufacturing	7	7	\$35	\$524,401,481	\$10,916,267	0.00%	0.00%
331222	Steel Wire Drawing	9	9	\$141	\$1,092,743,284	\$22,747,222	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	49	49	\$526	\$1,812,679,081	\$43,887,243	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	8	8	\$87	\$1,042,425,463	\$25,737,563	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	5	5	\$40	\$1,513,416,451	\$31,504,216	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	7	7	\$75	\$2,483,469,095	\$51,697,434	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	3	3	\$15	\$181,179,708	\$3,771,549	0.00%	0.00%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	3	3	\$15	\$0	\$0	0.00%	0.00%
331511	Iron Foundries	3	3	\$20	\$86,096,560	\$4,066,492	0.00%	0.00%
331512	Steel Investment Foundries	6	6	\$71	\$832,718,001	\$39,330,733	0.00%	0.00%
331513	Steel Foundries (except Investment)	172	172	\$933	\$1,520,040,544	\$71,794,183	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	315	315	\$1,733	\$2,531,019,436	\$119,544,491	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	359	359	\$1,632	\$1,831,306,669	\$86,495,829	0.00%	0.00%
331529	Other Nonferrous Metal Foundries (except Die-Casting)	236	236	\$1,039	\$1,269,865,153	\$59,977,960	0.00%	0.00%
339	Miscellaneous Manufacturing	20,026	20,026	\$232,702	\$39,530,013,204	\$1,919,889,733	0.00%	0.01%
339112	Surgical and Medical Instrument Manufacturing	26	26	\$969	\$4,254,912,087	\$311,986,403	0.00%	0.00%
339113	Surgical Appliance and Supplies Manufacturing	10	10	\$202	\$977,823,332	\$71,697,741	0.00%	0.00%
339114	Dental Equipment and Supplies Manufacturing	5	5	\$127	\$679,750,171	\$49,841,878	0.00%	0.00%
339115	Ophthalmic Goods Manufacturing	4	4	\$231	\$197,531,165	\$14,483,739	0.00%	0.00%
339116	Dental Laboratories	5,623	5,623	\$57,004	\$3,751,568,850	\$275,079,354	0.00%	0.02%
339910	Jewelry and Silverware Manufacturing	1,954	1,954	\$22,552	\$3,925,308,912	\$158,343,819	0.00%	0.01%
339920	Sporting and Athletic Goods Manufacturing	9	9	\$283	\$1,235,218,821	\$49,827,738	0.00%	0.00%
339930	Doll, Toy, and Game Manufacturing	498	498	\$6,090	\$1,298,334,418	\$52,373,771	0.00%	0.01%
339940	Office Supplies (except Paper) Manufacturing	6	6	\$97	\$460,233,465	\$18,565,450	0.00%	0.00%
339950	Sign Manufacturing	5,571	5,571	\$70,576	\$10,768,055,741	\$434,374,748	0.00%	0.02%
339991	Gasket, Packing, and Sealing Device Manufacturing	450	450	\$6,975	\$2,504,878,488	\$101,044,793	0.00%	0.01%
339992	Musical Instrument Manufacturing	3	3	\$129	\$465,435,364	\$18,775,290	0.00%	0.00%
339994	Broom, Brush, and Mop Manufacturing	153	153	\$2,424	\$1,160,531,125	\$46,814,896	0.00%	0.01%
339999	All Other Miscellaneous Manufacturing	5,714	5,714	\$65,044	\$7,850,451,266	\$316,680,112	0.00%	0.02%
42	Wholesale Trade	255,199	47,541	-\$17,547,454	\$2,029,694,592,065	\$46,557,861,792	0.00%	-0.04%
423	Merchant Wholesalers, Durable Goods	161,160	13,098	\$41,544	\$1,038,998,940,330	\$22,996,072,728	0.00%	0.00%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	7,652	7,652	\$24,512	\$34,060,394,933	\$845,552,734	0.00%	0.00%
423840	Industrial Supplies Merchant Wholesalers	5,446	5,446	\$17,032	\$26,894,452,293	\$829,776,323	0.00%	0.00%

Table VII-23: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
424	Merchant Wholesalers, Nondurable Goods	94,039	34,443	\$17,588,998	\$990,695,651,735	\$23,561,789,065	0.00%	-0.07%
424210	Drugs and Druggists' Sundries Merchant Wholesalers	6,663	6,663	\$22,759	\$75,561,309,955	\$2,622,151,336	0.00%	0.00%
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	2,090	2,090	\$6,639	\$19,151,107,910	\$584,906,572	0.00%	0.00%
424690	Other Chemical and Allied Products Merchant Wholesalers	5,760	5,760	\$18,937	\$49,029,260,628	\$1,497,434,869	0.00%	0.00%
424710	Petroleum Bulk Stations and Terminals	2,086	2,086	\$8,705	\$116,687,155,895	\$1,125,822,836	0.00%	0.00%
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,691	1,691	\$5,361	\$110,304,296,920	\$1,064,239,637	0.00%	0.00%
424910	Farm Supplies Merchant Wholesalers	4,777	4,777	\$14,331,031	\$46,711,531,722	\$1,267,284,855	-0.03%	-1.13%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	958	958	\$3,346,555	\$4,622,011,771	\$107,363,888	-0.07%	-3.12%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	10,418	10,418	\$26,187	\$27,846,311,288	\$646,837,002	0.00%	0.00%
Total	Total	5,820,799	88,293	\$17,600,242	\$11,528,927,098,095	\$1,258,949,490,569	0.00%	0.00%

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health (Document ID 0049).

Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.

