



2008 Minerals Yearbook

IRON AND STEEL, SCRAP [ADVANCE RELEASE]

IRON AND STEEL SCRAP

By Michael D. Fenton

Domestic survey data and tables were prepared by Hoa P. Phamdang, statistical assistant.

Iron and steel scrap is a vital raw material for the production of new steel and cast-iron products. The steelmaking and foundry industries in the United States are highly dependent upon the ready availability of scrap from manufacturing operations and from the recovery of products that are no longer used or needed. The steel industry has been recycling steel scrap for more than 170 years, using electric arc furnaces (EAF), which accounted for about 57% of the total raw steel produced in 2008. Consistent with international usage and Federal Government policy, the U.S. Geological Survey (USGS) reports all data on iron and steel in metric units, unless otherwise noted.

Steel scrap recycling conserves energy, landfill space, and raw materials. In 2008, the domestic steel industry recycled or exported for recycling more than 82 million metric tons (Mt) of appliances, automobiles, cans, construction materials, and other steel products. This resulted in an overall recycling rate of greater than 83% (Steel Recycling Institute, 2009a). The remelting of scrap requires much less energy than does the production of iron and steel products from iron ore. Each year, steel recycling saves the energy equivalent of the electrical power needed for 1 year by approximately one-fifth of the houses in the United States (about 18 million houses). Consumption of iron and steel scrap by remelting reduces the burden on landfill disposal facilities and prevents the accumulation of abandoned steel products in the environment.

In the United States, the primary source of obsolete steel is the automobile. By weight, the typical car consists of about 65% iron and steel. The steel used in car bodies is made of about 25% recycled steel (Steel Recycling Institute, 2009b). The steel industry recovered and recycled more than 14 Mt of iron and steel automobile scrap in 2008. The recycling rate of automobile scrap steel was 106% in 2008. A recycling rate greater than 100% is a result of the steel industry recycling more steel from automobiles than was used in the production of new vehicles.

The annual average recycling rate of obsolete appliance scrap continued at a high of 90% in 2008, the same as that of 2007, compared with 20% in 1988 (Bill Heenan, President, Steel Recycling Institute, unpub. data, January 4, 2010). During 2008, about 2.3 Mt of steel was recovered from recycled appliances, a decrease of about 6% compared with that of 2007. The typical appliance consists of about 75% steel, and the steel used in appliances is made with a minimum of 25% recycled steel (Steel Recycling Institute, 2009c). The recycling rate of steel containers increased to more than 65% in 2008 from 15% in 1983 (Bill Heenan, President, Steel Recycling Institute, unpub. data, January 4, 2010). With this increased recycling rate, more than 1.5 Mt of steel containers were recycled in 2008. The estimated rate of recycling of structural beams and plates in 2004 through 2008 was almost 98%, an increase from 85% in 1997. Recycling rates for reinforcement bar and other materials increased to 70% in 2008 from 40% in 1997. In 2008, less than

2% of homes being built in the United States used 100% steel framing, whereas less than 8% used some steel framing.

Minimills, in which EAFs are used, consumed greater quantities of direct-reduced iron (DRI) to improve steel quality, and integrated steelmakers continued to use small quantities of DRI in blast furnaces as a process coolant. Minimills often used a feed mix that has equal proportions of DRI, pig iron, and scrap. Raw steel production in the minimill industry decreased by 7.4% during 2008, and DRI production increased by 3%, compared with those in 2007 (American Iron and Steel Institute, 2009, p. 72).

Consumption

Domestic data for ferrous scrap were derived from voluntary monthly or annual surveys of U.S. scrap-consuming operations by the USGS. About 44% of the known manufacturers of pig iron and raw steel responded to the surveys. Their responses represented about 50% of estimated total scrap consumption by this class of consumers. The remaining 50% of scrap consumption was estimated based on prior reports. Of the iron foundries, manufacturers of steel castings, and miscellaneous users, about 47% of the surveyed establishments, responded to the annual survey, which represented about 42% of estimated scrap consumption by this class of consumers. Total consumption for these two classes of consumers was estimated using statistical methods and prior reports. Actual survey data accounted for about 42% of total estimated scrap consumption by all classes of scrap consumers.

In 2008, brokers, dealers, and other outside sources supplied domestic consumers with 55.2 Mt of all types of ferrous scrap at an estimated delivered value of \$19.3 billion, and exported 21.5 Mt (excluding used rails for rerolling and other uses, and ships, boats, and other vessels for scrapping) valued at \$10.4 billion (tables 1, 8, 11). Raw steel production was 91.9 Mt in 2008 compared with 98.1 Mt in 2007 (American Iron and Steel Institute, 2009, p. 73). The share of raw steel produced by EAF and basic oxygen furnaces was 57% and 43%, respectively. In 2008, continuous cast steel production represented 96% of total raw steel production; this was about the same as that of 2007. Raw steel production capability increased to 113 Mt, about the same as in 2007 (American Iron and Steel Institute, 2009, p. 75.)