Table VII-24: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	13,018	4,573	\$172,384	\$17,191,968,980	\$1,130,270,113	0.00%	0.02%
211	Oil and Gas Extraction	4,573	4,573	\$172,384	\$10,327,453,313	\$643,562,624	0.00%	0.03%
211120	Crude Petroleum Extraction	4,112	4,112	\$135,467	\$8,159,920,407	\$508,491,264	0.00%	0.03%
211130	Natural Gas Extraction	461	461	\$36,918	\$2,167,532,907	\$135,071,360	0.00%	0.03%
31-33	Manufacturing	185,713	42,571	\$72,088	\$201,349,874,448	\$8,599,149,973	0.00%	0.00%
324	Petroleum and Coal Products Manufacturing	482	482	\$176,576	\$2,264,038,256	\$155,524,865	0.01%	0.11%
324110	Petroleum Refineries	11	11	\$1,595	\$102,309,469	\$6,968,522	0.00%	0.02%
324121	Asphalt Paving Mixture and Block Manufacturing	233	233	\$14,604	\$1,224,335,797	\$84,442,811	0.00%	0.02%
324122	Asphalt Shingle and Coating Materials Manufacturing	67	67	\$4,111	\$304,121,711	\$20,975,367	0.00%	0.02%
324191	Petroleum Lubricating Oil and Grease Manufacturing	134	134	\$153,934	\$515,936,132	\$35,145,346	0.03%	0.44%
324199	All Other Petroleum and Coal Products Manufacturing	37	37	\$2,332	\$117,335,147	\$7,992,819	0.00%	0.03%
325	Chemical Manufacturing	6,028	6,028	-\$356,211	\$15,398,580,338	\$1,259,377,873	0.00%	-0.03%
325110	Petrochemical Manufacturing	7	7	\$1,018	\$54,148,510	\$1,847,665	0.00%	0.06%
325120	Industrial Gas Manufacturing	39	39	\$1,611	\$113,739,490	\$3,881,039	0.00%	0.04%
325130	Synthetic Dye and Pigment Manufacturing	58	58	\$2,895	\$153,296,928	\$5,230,825	0.00%	0.06%
325180	Other Basic Inorganic Chemical Manufacturing	146	146	-\$1,285	\$579,118,600	\$19,760,788	0.00%	-0.01%
325193	Ethyl Alcohol Manufacturing	18	18	\$622	\$237,677,096	\$8,110,060	0.00%	0.01%
325194	Cyclic Crude, Intermediates, and Gum and Wood Chemical Manufacturing	20	20	\$884	\$80,989,829	\$2,763,549	0.00%	0.03%
325199	All Other Basic Organic Chemical Manufacturing	260	260	\$1,434	\$1,118,327,492	\$38,159,770	0.00%	0.00%
325211	Plastics Material and Resin Manufacturing	349	349	\$11,428	\$1,160,497,774	\$68,939,204	0.00%	0.02%
325212	Synthetic Rubber Manufacturing	64	64	\$997	\$185,348,301	\$11,010,589	0.00%	0.01%
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	40	40	\$394	\$109,443,461	\$6,501,473	0.00%	0.01%
325311	Nitrogenous Fertilizer Manufacturing	101	101	-\$83,984	\$339,914,652	\$33,022,192	-0.02%	-0.25%
325312	Phosphatic Fertilizer Manufacturing	11	11	-\$15,489	\$62,388,297	\$6,060,928	-0.02%	-0.26%
325314	Fertilizer (Mixing Only) Manufacturing	235	235	-\$142,627	\$585,272,906	\$56,858,374	-0.02%	-0.25%
325320	Pesticide and Other Agricultural Chemical Manufacturing	116	116	\$12,461	\$375,076,009	\$36,438,064	0.00%	0.03%
325411	Medicinal and Botanical Manufacturing	271	271	\$4,712	\$460,867,342	\$63,925,509	0.00%	0.01%
325412	Pharmaceutical Preparation Manufacturing	579	579	\$45,249	\$1,865,009,961	\$258,689,866	0.00%	0.02%
325413	In-Vitro Diagnostic Substance Manufacturing	91	91	\$5,599	\$151,862,834	\$21,064,432	0.00%	0.03%
325414	Biological Product (except Diagnostic) Manufacturing	136	136	\$2,520	\$532,418,832	\$73,850,199	0.00%	0.00%
325510	Paint and Coating Manufacturing	683	683	-\$334,171	\$1,556,606,813	\$64,934,956	-0.02%	-0.51%
325520	Adhesive Manufacturing	214	214	\$17,172	\$652,936,917	\$27,237,726	0.00%	0.06%
325611	Soap and Other Detergent Manufacturing	454	454	\$36,344	\$649,681,023	\$80,195,689	0.01%	0.05%
325612	Polish and Other Sanitation Good Manufacturing	291	291	\$11,998	\$424,493,885	\$52,398,913	0.00%	0.02%
325613	Surface Active Agent Manufacturing	59	59	\$4,725	\$153,105,159	\$18,899,080	0.00%	0.02%

Table VII-24: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
325620	Toilet Preparation Manufacturing	623	623	\$25,667	\$1,472,297,515	\$181,738,282	0.00%	0.01%
325910	Printing Ink Manufacturing	111	111	\$3,635	\$268,942,637	\$13,638,727	0.00%	0.03%
325920	Explosives Manufacturing	19	19	\$790	\$39,569,945	\$2,006,687	0.00%	0.04%
325991	Custom Compounding of Purchased Resins	179	179	\$2,788	\$558,480,571	\$28,321,891	0.00%	0.01%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	143	143	\$3,088	\$165,749,365	\$8,405,548	0.00%	0.04%
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	711	711	\$23,315	\$1,291,318,197	\$65,485,847	0.00%	0.04%
326	Plastics and Rubber Products Manufacturing	5,073	5,073	\$10,484	\$8,440,100,253	\$206,019,667	0.00%	0.01%
326111	Plastics Bag and Pouch Manufacturing	112	112	\$235	\$289,529,597	\$7,428,166	0.00%	0.00%
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	101	101	\$211	\$253,189,490	\$6,495,825	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	215	215	\$444	\$389,897,411	\$10,003,200	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Manufacturing	148	148	\$306	\$212,873,316	\$5,461,474	0.00%	0.01%
326122	Plastics Pipe and Pipe Fitting Manufacturing	115	115	\$237	\$319,401,690	\$8,194,563	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	113	113	\$233	\$175,678,590	\$4,507,206	0.00%	0.01%
326140	Poly-styrene Foam Product Manufacturing	145	145	\$299	\$369,023,841	\$9,467,668	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	208	208	\$429	\$463,923,130	\$11,902,403	0.00%	0.00%
326160	Plastics Bottle Manufacturing	66	66	\$136	\$153,118,708	\$3,928,411	0.00%	0.00%
326191	Plastics Plumbing Fixture Manufacturing	182	182	\$376	\$246,216,000	\$6,316,913	0.00%	0.01%
326199	All Other Plastics Product Manufacturing	2,904	2,904	\$6,000	\$4,360,390,703	\$111,870,098	0.00%	0.01%
326211	Tire Manufacturing (except Retreading)	38	38	\$78	\$42,665,336	\$722,736	0.00%	0.01%
326212	Tire Retreading	156	156	\$322	\$226,970,376	\$3,844,797	0.00%	0.01%
326220	Rubber and Plastics Hoses and Belting Manufacturing	104	104	\$215	\$195,530,785	\$3,312,222	0.00%	0.01%
326291	Rubber Product Manufacturing for Mechanical Use	162	162	\$334	\$280,991,735	\$4,759,900	0.00%	0.01%
326299	All Other Rubber Product Manufacturing	304	304	\$628	\$460,699,545	\$7,804,086	0.00%	0.01%
327	Nonmetallic Mineral Product Manufacturing	6,513	6,513	\$13,604	\$9,253,585,860	\$160,254,290	0.00%	0.01%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	462	462	\$954	\$240,529,651	\$3,783,551	0.00%	0.03%
327120	Clay Building Material and Refractories Manufacturing	199	199	\$411	\$392,927,143	\$6,180,776	0.00%	0.01%
327211	Flat Glass Manufacturing	29	29	\$60	\$34,821,593	\$985,903	0.00%	0.01%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	312	312	\$646	\$200,184,295	\$5,667,816	0.00%	0.01%
327213	Glass Container Manufacturing	13	13	\$27	\$18,906,902	\$535,311	0.00%	0.01%
327215	Glass Product Manufacturing Made of Purchased Glass	736	736	\$1,522	\$694,354,717	\$19,659,259	0.00%	0.01%
327310	Cement Manufacturing	54	54	\$116	\$113,207,958	\$1,664,546	0.00%	0.01%
327320	Ready-Mix Concrete Manufacturing	1,275	1,275	\$2,736	\$3,102,958,186	\$45,624,145	0.00%	0.01%
327331	Concrete Block and Brick Manufacturing	241	241	\$506	\$448,924,550	\$6,600,733	0.00%	0.01%
327332	Concrete Pipe Manufacturing	47	47	\$97	\$84,751,199	\$1,246,134	0.00%	0.01%

Table VII-24: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
327390	Other Concrete Product Manufacturing	1,018	1,018	\$2,110	\$1,265,924,521	\$18,613,439	0.00%	0.01%
327410	Lime Manufacturing	17	17	\$37	\$38,643,412	\$722,977	0.00%	0.01%
327420	Gypsum Product Manufacturing	98	98	\$202	\$168,446,629	\$3,151,455	0.00%	0.01%
327910	Abrasive Product Manufacturing	159	159	\$328	\$307,171,245	\$5,746,843	0.00%	0.01%
327991	Cut Stone and Stone Product Manufacturing	1,506	1,506	\$3,130	\$1,479,155,319	\$27,673,400	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	70	70	\$147	\$158,566,389	\$2,966,606	0.00%	0.00%
327993	Mineral Wool Manufacturing	99	99	\$204	\$162,470,543	\$3,039,649	0.00%	0.01%
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	178	178	\$372	\$341,641,610	\$6,391,746	0.00%	0.01%
331	Primary Metal Manufacturing	1,802	1,802	\$3,729	\$3,862,267,143	\$106,827,885	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	197	197	\$407	\$356,014,680	\$6,901,615	0.00%	0.01%
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	50	50	\$103	\$74,174,756	\$1,544,068	0.00%	0.01%
331221	Rolled Steel Shape Manufacturing	85	85	\$175	\$222,220,982	\$4,625,890	0.00%	0.00%
331222	Steel Wire Drawing	113	113	\$233	\$175,334,657	\$3,649,875	0.00%	0.01%
331313	Alumina Refining and Primary Aluminum Production	12	12	\$25	\$9,684,303	\$239,106	0.00%	0.01%
331314	Secondary Smelting and Alloying of Aluminum	19	19	\$39	\$85,089,920	\$2,100,876	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	31	31	\$64	\$138,958,073	\$3,364,350	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	98	98	\$202	\$179,057,465	\$4,420,942	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	76	76	\$159	\$334,535,758	\$6,963,904	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	63	63	\$130	\$273,033,150	\$5,684,044	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	141	141	\$293	\$272,540,378	\$5,673,370	0.00%	0.01%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	98	98	\$206	\$422,211,424	\$8,789,015	0.00%	0.00%
331511	Iron Foundries	138	138	\$285	\$235,041,323	\$11,101,414	0.00%	0.00%
331512	Steel Investment Foundries	26	26	\$54	\$59,008,379	\$2,787,069	0.00%	0.00%
331513	Steel Foundries (except Investment)	89	89	\$184	\$158,529,911	\$7,487,646	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	180	180	\$372	\$264,021,276	\$12,470,188	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	227	227	\$469	\$218,051,062	\$10,298,934	0.00%	0.00%
331529	Other Nonferrous Metal Foundries (except Die-Casting)	159	159	\$328	\$184,739,645	\$8,725,578	0.00%	0.00%
339	Miscellaneous Manufacturing	22,673	22,673	\$223,907	\$14,517,096,167	\$741,894,194	0.00%	0.03%
339112	Surgical and Medical Instrument Manufacturing	651	651	\$6,414	\$919,970,207	\$67,455,729	0.00%	0.01%
339113	Surgical Appliance and Supplies Manufacturing	1,179	1,179	\$11,823	\$1,493,451,442	\$109,505,563	0.00%	0.01%
339114	Dental Equipment and Supplies Manufacturing	468	468	\$4,621	\$281,217,897	\$20,619,970	0.00%	0.02%
339115	Ophthalmic Goods Manufacturing	257	257	\$2,532	\$238,750,582	\$17,506,104	0.00%	0.01%
339116	Dental Laboratories	5,294	5,294	\$52,228	\$1,804,762,383	\$132,332,070	0.00%	0.04%
339910	Jewelry and Silverware Manufacturing	1,763	1,763	\$17,390	\$1,177,940,358	\$47,517,171	0.00%	0.04%