Steel mills accounted for 88% of all scrap received from brokers, dealers, and other outside sources; iron foundries and miscellaneous users received 9%; and steel foundries received 3% (table 1). Apparent total domestic consumption of ferrous scrap was 52.1 Mt, as measured by net receipts (total receipts minus shipments) and 11.6 Mt of home scrap (table 2). Stocks of ferrous scrap at consumer plants increased by 5% to 4.6 Mt (table 1). Total domestic consumption was 66 Mt, 3% more than that of 2007 (table 1). The total market for

U.S.-produced scrap (net receipts plus exports minus imports) was 73.1 Mt, compared with 65.3 Mt (revised) in 2007 (table 1). Feedstock used in electric furnaces by all iron and steel product manufacturers comprised scrap, 92%; pig iron, 6%; and DRI, 2% (table 4). Total consumption of DRI was 4% less than that of 2007 (table 1). Net shipments of all grades of steel mill products were about 89.3 Mt, which was a decrease of 7.5% from the 96.5 Mt shipped in 2007 (American Iron and Steel Institute, 2009, p. 25).

Prices

The average composite delivered price of No. 1 heavy-melting steel scrap in 2008, calculated from prices per long ton published monthly by American Metal Market, was \$348.86 per metric ton. The price ranged from a low of \$99.21 per ton in November to a high of \$509.93 per ton in July (table 8). The average composite delivered price of No. 1 heavy-melting steel scrap, calculated from prices per long ton published weekly in the Iron Age Scrap Price Bulletin, was \$348.98 per metric ton; the price ranged from a low of \$98.40 per ton in November to a high of \$510.64 per ton in July.

Based on weekly quotations by Iron Age Scrap Price Bulletin for 18–8 (18% chromium, 8% nickel) stainless steel scrap (bundles and solids) delivered to consumers in the Pittsburgh, PA, area, the average price in 2008 was \$2,420 per gross ton, an increase of 16% compared with that of 2007.

The unit value of total ferrous scrap exports (excluding used rails for rerolling and other uses, and ships, boats, and other vessels for scrapping) increased by 16% to about \$484 per metric ton compared with that of 2007 (table 11). The unit value of total imports increased by 43% to about \$408 per ton, compared with that of 2007 (table 14).

Foreign Trade

Foreign trade valuation continued to be reported on a free-alongside-ship basis for exports and on a customs-value basis for imports. In 2008, the U.S. trade surplus for all classes of ferrous scrap (including used rails for rerolling and other uses, and ships, boats, and other vessels for scrapping) was 17.9 Mt valued at about \$9.0 billion (tables 11, 14). This represented an increase of about 40% in quantity and an increase of 53% in value compared with the 2007 surplus of 12.8 Mt valued at \$5.9 billion.

World Review

Iron and steel scrap is an important raw material for the steel and foundry industries. Because scrap comes from such sources as discarded cars and consumer durables, industrial machinery, manufacturing operations, and old buildings, the relatively mature industrialized economies are generally the main exporters of scrap to lesser developed steelmaking countries.

The United States exported more iron and steel scrap in 2007 than any other country, followed by, in decreasing order of export tonnage, Russia, Germany, and Japan (World Steel Association, 2009a, p.119–120). The six leading significant importing nations were, in decreasing order of import tonnage,

Turkey, the Republic of Korea, Spain, Germany, Taiwan, and Italy (World Steel Association, 2009a, p. 121–122).

Outlook

Because of the close interdependence of the steelmaking and ferrous scrap industries, forecast of the global steel industry in the context of the global economy serves as the bellwether of the scrap industry.

In June 2008, the World Bank cut its 2008 global GDP growth forecast to 2.7% from its earlier forecast of 3.3% (Lazzaro, 2008). Its global GDP growth forecast for 2009 and 2010 was 3.0% and 3.4%, respectively (World Bank, The, 2008). The World Bank forecast the U.S. economy to increase 1.1% in 2008, a downward revision from its earlier 1.9% forecast (Lazzaro, 2008). The U.S. Federal Reserve Bank of Philadelphia (2009) survey of 34 forecasters showed the U.S. economy contracting at a rate of 2.6% in 2009, but expanding in 2010, 2011, and 2012 by 2.3%, 2.9%, and 3.2%, respectively. The World Bank GDP growth forecast for China was 7.2% in 2009 (Finfacts Ireland, 2009). The European Confederation of Iron and Steel Industries (2009) projected European Union (EU) GDP growth at 0.9% in 2008 and a decline of 4.5% in 2009.

According to the World Steel Association (2009b), the progression of the U.S. financial crisis into a global economic crisis brought about a global decline in steel demand in late 2008. Improvement through 2009 will depend on the effects of government stimulation packages, stabilization of financial systems, and a return of some consumer confidence. World apparent steel consumption (ASC) was expected to decline by 8.6% to 1,104 Mt during 2009, after declining by 1.4% in 2008, and then increase by 9.2% in 2010. China's ASC was expected to increase by 19% to 526 Mt in 2009, and 5% in 2010. China was expected to account for 48% of world steel consumption in 2009. ACS in India was expected to increase by 9% and 12% in 2009 and 2010, respectively. The United States ASC was expected to decline by 8% in 2008 and 39% in 2009. The EU ASC was expected to decline by 33% in 2009 and increase by 12% in 2010. In Japan and the Commonwealth of Independent States, the 2009 ASC was expected to decrease by 31% each and then increase by 16% and 8%, respectively, in 2010. The European Confederation of Iron and Steel Industries (2009) forecast declining apparent steel consumption in the EU by almost 45% during the first half of 2009 and almost 30% during all of 2009. The outlook for 2010 remained depressed.

The Organisation for Economic Cooperation and Development forecast that the global raw steelmaking capacity would increase to 1.85 billion metric tons per year (Gt/yr) in 2010 (Whitehouse, 2008). China would account for about one-half of this 1.85 Gt/yr increase. World capacity for DRI production in 2008 was estimated to be about 72 million metric tons per year (Mt/yr) (Midrex Technologies, Inc., 2009). In 2008, additional DRI capacity of almost 17 Mt/yr was under construction in Egypt, India, Iran, Oman, and Pakistan.