Table VII-24: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
339920	Sporting and Athletic Goods Manufacturing	1,289	1,289	\$12,739	\$970,497,005	\$39,149,072	0.00%	0.03%
339930	Doll, Toy, and Game Manufacturing	434	434	\$4,276	\$357,636,551	\$14,426,772	0.00%	0.03%
339940	Office Supplies (except Paper) Manufacturing	328	328	\$3,281	\$259,199,969	\$10,455,919	0.00%	0.03%
339950	Sign Manufacturing	4,774	4,774	\$47,134	\$2,909,036,588	\$117,348,207	0.00%	0.04%
339991	Gasket, Packing, and Sealing Device Manufacturing	293	293	\$2,897	\$439,494,549	\$17,728,858	0.00%	0.02%
339992	Musical Instrument Manufacturing	504	504	\$4,966	\$255,684,563	\$10,314,111	0.00%	0.03%
339993	Fastener, Button, Needle, and Pin Manufacturing	76	76	\$749	\$52,427,806	\$2,114,896	0.00%	0.04%
339994	Broom, Brush, and Mop Manufacturing	96	96	\$946	\$122,499,344	\$4,941,525	0.00%	0.02%
339995	Burial Casket Manufacturing	59	59	\$591	\$34,718,413	\$1,400,513	0.00%	0.04%
339999	All Other Miscellaneous Manufacturing	5,208	5,208	\$51,321	\$3,199,808,510	\$129,077,714	0.00%	0.04%
42	Wholesale Trade	218,009	41,030	-\$1,917,813	\$662,069,497,910	\$15,930,366,430	0.00%	-0.01%
423	Merchant Wholesalers, Durable Goods	137,679	11,469	\$23,999	\$358,307,048,518	\$8,191,349,278	0.00%	0.00%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	6,893	6,893	\$14,318	\$12,491,750,129	\$310,108,955	0.00%	0.00%
423840	Industrial Supplies Merchant Wholesalers	4,576	4,576	\$9,681	\$12,377,632,116	\$381,888,523	0.00%	0.00%
424	Merchant Wholesalers, Nondurable Goods	80,330	29,561	-\$1,941,812	\$303,762,449,392	\$7,739,017,152	0.00%	-0.03%
424210	Drugs and Druggists' Sundries Merchant Wholesalers	5,661	5,661	\$11,785	\$19,231,035,837	\$667,361,198	0.00%	0.00%
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	1,782	1,782	\$3,787	\$8,687,864,991	\$265,341,794	0.00%	0.00%
424690	Other Chemical and Allied Products Merchant Wholesalers	4,967	4,967	\$10,486	\$20,817,877,435	\$635,812,476	0.00%	0.00%
424710	Petroleum Bulk Stations and Terminals	1,334	1,334	\$2,886	\$19,778,343,816	\$190,825,725	0.00%	0.00%
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,301	1,301	\$2,715	\$21,107,021,411	\$203,645,093	0.00%	0.00%
424910	Farm Supplies Merchant Wholesalers	3,985	3,985	-\$1,640,179	\$15,813,831,821	\$429,029,596	-0.01%	-0.38%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	803	803	-\$353,481	\$1,831,250,389	\$42,537,789	-0.02%	-0.83%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	9,728	9,728	\$20,188	\$15,541,966,801	\$361,021,577	0.00%	0.01%
Total	Total	5,305,646	88,174	-\$1,673,340	\$4,339,862,178,615	\$165,526,269,969	0.00%	0.00%

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health (Document ID 0049).

Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.

Table VII-25: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	13,480	5,111	\$254,229	\$126,641,777,686	\$8,118,387,317	0.00%	0.00%
211	Oil and Gas Extraction	5,111	5,111	\$254,229	\$100,248,982,771	\$6,247,086,913	0.00%	0.00%
211120	Crude Petroleum Extraction	4,519	4,519	\$180,109	\$74,442,621,084	\$4,638,945,066	0.00%	0.00%
211130	Natural Gas Extraction	592	592	\$74,120	\$25,806,361,687	\$1,608,141,848	0.00%	0.00%
31-33	Manufacturing	160,080	35,641	\$971,639	\$1,019,372,711,131	\$46,934,620,433	0.00%	0.00%
324	Petroleum and Coal Products Manufacturing	488	488	\$80,914	\$36,291,381,929	\$2,477,359,321	0.00%	0.00%
324110	Petroleum Refineries	8	8	\$6,300	\$27,122,075,639	\$1,847,343,982	0.00%	0.00%
324121	Asphalt Paving Mixture and Block Manufacturing	422	422	\$35,347	\$6,354,692,152	\$438,285,045	0.00%	0.01%
324191	Petroleum Lubricating Oil and Grease Manufacturing	4	4	\$34,585	\$1,246,859,746	\$84,935,545	0.00%	0.04%
324199	All Other Petroleum and Coal Products Manufacturing	54	54	\$4,683	\$1,567,754,391	\$106,794,749	0.00%	0.00%
325	Chemical Manufacturing	5,729	5,729	\$609,316	\$133,195,382,934	\$11,287,569,408	0.00%	0.01%
325110	Petrochemical Manufacturing	3	3	\$1,893	\$0	\$0	0.00%	0.00%
325130	Synthetic Dye and Pigment Manufacturing	5	5	\$446	\$908,334,950	\$30,994,367	0.00%	0.00%
325180	Other Basic Inorganic Chemical Manufacturing	24	24	\$1,413	\$2,244,838,764	\$76,598,789	0.00%	0.00%
325193	Ethyl Alcohol Manufacturing	3	3	\$227	\$315,684,675	\$10,771,849	0.00%	0.00%
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	37	37	\$2,391	\$1,276,990,010	\$43,573,681	0.00%	0.01%
325199	All Other Basic Organic Chemical Manufacturing	515	515	\$40,159	\$22,367,221,007	\$763,218,305	0.00%	0.01%
325211	Plastics Material and Resin Manufacturing	771	771	\$121,371	\$23,872,209,387	\$1,418,125,169	0.00%	0.01%
325311	Nitrogenous Fertilizer Manufacturing	3	3	\$77	\$0	\$0	0.00%	0.00%
325312	Phosphatic Fertilizer Manufacturing	5	5	\$88	\$100,008,328	\$9,715,657	0.00%	0.00%
325314	Fertilizer (Mixing Only) Manufacturing	340	340	\$8,641	\$3,500,940,093	\$340,111,012	0.00%	0.00%
325411	Medicinal and Botanical Manufacturing	8	8	\$447	\$715,521,577	\$99,247,824	0.00%	0.00%
325412	Pharmaceutical Preparation Manufacturing	930	930	\$111,543	\$30,020,579,790	\$4,164,063,428	0.00%	0.00%
325413	In-Vitro Diagnostic Substance Manufacturing	167	167	\$28,435	\$2,572,663,655	\$356,846,361	0.00%	0.01%
325414	Biological Product (except Diagnostic) Manufacturing	221	221	\$7,969	\$5,863,984,063	\$813,375,416	0.00%	0.00%
325510	Paint and Coating Manufacturing	17	17	\$14,636	\$2,152,126,723	\$89,777,490	0.00%	0.02%
325520	Adhesive Manufacturing	350	350	\$58,639	\$5,069,280,212	\$211,468,614	0.00%	0.03%
325612	Polish and Other Sanitation Good Manufacturing	4	4	\$714	\$121,727,113	\$15,025,819	0.00%	0.00%
325620	Toilet Preparation Manufacturing	896	896	\$142,177	\$16,735,776,539	\$2,065,840,121	0.00%	0.01%
325910	Printing Ink Manufacturing	161	161	\$16,517	\$1,401,449,523	\$71,070,871	0.00%	0.02%
325991	Custom Compounding of Purchased Resins	292	292	\$5,705	\$4,898,316,623	\$248,405,400	0.00%	0.00%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	3	3	\$274	\$0	\$0	0.00%	0.00%
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	974	974	\$45,534	\$9,057,729,902	\$459,339,236	0.00%	0.01%
326	Plastics and Rubber Products Manufacturing	1,543	1,543	\$9,864	\$29,139,202,553	\$684,076,077	0.00%	0.00%