World Steel Dynamics (WSD) forecast world crude steel production to decrease by 9% in 2009 and increase by 14%, 6%, and 5% in 2010, 2011, and 2012, respectively (Locker Associates, 2009). MEPS (International) Inc. (2009) forecast

total world steel production in 2009 to be 12% down from that in 2008. MEPS also forecast declining regional steel production in 2009 in Europe (26%), South America (24%), Commonwealth of Independent States (18%), Africa (9%), and Asia (3%). WSD also forecast crude steel production for China to decrease by 25% in 2009 and increase by 21%, 3%, and 2% in 2010, 2011, and 2012, respectively.

Because the primary source of obsolete steel is the automobile, an increasing world population and increased demand for vehicles in developing countries, especially China and India, were expected to contribute to a dramatic rise in the amount of vehicle scrap created in the next 25 years, according to the Oxford Brookes University in the United Kingdom (Blanco, 2007). More vehicles were expected to be produced in the next 25 years than in the history of the motor vehicle industry through 2008.

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TABLE 1
SALIENT U.S. IRON AND STEEL SCRAP, PIG IRON, AND DIRECT-REDUCED IRON STATISTICS¹

(Thousand metric tons and thousand dollars)

	2004	2005	2006	2007	2008
Manufacturers of pig iron and raw steel and castings:²					
Ferrous scrap consumption	57,100	55,000	54,500	54,600	56,600
Pig iron consumption	38,000	36,900	36,700	36,500	33,500
Direct-reduced iron consumption	1,490	1,740	1,530	2,040	1,950
Net receipts of ferrous scrap ³	45,800	43,600	45,300	46,400 ^r	48,400
Home scrap production ⁴	11,600	11,400	9,120	8,700	8,620
Ending stocks of ferrous scrap, December 31	4,880	4,430	3,870	3,620 ^r	3,690
Manufacturers of steel castings:⁵					
Ferrous scrap consumption	1,300	1,060 ^r	1,080 ^r	1,700 ^r	2,070
Pig iron consumption	101	36 ^r	11 ^r	11 ^r	11
Net receipts of ferrous scrap ³	961	713 ^r	754 ^r	965 ^r	1,620
Home scrap production ⁴	319	333 ^r	319	692 ^r	548
Ending stocks of ferrous scrap, December 31	80	85	79	383 ^r	501
Iron foundries and miscellaneous users:⁵					
Ferrous scrap consumption	8,100 ^r	9,540 ^r	8,300 ^r	7,940 ^r	7,760
Pig iron consumption	1,010	1,140 ^r	937	877 ^r	844
Direct-reduced iron consumption	4	3	4	4	4
Net receipts of ferrous scrap ³	6,020 ^r	6,460 ^r	5,610 ^r	5,130 ^r	5,200
Home scrap production ⁴	2,280 ^r	3,280 ^r	2,700 ^r	2,550 ^r	2,580
Ending stocks of ferrous scrap, December 31	439	450	421 ^r	416 ^r	439
Total, all manufacturing types:					
Ferrous scrap consumption	66,500 ^r	65,600	63,900 ^r	64,200 ^r	66,400
Pig iron consumption	39,100	38,100	37,600	37,400 ^r	34,400
Direct-reduced iron consumption	1,500	1,750	1,540	2,050	1,960
Net receipts of ferrous scrap ³	52,700 ^r	50,800	51,700 ^r	52,500 ^r	55,200
Home scrap production ⁴	14,200	15,000 ^r	12,100 ^r	11,900 ^r	11,700
Ending stocks, December 31:					
Ferrous scrap at consumer plants	5,400	4,970	4,370 ^r	4,420 ^r	4,630
Pig iron at consumer and supplier plants	721 ^r	664 ^r	700	771 ^r	884
Direct-reduced iron at consumer plants	136	263	319	364	435
Exports:⁶					
Ferrous scrap (includes tinplate and terneplate):⁷					
Quantity	11,800	13,000	14,900	16,500	21,500
Value	2,910,000	3,430,000	4,230,000	6,890,000	10,400,000
Pig iron, all grades:					
Quantity	48	51	813	71	51
Value	6,690	8,110	8,750	4,610	11,400
Direct-reduced iron, steelmaking grade:					
Quantity	13	(8)	(8)	(8)	1
Value	1,360	16	11	23	97
Imports for consumption:⁶					
Ferrous scrap (includes tinplate and terneplate):⁷					
Quantity	4,660	3,840	4,820	3,700	3,600
Value	1,230,000	909,000	1,250,000	1,040,000	1,450,000
Pig iron, all grades:					
Quantity	6,400	6,030	6,730	5,220	4,980
Value	1,360,000	1,580,000	1,760,000	1,660,000	2,800,000
Direct-reduced iron, steelmaking grade:					
Quantity	2,450	2,170	2,610	2,330	2,340
Value	463,000	361,000	417,000	519,000	971,000

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes manufacturers of raw steel that also produce steel castings.

³Net receipts of scrap is defined as receipts from brokers, dealers, and other outside sources plus receipts from other company-owned plants minus shipments.

⁴Home scrap production includes recirculating scrap that results from current operations and obsolete home scrap.

⁵Some consumers in the "Manufacturers of steel castings" category also produce iron castings; some consumers in the "Iron foundries and miscellaneous users" category also produce steel castings.