Table VII-25: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
326111	Plastics Bag and Pouch Mfg.	5	5	\$58	\$784,503,219	\$20,127,199	0.00%	0.00%
326112	Plastics Packaging Film and Sheet (including Laminated) Mfg.	8	8	\$103	\$1,208,634,905	\$31,008,713	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Mfg	11	11	\$127	\$1,576,497,917	\$40,446,600	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Mfg.	286	286	\$1,694	\$2,702,661,509	\$69,339,431	0.00%	0.00%
326122	Plastics Pipe and Pipe Fitting Mfg.	3	3	\$75	\$225,529,681	\$5,786,185	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Mfg.	177	177	\$920	\$1,742,170,853	\$44,697,101	0.00%	0.00%
326140	Poly styrene Foam Product Mfg.	8	8	\$155	\$1,052,864,685	\$27,012,276	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polystyrene) Mfg.	11	11	\$112	\$857,095,712	\$21,989,631	0.00%	0.00%
326160	Plastics Bottle Mfg.	183	183	\$1,657	\$3,432,455,453	\$88,063,010	0.00%	0.00%
326191	Plastics Plumbing Fixture Mfg.	5	5	\$70	\$550,566,149	\$14,125,314	0.00%	0.00%
326199	All Other Plastics Product Mfg.	73	73	\$764	\$7,718,903,091	\$198,036,027	0.00%	0.00%
326211	Tire Mfg. (except Retreading)	3	3	\$45	\$1,062,901,057	\$18,005,165	0.00%	0.00%
326212	Tire Retreading	245	245	\$1,054	\$878,258,502	\$14,877,386	0.00%	0.01%
326220	Rubber and Plastics Hoses and Belting Mfg.	7	7	\$68	\$469,067,062	\$7,945,829	0.00%	0.00%
326291	Rubber Product Mfg. for Mechanical Use	7	7	\$73	\$666,269,920	\$11,286,375	0.00%	0.00%
326299	All Other Rubber Product Mfg.	511	511	\$2,889	\$4,210,822,837	\$71,329,836	0.00%	0.00%
327	Nonmetallic Mineral Product Manufacturing	6,636	6,636	\$31,859	\$39,957,576,507	\$648,610,549	0.00%	0.00%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	4	4	\$20	\$277,050,335	\$4,358,024	0.00%	0.00%
327120	Clay Building Material and Refractories Manufacturing	7	7	\$155	\$706,797,682	\$11,117,985	0.00%	0.00%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	372	372	\$1,418	\$1,168,942,607	\$33,096,262	0.00%	0.00%
327213	Glass Container Manufacturing	21	21	\$160	\$333,956,284	\$9,455,302	0.00%	0.00%
327215	Glass Product Manufacturing Made of Purchased Glass	7	7	\$65	\$686,676,277	\$19,441,860	0.00%	0.00%
327310	Cement Manufacturing	4	4	\$41	\$527,929,122	\$7,762,372	0.00%	0.00%
327320	Ready-Mix Concrete Manufacturing	2,038	2,038	\$11,993	\$17,735,436,381	\$260,771,844	0.00%	0.00%
327331	Concrete Block and Brick Manufacturing	401	401	\$2,291	\$2,979,630,278	\$43,810,801	0.00%	0.01%
327332	Concrete Pipe Manufacturing	3	3	\$80	\$157,861,666	\$2,321,109	0.00%	0.00%
327390	Other Concrete Product Manufacturing	1,511	1,511	\$7,194	\$7,821,743,134	\$115,006,495	0.00%	0.01%
327410	Lime Manufacturing	3	3	\$66	\$0	\$0	0.00%	0.00%
327991	Cut Stone and Stone Product Manufacturing	1,886	1,886	\$6,442	\$4,360,344,846	\$81,577,349	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	125	125	\$689	\$1,326,716,138	\$24,821,428	0.00%	0.00%
327993	Mineral Wool Manufacturing	4	4	\$31	\$246,343,878	\$4,608,828	0.00%	0.00%
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	250	250	\$1,214	\$1,628,147,880	\$30,460,891	0.00%	0.00%
331	Primary Metal Manufacturing	1,219	1,219	\$6,983	\$30,289,721,564	\$751,879,539	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	26	26	\$425	\$12,141,766,502	\$150,711,488	0.00%	0.00%
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	11	11	\$197	\$1,426,594,136	\$29,696,869	0.00%	0.00%