⁶Data from U.S. Census Bureau and U.S. International Trade Commission. Export valuation is free alongside ship, and import valuation is customs value.

TABLE 1—Continued
SALIENT U.S. IRON AND STEEL SCRAP, PIG IRON, AND DIRECT-REDUCED IRON STATISTICS¹

⁷Excludes used rails for rerolling and other uses and ships, boats, and other vessels for scrapping.

⁸Less than ½ unit.

TABLE 2

U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS OF IRON AND STEEL SCRAP IN 2008, BY GRADE¹

(Thousand metric tons)

Grade	Receipts of scrap		Production of home scrap		Consumption of purchased and home scrap	Shipments of scrap	Ending stocks, December 31
	From brokers, dealers, and other outside sources	From other company-owned plants	Recirculating scrap from current operations	Obsolete scrap ²			
Manufacturers of pig iron and raw steel and castings:							
Carbon steel:							
Low-phosphorus plate and punchings	712	W	W	--	725	--	125
Cut structural and plate	3,910 *	144	638	W	4,700	4	275
No. 1 heavy-melting steel	4,820 *	288	1,960	7	6,830	129	463
No. 2 heavy-melting steel	6,100 *	62	223	W	6,360	22	409
No. 1 and electric furnace bundles	3,170 *	181	W	--	3,880	117	270
No. 2 and all other bundles	839 *	W	W	--	912	W	37
Electric furnace, 1 foot and under (not bundles)	4	--	W	--	14	W	--
Railroad rails	160	W	W	--	227	--	4
Turnings and borings	1,990 *	190	128	--	2,250	1	111
Slag scrap	972	112	892	--	1,470	503	148
Shredded or fragmented	11,300 *	1,330	332	--	12,700	62	798
No. 1 busheling	4,850 *	81	195	--	5,060	4	324
Steel cans, post consumer	156	--	--	--	150	--	10
All other carbon steel scrap	12,200 *	302	1,740	W	5,820	277	285
Stainless steel scrap	858	103	371	--	1,330	8	54
Alloy steel (except stainless)	75	59	458	--	575	10	43
Ingot mold and stool scrap	W	--	82	83	63	102	15
Machinery and cupola cast iron	11	--	W	--	10	W	5
Cast-iron borings	255	W	W	--	262	W	14
Motor blocks	--	--	--	--	--	--	--
Other iron scrap	927 *	100	212	--	1,150	64	176
Other mixed scrap	1,840	53	275	--	2,120	42	127
Total	55,100 *	3,050	8,520	98	56,600	1,430	3,690
Manufacturers of steel castings:							
Carbon steel:							
Low-phosphorus plate and punchings	343	W	204	--	567	1	97
Cut structural and plate	155	--	14	W	166	--	9
No. 1 heavy-melting steel	51	--	71	W	128	--	12
No. 2 heavy-melting steel	270	--	--	W	270	--	20
No. 1 and electric furnace bundles	W	--	--	--	W	--	W
No. 2 and all other bundles	--	--	--	--	--	--	--
Electric furnace, 1 foot and under (not bundles)	5	--	3	--	8	--	--
Railroad rails	W	--	W	--	W	--	W
Turnings and borings	29	--	9	W	38	W	1
Slag scrap	W	--	W	--	7	--	--
Shredded or fragmented	427	--	--	--	439	--	20
No. 1 busheling	74	--	--	--	66	--	12
Steel cans, post consumer	--	--	--	W	--	W	--
All other carbon steel scrap	24	--	96	--	69	W	53
Stainless steel scrap	19	W	23	W	40	1	72
Alloy steel (except stainless)	41	2	46	W	90	--	36
Ingot mold and stool scrap	W	--	W	--	W	W	W
Machinery and cupola cast iron	--	--	--	--	--	--	--
Cast-iron borings	W	--	W	--	W	--	W
Motor blocks	--	--	--	--	--	--	--
Other iron scrap	35	--	1	--	38	--	3
Other mixed scrap	49	--	W	14	67	1	8
Total	1,620	2	528	20	2,070	2	501

See footnotes at end of table.

TABLE 2—Continued

U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS OF IRON AND STEEL SCRAP IN 2008, BY GRADE¹

(Thousand metric tons)

Grade	Receipts of scrap		Production of home scrap		Consumption of purchased and home scrap	Shipments of scrap	Ending stocks, December 31
	From brokers, dealers, and other outside sources	From other company-owned plants	Recirculating scrap from current operations	Obsolete scrap ²			
Iron foundries and miscellaneous users:							
Carbon steel:							
Low-phosphorus plate and punchings	667	1	168	3	815	23	113
Cut structural and plate	839	14	21	--	873	--	33
No. 1 heavy-melting steel	115	W	W	--	163	--	3
No. 2 heavy-melting steel	331	--	W	--	366	--	2
No. 1 and electric furnace bundles	85	--	--	--	85	--	1
No. 2 and all other bundles	61	--	W	--	58	W	W
Electric furnace, 1 foot and under (not bundles)	131	--	--	--	132	--	1
Railroad rails	34	W	W	--	35	W	1
Turnings and borings	143	--	3	--	147	W	2
Slag scrap	W	W	W	--	W	W	W
Shredded or fragmented	1,170	--	13	--	1,190	--	35
No. 1 busheling	530	W	11	2	545	1	12
Steel cans, post consumer	21	--	W	--	21	--	W
All other carbon steel scrap	55	--	56	W	111	1	2
Stainless steel scrap	2	--	--	W	2	--	--
Alloy steel (except stainless)	3	--	1	--	5	W	--
Ingot mold and stool scrap	W	W	W	--	27	W	W
Machinery and cupola cast iron	490	1	212	W	676	42	161
Cast-iron borings	38	19	20	W	76	1	1
Motor blocks	273	W	500	--	779	W	6
Other iron scrap	164	19	1,360	9	1,530	21	33
Other mixed scrap	58	W	82	W	118	4	27
Total	5,220	77	2,550	29	7,760	102	439
Grand total, all manufacturing types:							
Carbon steel:							
Low-phosphorus plate and punchings	1,720	8	377	3	2,110	23	334
Cut structural and plate	4,920	157	673	W	5,740	4	317
No. 1 heavy-melting steel	4,990	289	2,070	10	7,120	129	478
No. 2 heavy-melting steel	6,690	62	257	1	7,000	22	431
No. 1 and electric furnace bundles	3,240	181	W	--	3,960	117	271
No. 2 and all other bundles	927	W	42	--	970	W	41
Electric furnace, 1 foot and under (not bundles)	140	--	94	--	152	W	1
Railroad rails	212	23	99	--	334	W	8
Turnings and borings	2,100	190	141	W	2,440	1	114
Slag scrap	977	112	907	--	1,490	504	149
Shredded or fragmented	12,700	1,330	345	--	14,300	62	852
No. 1 busheling	5,420	82	206	W	5,670	5	348
Steel cans, post consumer	177	--	W	W	171	W	10
All other carbon steel scrap	12,300 *	302	1,900	3	6,000	278	340
Stainless steel scrap	879	103	394	--	1,370	9	126
Alloy steel (except stainless)	120	60	506	W	669	10	79
Ingot mold and stool scrap	85	W	96	83	90	103	173
Machinery and cupola cast iron	502	1	214	W	686	43	166
Cast-iron borings	293	22	20	W	338	2	15
Motor blocks	273	W	500	--	779	W	6
Other iron scrap	1,130	119	1,570	9	2,710	85	213
Other mixed scrap	1,950	59	359	14	2,300	47	162
Total	61,900 *	3,130	11,600	147	66,400	1,530	4,630

See footnotes at end of table.

TABLE 2—Continued

U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS OF IRON AND STEEL SCRAP IN 2008, BY GRADE¹

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.²Obsolete home scrap includes ingot molds, stools, and scrap from old equipment and buildings.

* Correction posted on October 22, 2010.

TABLE 3
U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS OF PIG IRON
AND DIRECT-REDUCED IRON IN 2008¹

(Thousand metric tons)

	Receipts	Production	Consumption	Shipments	Stocks, December 31
Manufacturers of pig iron, raw steel, and castings:					
Pig iron	8,300 ²	26,000	33,500	82	841
Direct-reduced iron (DRI)	2,130 ³	W	1,950	W	428
Manufacturers of steel castings:					
Pig iron	20	W	11	W	8
DRI	10	--	4	--	6
Iron foundries and miscellaneous users:					
Pig iron	900	2	844	71	35
DRI	4	--	4	--	(4)
Total, all manufacturing types:					
Pig iron	9,220	26,000	34,400	153	884
DRI	2,150	W	1,960	W	435

W Withheld to avoid disclosing company proprietary data. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.²Includes 1.65 million metric tons (Mt) purchased by electric furnace steel producers.³Includes 1.39 Mt purchased by integrated steel producers.⁴Less than ½ unit.TABLE 4
U.S. CONSUMPTION OF IRON AND STEEL SCRAP, PIG IRON, AND DIRECT-REDUCED IRON IN 2008, BY TYPE OF FURNACE OR OTHER USE¹

(Thousand metric tons)

	Manufacturers of pig iron and raw steel and castings			Manufacturers of steel castings			Iron foundries and miscellaneous users			Total, all manufacturing types		
	Scrap	Pig iron	DRI ²	Scrap	Pig iron	DRI ²	Scrap	Pig iron	DRI ²	Scrap	Pig iron	DRI ²
Blast furnace	2,640	--	409	--	--	--	3	--	--	2,640	--	409
Basic oxygen process	8,890	30,600	343	--	--	--	--	3	--	8,890	30,600	343
Electric furnace	45,000	2,900	1,200	2,070	11	4	3,410	435	1	50,500	3,350	1,210
Cupola furnace	6	--	--	--	--	--	4,340	401	3	4,350	401	3
Other ³	4	--	--	--	--	--	6	5	--	10	5	--
Direct castings ⁴	--	36	--	--	--	--	--	--	--	--	36	--
Total	56,600	33,500	1,950	2,070	11	4	7,760	844	4	66,400	34,400	1,960

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.²Direct-reduced iron.³Includes air furnaces.⁴Includes ingot molds and stools.