Table VII-25: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
331221	Roller Steel Shape Manufacturing	7	7	\$35	\$524,401,481	\$10,916,267	0.00%	0.00%
331222	Steel Wire Drawing	9	9	\$141	\$1,092,743,284	\$22,747,222	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	49	49	\$526	\$1,812,679,081	\$43,887,243	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	8	8	\$87	\$1,042,425,463	\$25,737,563	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	5	5	\$40	\$1,513,416,451	\$31,504,216	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	7	7	\$75	\$2,483,469,095	\$51,697,434	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	3	3	\$15	\$181,179,708	\$3,771,549	0.00%	0.00%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	3	3	\$15	\$0	\$0	0.00%	0.00%
331511	Iron Foundries	3	3	\$20	\$86,096,560	\$4,066,492	0.00%	0.00%
331512	Steel Investment Foundries	6	6	\$71	\$832,718,001	\$39,330,733	0.00%	0.00%
331513	Steel Foundries (except Investment)	172	172	\$933	\$1,520,040,544	\$71,794,183	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	315	315	\$1,733	\$2,531,019,436	\$119,544,491	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	359	359	\$1,632	\$1,831,506,669	\$86,495,829	0.00%	0.00%
331529	Other Nonferrous Metal Foundries (except Die-Casting)	236	236	\$1,039	\$1,269,865,153	\$59,977,960	0.00%	0.00%
339	Miscellaneous Manufacturing	20,026	20,026	\$232,702	\$39,530,013,204	\$1,919,889,733	0.00%	0.01%
339112	Surgical and Medical Instrument Manufacturing	26	26	\$969	\$4,254,912,087	\$311,986,403	0.00%	0.00%
339113	Surgical Appliance and Supplies Manufacturing	10	10	\$202	\$977,823,332	\$71,697,741	0.00%	0.00%
339114	Dental Equipment and Supplies Manufacturing	5	5	\$127	\$679,750,171	\$49,841,878	0.00%	0.00%
339115	Ophthalmic Goods Manufacturing	4	4	\$231	\$197,531,165	\$14,483,739	0.00%	0.00%
339116	Dental Laboratories	5,623	5,623	\$57,004	\$3,751,568,850	\$275,079,354	0.00%	0.02%
339910	Jewelry and Silverware Manufacturing	1,954	1,954	\$22,552	\$3,925,308,912	\$158,343,819	0.00%	0.01%
339920	Sporting and Athletic Goods Manufacturing	9	9	\$283	\$1,235,218,821	\$49,827,738	0.00%	0.00%
339930	Doll, Toy, and Game Manufacturing	498	498	\$6,090	\$1,298,334,418	\$52,373,771	0.00%	0.01%
339940	Office Supplies (except Paper) Manufacturing	6	6	\$97	\$460,233,465	\$18,565,450	0.00%	0.00%
339950	Sign Manufacturing	5,571	5,571	\$70,576	\$10,768,055,741	\$434,374,748	0.00%	0.02%
339991	Gasket, Packing, and Sealing Device Manufacturing	450	450	\$6,975	\$2,504,878,488	\$101,044,793	0.00%	0.01%
339992	Musical Instrument Manufacturing	3	3	\$129	\$465,435,364	\$18,775,290	0.00%	0.00%
339994	Broom, Brush, and Mop Manufacturing	153	153	\$2,424	\$1,160,531,125	\$46,814,896	0.00%	0.01%
339999	All Other Miscellaneous Manufacturing	5,714	5,714	\$65,044	\$7,850,431,266	\$316,680,112	0.00%	0.02%
42	Wholesale Trade	255,199	47,541	\$149,176	\$2,029,694,592,065	\$46,557,861,792	0.00%	0.00%
423	Merchant Wholesalers, Durable Goods	161,160	13,098	\$41,544	\$1,038,998,940,330	\$22,996,072,728	0.00%	0.00%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	7,652	7,652	\$24,512	\$34,060,394,933	\$845,552,734	0.00%	0.00%
423840	Industrial Supplies Merchant Wholesalers	5,446	5,446	\$17,032	\$26,894,452,293	\$829,776,323	0.00%	0.00%

Table VII-25: Screening Analysis for SBA-Defined Small Entities Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	Total Small Firms	Affected Small Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
424	Merchant Wholesalers, Nondurable Goods	94,039	34,443	\$107,633	\$990,695,651,735	\$23,561,789,065	0.00%	0.00%
424210	Drugs and Druggists' Sundries Merchant Wholesalers	6,663	6,663	\$22,759	\$75,561,309,955	\$2,622,151,336	0.00%	0.00%
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	2,090	2,090	\$6,639	\$19,151,107,910	\$584,906,572	0.00%	0.00%
424690	Other Chemical and Allied Products Merchant Wholesalers	5,760	5,760	\$18,937	\$49,029,260,628	\$1,497,434,869	0.00%	0.00%
424710	Petroleum Bulk Stations and Terminals	2,086	2,086	\$8,705	\$116,687,155,895	\$1,125,822,836	0.00%	0.00%
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,691	1,691	\$5,361	\$110,304,296,920	\$1,064,239,637	0.00%	0.00%
424910	Farm Supplies Merchant Wholesalers	4,777	4,777	\$16,020	\$46,711,531,722	\$1,267,284,855	0.00%	0.00%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	958	958	\$3,025	\$4,622,011,771	\$107,363,888	0.00%	0.00%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	10,418	10,418	\$26,187	\$27,846,311,288	\$646,837,002	0.00%	0.00%
Total		5,820,799	88,293	\$1,375,044	\$11,528,927,098,095	\$1,258,949,490,569	0.00%	0.01%

Source: U.S. DOI, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health (Document ID 0049).

Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.