TABLE 5
IRON AND STEEL SCRAP SUPPLY AVAILABLE FOR CONSUMPTION IN 2008, BY REGION AND STATE^{1,2}

(Thousand metric tons)

Region and State	Receipts of scrap		Production of home scrap			New supply available for consumption
	From brokers, dealers, and other outside sources	From other company-owned plants	Recirculating scrap resulting from current operations	Obsolete scrap ³	Shipments of scrap ⁴	
New England and Middle Atlantic:						
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	25	--	9	W	W	34
New Jersey and New York	1,870	--	118	W	W	1,960
Pennsylvania	3,620	777	1,930	63	62	6,320
Total	5,520	777	2,050	63	97	8,310
North Central:						
Illinois	1,950	29	158	--	(5)	2,140
Indiana	4,290	239	1,990	5	354	6,170
Iowa, Nebraska, South Dakota	1,210	3	196	(5)	W	1,410
Kansas and Missouri	68	5	56	(5)	(5)	129
Michigan	2,130	64	879	--	523	2,560
Minnesota	383	142	21	--	22	524
Ohio	7,420	357	1,920	48	208	9,540
Wisconsin	1,710	6	920	1	7	2,630
Total	19,200	845	6,140	54	1,110	25,100
South Atlantic:						
Delaware and Maryland	962	W	W	--	W	1,300
Florida and Georgia	869	W	W	--	(5)	875
North Carolina and South Carolina	2,270	246	292	--	W	2,810
Virginia and West Virginia	2,580	W	446	W	19	3,300
Total	6,680	549	1,130	W	81	8,280
South Central:						
Alabama and Mississippi	5,980	W	189	W	13	6,160
Arkansas, Louisiana, Oklahoma	4,920	W	303	W	W	5,410
Kentucky and Tennessee	3,150	15	321	W	W	3,490
Texas	3,380	713	454	4	7	4,540
Total	17,400	904	1,270	21	21	19,600
Mountain and Pacific:						
Arizona, Colorado, Idaho, Utah	1,820	52	457	W	36	2,300
California, Oregon, Washington	3,030	W	549	(5)	185	3,400
Total	4,850	54	1,010	9	221	5,700
Grand total	53,600	3,130	11,600	147	1,530	67,000

W Withheld to avoid disclosing company proprietary data; included in "Total" or "Grand total." -- Zero.

¹Supply available for consumption is a net figure computed by adding production to receipts and deducting scrap shipped during the year.

The difference in stock levels at the beginning and end of the year is not taken into consideration.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Obsolete scrap includes ingot molds, stools, and scrap from old equipment, buildings, etc.

⁴Includes scrap shipped, transferred, or otherwise disposed of during the year.

⁵Less than ½ unit.

TABLE 6
U.S. CONSUMPTION OF IRON AND STEEL SCRAP AND PIG IRON IN 2008, BY REGION AND STATE^{1, 2, 3}

(Thousand metric tons)

Region and State	Manufacturers of pig iron and raw steel and castings		Manufacturers of steel castings		Iron foundries and miscellaneous users		Total, all manufacturing types	
	Scrap	Pig iron	Scrap	Pig iron	Scrap	Pig iron	Scrap	Pig iron
New England and Middle Atlantic:								
Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont	1,750	22	8	--	235	6	1,990	28
Pennsylvania	5,880	2,650	168	1	261	23	6,310	2,670
Total	7,630	2,670	176	1	496	29	8,300	2,700
North Central:								
Illinois	1,710	1,900	64	1	379	12	2,150	1,910
Indiana	5,250	12,800	78	1	853	71	6,180	12,900
Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota, Wisconsin	1,900	77	322	1	2,470	453	4,690	532
Michigan	1,950	3,600	28	--	592	44	2,570	3,640
Ohio	7,960	4,410	162	(4)	1,030	107	9,150	4,510
Total	18,800	22,800	654	3	5,320	687	24,700	23,500
South Atlantic:								
Delaware, Maryland, Virginia, West Virginia	3,600	1,580	747	(4)	306	15	4,660	1,600
Florida, Georgia, North Carolina, South Carolina	3,240	232	238	--	133	2	3,610	233
Total	6,840	1,810	985	(4)	439	17	8,260	1,830
South Central:								
Alabama, Kentucky, Mississippi, Tennessee	8,290	4,130	129	(4)	1,070	77	9,490	4,200
Arkansas, Louisiana, Oklahoma	5,310	541	12	--	15	4	5,340	547
Texas	4,320	42	30	7	176	26	4,530	75
Total	17,900	4,710	171	7	1,260	107	19,400	4,830
Mountain and Pacific:								
Arizona, Colorado, Idaho, Utah	2,270	1,530	5	(4)	82	(4)	2,350	1,530
California, Oregon, Washington	3,160	53	76	(4)	161	4	3,390	58
Total	5,430	1,580	81	(4)	243	4	5,750	1,580
Grand total	56,600	33,500	2,070	11	7,760	844	66,400	34,400

-- Zero.

¹Includes recirculating scrap resulting from current operations and home-generated obsolete scrap.

²Includes molten pig iron used for ingot molds and direct castings.

³Data are rounded to no more than three significant digits; may not add to totals shown.

⁴Less than 1/2 unit.

TABLE 7
U.S. CONSUMER STOCKS OF IRON AND STEEL SCRAP AND PIG IRON, DECEMBER 31, 2008, BY REGION AND STATE¹

(Thousand metric tons)

Region and State	Carbon steel ²	Stainless steel	Alloy steel ³	Cast iron ⁴	Other grades of scrap	Total scrap	Pig iron
New England and Middle Atlantic:							
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	W	W	--	W	W	W	W
New Jersey and New York	46	W	W	W	W	46	W
Pennsylvania	233	18	15	17	4	286	4
Total	278	19	16	18	4	337	4
North Central:							
Illinois	68	(5)	(6)	3	3	74	13
Indiana	372	5	1	16	(6)	400	154
Iowa, Kansas, Missouri, Nebraska, South Dakota	85	(6)	(6)	6	--	90	5
Michigan	100	(6)	(6)	38	(6)	140	7
Minnesota and Wisconsin	44	2	3	5	(6)	54	5
Ohio	729	28	26	179	(5)	962	140
Total	1,400	36	31	247	10	1,720	324
South Atlantic:							
Delaware, Maryland, Virginia, West Virginia	177	W	W	W	W	275	54
Florida, Georgia, North Carolina, South Carolina	320	W	W	W	W	573	27
Total	497	48	30	263	11	848	81
South Central:							
Alabama, Kentucky, Mississippi, Tennessee	567	W	--	22	W	627	256
Arkansas, Louisiana, Oklahoma	542	W	W	W	--	547	175
Texas	220	W	W	W	W	251	19
Total	1,330	24	1	32	39	1,430	450
Mountain and Pacific:							
Arizona, Colorado, Idaho, Utah	61	(5)	--	5	W	118	W
California, Oregon, Washington	130	W	2	10	W	186	W
Total	191	W	2	15	97	304	25
Grand total	3,690	127	80	575	161	4,630	884

W Withheld to avoid disclosing company proprietary data; included in "Total" or "Grand total." -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Excludes rerolling rails.

³Excludes stainless steel.

⁴Includes borings.

⁵Less than ½ unit.

⁶Withheld to avoid disclosing company proprietary data; included in "North Central Total" of "Total Scrap."

TABLE 8
 U.S. AVERAGE MONTHLY PRICE AND COMPOSITE PRICE FOR NO. 1
 HEAVY-MELTING STEEL, WITH ANNUAL AVERAGES¹

(Dollars per metric ton)

Period	Chicago, IL	Philadelphia, PA	Pittsburgh, PA	Composite price
2007, average	259.12	252.76	247.87	252.80
2008:				
January	325.59	305.99	320.80	317.47
February	333.70	314.95	326.26	324.97
March	349.39	354.90	344.47	349.59
April	487.18	441.08	484.34	455.94
May	501.95	489.75	503.08	504.52
June	490.38	492.10	494.56	493.12
July	502.93	515.48	517.20	509.93
August	447.81	392.76	467.50	450.16
September	321.37	298.16	324.79	314.77
October	178.09	174.00	201.76	197.08
November	89.50	93.50	114.41	99.21
December	165.94	159.93	193.40	169.61
Average	349.48	336.05	357.71	348.86

¹Calculated by the U.S. Geological Survey from prices published in American Metal Market.

TABLE 9
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY COUNTRY^{1,2}

(Thousand metric tons and thousand dollars)

Country	2007		2008	
	Quantity	Value	Quantity	Value
Argentina	3	763	1	519
Australia	1	1,010	1	3,130
Austria	1	2,030	2	2,020
Bahamas, The	12	2,400	7	1,580
Bangladesh	120	39,600	112	44,000
Belgium	8	9,240	6	11,800
Brazil	4	4,470	2	1,440
Canada	1,410	350,000	1,670	648,000
Chile	29	8,320	(3)	159
China	2,460	1,880,000	2,810	1,840,000
Colombia	99	26,200	59	25,300
Dominican Republic	6	1,270	3	968
Egypt	504	144,000	870	400,000
Finland	37	130,000	57	111,000
France	2	6,370	4	9,700
Germany	3	1,930	7	5,080
Greece	340	95,500	276	117,000
Hong Kong	252	96,700	167	96,100
India	781	337,000	883	365,000
Indonesia	217	77,500	371	179,000
Italy	169	50,800	82	44,000
Japan	201	261,000	435	324,000
Kenya	9	2,150	--	--
Korea, Republic of	1,360	560,000	2,620	1,200,000
Malaysia	1,210	350,000	1,260	512,000
Mexico	865	221,000	847	341,000
Netherlands	12	27,900	21	42,600
Pakistan	217	64,000	190	64,800
Peru	(3)	153	140	63,500
Portugal	21	5,670	(3)	216
Saudi Arabia	42	11,700	(3)	479
Singapore	31	9,820	47	13,200
Spain	65	159,000	107	77,400
Sweden	5	14,000	(3)	2,210
Switzerland	3	2,620	34	28,400
Taiwan	1,640	702,000	2,480	1,170,000
Thailand	857	248,000	1,060	451,000
Turkey	3,260	906,000	4,480	2,010,000
United Kingdom	15	10,700	7	15,600
Vietnam	160	50,700	310	111,000
Other	49 ^r	18,800 ^r	125	37,900
Total	16,500	6,890,000	21,500	10,400,000

^rRevised. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Excludes used rails for rerolling and other uses and ships, boats, and other vessels for scrapping. Export valuation is free alongside ship. The United States exported scrap to 99 countries in 2007 and 98 countries in 2008.

³Less than ½ unit.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 10
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY CUSTOMS DISTRICT^{1,2}

(Thousand metric tons and thousand dollars)