Table VII-26: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
21	Mining, Quarrying, and Oil and Gas Extraction	13,018	4,573	\$172,384	\$17,191,968,980	\$1,130,270,113	0.00%	0.02%
211	Oil and Gas Extraction	4,573	4,573	\$172,384	\$10,327,453,313	\$643,562,624	0.00%	0.03%
211120	Crude Petroleum Extraction	4,112	4,112	\$135,467	\$8,159,920,407	\$508,491,264	0.00%	0.03%
211130	Natural Gas Extraction	461	461	\$36,918	\$2,167,532,907	\$135,071,360	0.00%	0.03%
31-33	Manufacturing	185,713	42,571	\$729,431	\$201,349,874,448	\$8,599,149,973	0.00%	0.01%
324	Petroleum and Coal Products Manufacturing	482	482	\$176,576	\$2,264,038,256	\$155,524,865	0.01%	0.11%
324110	Petroleum Refineries	11	11	\$1,595	\$102,309,469	\$6,968,522	0.00%	0.02%
324121	Asphalt Paving Mixture and Block Manufacturing	233	233	\$14,604	\$1,224,335,797	\$84,442,811	0.00%	0.02%
324122	Asphalt Shingle and Coating Materials Manufacturing	67	67	\$4,111	\$304,121,711	\$20,975,367	0.00%	0.02%
324191	Petroleum Lubricating Oil and Grease Manufacturing	134	134	\$153,934	\$515,936,132	\$35,145,346	0.03%	0.44%
324199	All Other Petroleum and Coal Products Manufacturing	37	37	\$2,332	\$117,335,147	\$7,992,819	0.00%	0.03%
325	Chemical Manufacturing	6,028	6,028	\$301,132	\$15,398,580,338	\$1,259,377,873	0.00%	0.02%
325110	Petrochemical Manufacturing	7	7	\$1,018	\$54,148,510	\$1,847,665	0.00%	0.06%
325120	Industrial Gas Manufacturing	39	39	\$1,611	\$113,739,490	\$3,881,039	0.00%	0.04%
325130	Synthetic Dye and Pigment Manufacturing	58	58	\$2,895	\$153,296,928	\$5,230,825	0.00%	0.06%
325180	Other Basic Inorganic Chemical Manufacturing	146	146	\$3,945	\$579,118,600	\$19,760,788	0.00%	0.02%
325193	Flyhl Alcohol Manufacturing	18	18	\$622	\$237,677,096	\$8,110,060	0.00%	0.01%
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	20	20	\$884	\$80,989,829	\$2,763,549	0.00%	0.03%
325199	All Other Basic Organic Chemical Manufacturing	260	260	\$11,534	\$1,118,327,492	\$38,159,770	0.00%	0.03%
325211	Plastics Material and Resin Manufacturing	349	349	\$11,428	\$1,160,497,774	\$68,939,204	0.00%	0.02%
325212	Synthetic Rubber Manufacturing	64	64	\$997	\$185,348,301	\$11,010,589	0.00%	0.01%
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	40	40	\$394	\$109,443,461	\$6,501,473	0.00%	0.01%
325311	Nitrogenous Fertilizer Manufacturing	101	101	\$995	\$339,914,652	\$33,022,192	0.00%	0.00%
325312	Phosphatic Fertilizer Manufacturing	11	11	\$108	\$62,388,297	\$6,060,928	0.00%	0.00%
325314	Fertilizer (Mixing Only) Manufacturing	235	235	\$3,691	\$585,272,906	\$56,858,374	0.00%	0.01%
325320	Pesticide and Other Agricultural Chemical Manufacturing	116	116	\$12,461	\$375,076,009	\$36,438,064	0.00%	0.03%
325411	Medicinal and Botanical Manufacturing	271	271	\$8,874	\$460,867,342	\$63,925,509	0.00%	0.01%
325412	Pharmaceutical Preparation Manufacturing	579	579	\$46,570	\$1,865,009,961	\$258,689,866	0.00%	0.02%
325413	In-Vitro Diagnostic Substance Manufacturing	91	91	\$5,707	\$151,862,834	\$21,064,432	0.00%	0.03%
325414	Biological Product (except Diagnostic) Manufacturing	136	136	\$2,897	\$532,418,832	\$73,850,199	0.00%	0.00%
325510	Paint and Coating Manufacturing	683	683	\$54,980	\$1,556,606,813	\$64,934,956	0.00%	0.08%
325520	Adhesive Manufacturing	214	214	\$17,172	\$652,936,917	\$27,237,726	0.00%	0.06%
325611	Soap and Other Detergent Manufacturing	454	454	\$36,344	\$649,681,023	\$80,195,689	0.01%	0.05%

Table VII-26: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenue	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
325612	Polish and Other Sanitation Good Manufacturing	291	291	\$11,998	\$424,493,885	\$52,398,913	0.00%	0.02%
325613	Surface Active Agent Manufacturing	59	59	\$4,725	\$153,105,159	\$18,899,080	0.00%	0.02%
325620	Toilet Preparation Manufacturing	623	623	\$25,667	\$1,472,297,515	\$181,738,282	0.00%	0.01%
325910	Printing Ink Manufacturing	111	111	\$3,635	\$268,942,637	\$13,638,727	0.00%	0.03%
325920	Explosives Manufacturing	19	19	\$790	\$39,569,945	\$2,006,687	0.00%	0.04%
325991	Custom Compounding of Purchased Resins	179	179	\$2,788	\$558,480,571	\$28,321,891	0.00%	0.01%
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	143	143	\$3,088	\$165,749,365	\$8,405,548	0.00%	0.04%
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	711	711	\$23,315	\$1,291,318,197	\$65,485,847	0.00%	0.04%
326	Plastics and Rubber Products Manufacturing	5,073	5,073	\$10,484	\$8,440,100,253	\$206,019,667	0.00%	0.01%
326111	Plastics Bag and Pouch Manufacturing	112	112	\$235	\$289,529,597	\$7,428,166	0.00%	0.00%
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	101	101	\$211	\$253,189,490	\$6,495,825	0.00%	0.00%
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	215	215	\$444	\$389,897,411	\$10,003,200	0.00%	0.00%
326121	Unlaminated Plastics Profile Shape Manufacturing	148	148	\$306	\$212,873,316	\$5,461,474	0.00%	0.01%
326122	Plastics Pipe and Pipe Fitting Manufacturing	115	115	\$237	\$319,401,690	\$8,194,563	0.00%	0.00%
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	113	113	\$233	\$175,678,590	\$4,507,206	0.00%	0.01%
326140	Polyethylene Foam Product Manufacturing	145	145	\$299	\$369,023,841	\$9,467,668	0.00%	0.00%
326150	Urethane and Other Foam Product (except Polyethylene) Manufacturing	208	208	\$429	\$463,923,130	\$11,902,403	0.00%	0.00%
326160	Plastics Bottle Manufacturing	66	66	\$136	\$153,118,708	\$3,928,411	0.00%	0.00%
326191	Plastics Plumbing Fixture Manufacturing	182	182	\$376	\$246,216,000	\$6,316,913	0.00%	0.01%
326199	All Other Plastics Product Manufacturing	2,904	2,904	\$6,000	\$4,360,390,703	\$111,870,098	0.00%	0.01%
326211	Tire Manufacturing (except Retreading)	38	38	\$78	\$42,665,336	\$722,736	0.00%	0.01%
326212	Tire Retreading	156	156	\$322	\$226,970,376	\$3,844,797	0.00%	0.01%
326220	Rubber and Plastics Hoses and Belting Manufacturing	104	104	\$215	\$195,530,785	\$3,312,222	0.00%	0.01%
326291	Rubber Product Manufacturing for Mechanical Use	162	162	\$334	\$280,991,735	\$4,759,900	0.00%	0.01%
326299	All Other Rubber Product Manufacturing	304	304	\$628	\$460,699,545	\$7,804,086	0.00%	0.01%
327	Nonmetallic Mineral Product Manufacturing	6,513	6,513	\$13,604	\$9,255,585,860	\$160,254,290	0.00%	0.01%
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing	462	462	\$954	\$240,529,651	\$3,783,551	0.00%	0.03%
327120	Clay Building Material and Refractories Manufacturing	199	199	\$411	\$392,927,143	\$6,180,776	0.00%	0.01%
327211	Flat Glass Manufacturing	29	29	\$60	\$34,821,593	\$985,903	0.00%	0.01%
327212	Other Pressed and Blown Glass and Glassware Manufacturing	312	312	\$646	\$200,184,295	\$5,667,816	0.00%	0.01%

Table VII-26: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
327213	Glass Container Manufacturing	13	13	\$27	\$18,906,902	\$535,311	0.00%	0.01%
327215	Glass Product Manufacturing Made of Purchased Glass	736	736	\$1,522	\$694,354,717	\$19,659,259	0.00%	0.01%
327310	Cement Manufacturing	54	54	\$116	\$113,207,958	\$1,664,546	0.00%	0.01%
327320	Ready-Mix Concrete Manufacturing	1,275	1,275	\$2,736	\$3,102,958,186	\$45,624,145	0.00%	0.01%
327331	Concrete Block and Brick Manufacturing	241	241	\$506	\$448,924,550	\$6,600,733	0.00%	0.01%
327332	Concrete Pipe Manufacturing	47	47	\$97	\$84,751,199	\$1,246,134	0.00%	0.01%
327390	Other Concrete Product Manufacturing	1,018	1,018	\$2,110	\$1,265,924,521	\$18,613,439	0.00%	0.01%
327410	Lime Manufacturing	17	17	\$37	\$38,643,412	\$722,977	0.00%	0.01%
327420	Gypsum Product Manufacturing	98	98	\$202	\$168,446,629	\$3,151,455	0.00%	0.01%
327910	Abrasive Product Manufacturing	159	159	\$328	\$307,171,245	\$5,746,843	0.00%	0.01%
327991	Cut Stone and Stone Product Manufacturing	1,506	1,506	\$3,130	\$1,479,155,319	\$27,673,400	0.00%	0.01%
327992	Ground or Treated Mineral and Earth Manufacturing	70	70	\$147	\$158,566,389	\$2,966,606	0.00%	0.00%
327993	Mineral Wool Manufacturing	99	99	\$204	\$162,470,543	\$3,039,649	0.00%	0.01%
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	178	178	\$372	\$341,641,610	\$6,391,746	0.00%	0.01%
331	Primary Metal Manufacturing	1,802	1,802	\$3,729	\$3,862,267,143	\$106,827,885	0.00%	0.00%
331110	Iron and Steel Mills and Ferroalloy Manufacturing	197	197	\$407	\$556,014,680	\$6,901,615	0.00%	0.01%
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	50	50	\$103	\$74,174,756	\$1,544,068	0.00%	0.01%
331221	Rolled Steel Shape Manufacturing	85	85	\$175	\$222,220,982	\$4,625,890	0.00%	0.00%
331222	Steel Wire Drawing	113	113	\$233	\$175,334,657	\$3,649,875	0.00%	0.01%
331313	Alumina Refining and Primary Aluminum Production	12	12	\$25	\$9,684,303	\$239,106	0.00%	0.01%
331314	Secondary Smelting and Alloying of Aluminum	19	19	\$39	\$85,089,920	\$2,100,876	0.00%	0.00%
331315	Aluminum Sheet, Plate, and Foil Manufacturing	31	31	\$64	\$138,958,073	\$3,364,350	0.00%	0.00%
331318	Other Aluminum Rolling, Drawing, and Extruding	98	98	\$202	\$179,057,465	\$4,420,942	0.00%	0.00%
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	76	76	\$159	\$334,535,758	\$6,963,904	0.00%	0.00%
331420	Copper Rolling, Drawing, Extruding, and Alloying	63	63	\$130	\$273,053,150	\$5,684,044	0.00%	0.00%
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	141	141	\$293	\$272,540,378	\$5,673,370	0.00%	0.01%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	98	98	\$206	\$422,211,424	\$8,789,015	0.00%	0.00%
331511	Iron Foundries	138	138	\$285	\$235,041,323	\$11,101,414	0.00%	0.00%
331512	Steel Investment Foundries	26	26	\$54	\$59,008,379	\$2,787,069	0.00%	0.00%
331513	Steel Foundries (except Investment)	89	89	\$184	\$158,529,911	\$7,487,646	0.00%	0.00%
331523	Nonferrous Metal Die-Casting Foundries	180	180	\$372	\$264,021,276	\$12,470,188	0.00%	0.00%
331524	Aluminum Foundries (except Die-Casting)	227	227	\$469	\$218,051,062	\$10,298,934	0.00%	0.00%

Table VII-26: Screening Analysis for Very Small Entities (with Fewer than 20 Employees) Affected by the Proposed Revisions to the HCS With Costs Calculated Using a 7 Percent Discount Rate (Exclusive of Cost Savings, 2019 Dollars)

NAICS Code	Industry	<20 Firms	Affected <20 Firms	Total Annualized Costs	Revenues	Profits	Cost as a Percent of Revenues	Cost as a Percent of Profits
Total		5,305,646	88,174	\$987,857	\$4,339,862,178,615	\$165,526,269,969	0.00%	0.02%

Source: U.S. DOL, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis-Health (Document ID 0049).

Note: "Affected" firms, establishments, employees, labels, and SDSs are based on the maximum number affected by any one provision of the rule.