Customs district	2007		2008	
	Quantity	Value	Quantity	Value
Baltimore, MD	57	85,300	116	56,500
Boston, MA	1,100	318,000	1,560	690,000
Buffalo, NY	178	73,200	282	161,000
Charleston, SC	220	99,200	166	86,400
Charlotte, NC	62	25,800	55	32,000
Chicago, IL	8	5,530	39	15,900
Cleveland, OH	2	496	1	1,060
Columbia-Snake, OR	854	283,000	937	454,000
Detroit, MI	334	86,100	502	199,000
Duluth, MN	47	12,100	59	19,300
El Paso, TX	47	2,800	5	664
Great Falls, MT	23	5,330	22	6,490
Honolulu, HI	178	46,600	170	67,100
Houston-Galveston, TX	192	145,000	500	246,000
Laredo, TX	298	75,300	306	87,400
Los Angeles, CA	3,880	2,220,000	5,860	3,030,000
Miami, FL	244	103,000	246	167,000
Mobile, AL	77	32,800	75	39,300
New Orleans, LA	270	201,000	955	473,000
New York, NY	2,670	1,180,000	3,230	1,700,000
Nogales, AZ	33	9,080	9	3,960
Norfolk, VA	260	111,000	372	161,000
Ogdensburg, NY	81	26,800	82	37,900
Pembina, ND	501	122,000	529	205,000
Philadelphia, PA	1,040	303,000	993	437,000
Portland, ME	142	50,400	115	63,700
Providence, RI	522	143,000	442	206,000
San Diego, CA	56	12,200	19	6,200
San Francisco, CA	1,170	395,000	1,440	618,000
San Juan, PR	165	50,100	177	49,700
Savannah, GA	216	140,000	370	224,000
Seattle, WA	772	300,000	1,180	541,000
St. Albans, VT	92	26,600	94	36,400
Tampa, FL	520	157,000	519	220,000
Other	176	32,600	101	20,300
Total	16,500	6,890,000	21,500	10,400,000

¹Excludes used rails for rerolling and other uses and ships, boats, and other vessels for scrapping.

Export valuation is free alongside ship.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 11
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY GRADE^{1,2}

(Thousand metric tons and thousand dollars)

Grade	2007		2008	
	Quantity	Value	Quantity	Value
No. 1 heavy-melting scrap	3,340	957,000	5,240	2,360,000
No. 2 heavy-melting scrap	291	70,100	382	113,000
No. 1 bundles	127	26,800	248	62,800
No. 2 bundles	46	12,200	23	6,400
Shredded steel scrap	5,010	1,420,000	8,410	3,330,000
Borings, shovelings, and turnings	64	11,200	152	17,700
Cut plate and structural	700	198,000	859	332,000
Tinned iron or steel	427	75,500	140	64,300
Remelting scrap ingots	46	70,000	77	101,000
Stainless steel scrap	882	1,620,000	1,000	1,190,000
Other alloy steel scrap	1,850	1,190,000	1,680	1,330,000
Other steel scrap ³	2,580	861,000	2,740	1,200,000
Iron scrap	1,120	377,000	589	262,000
Total	16,500	6,890,000	21,500	10,400,000
Ships, boats, and other vessels for scrapping	143	23,700	4	354
Used rails for rerolling and other uses ⁴	97	69,600	76	54,900
Grand total	16,700	6,980,000	21,600	10,400,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Export valuation is free alongside ship.

³Includes tinplate and terneplate.

⁴Includes mixed (used plus new) rails. More information can be found in table 15.

Source: U.S. Census Bureau.

TABLE 12
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP, BY COUNTRY^{1,2}

(Thousand metric tons and thousand dollars)

Country	2007		2008	
	Quantity	Value	Quantity	Value
Bahamas, The	5	875	4	1,240
Belgium	32	10,300	(3)	61
Canada	3,000	749,000	2,790	1,020,000
China	1	160	1	405
Colombia	1	1,820	(3)	1,220
Denmark	--	--	15	11,300
Dominican Republic	11	3,680	(3)	411
Egypt	2	1,450	(3)	502
Finland	3	3,490	17	4,780
Germany	2	841	5	5,430
Japan	1	1,480	28	2,870
Malaysia	1	328	(3)	258
Mexico	284	138,000	333	151,000
Netherlands	62	23,000	61	36,800
Sweden	77	25,500	88	44,100
Trinidad and Tobago	(3)	451	(3)	1,630
United Kingdom	181	65,400	223	153,000
Other	32	10,300	28	18,800
Total	3,700	1,040,000	3,600	1,450,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Excludes used rails for rerolling and other uses and ships, boats, and other vessels for scrapping.

Import valuation is customs value. The United States imported scrap from 50 countries in 2007 and 58 countries in 2008.

³Less than ½ unit.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 13
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP,
BY CUSTOMS DISTRICT^{1,2}

(Thousand metric tons and thousand dollars)

Customs district	2007		2008	
	Quantity	Value	Quantity	Value
Baltimore, MD	4	1,730	3	7,150
Buffalo, NY	602	231,000	496	258,000
Charleston, SC	214	75,500	284	154,000
Charlotte, NC	(3)	9	1	847
Chicago, IL	82	7,050	35	3,990
Cleveland, OH	25	1,720	(3)	292
Columbia-Snake, OR	25	4,790	97	29,000
Detroit, MI	1,270	322,000	1,060	391,000
Duluth, MN	57	14,400	69	23,500
El Paso, TX	40	12,900	53	26,600
Great Falls, MT	75	21,600	59	23,200
Houston-Galveston, TX	22	51,400	30	36,000
Laredo, TX	42	42,800	85	48,300
Los Angeles, CA	3	2,860	24	5,820
Miami, FL	1	305	(3)	546
Mobile, AL	33	5,420	47	21,900
New Orleans, LA	126	45,600	141	99,300
New York, NY	(3)	276	4	1,390
Nogales, AZ	10	3,860	8	3,070
Norfolk, VA	7	1,800	(3)	10
Ogdensburg, NY	11	9,730	19	22,500
Pembina, ND	91	24,900	72	35,700
Portland, ME	(3)	221	4	3,160
San Diego, CA	180	37,600	177	49,400
Seattle, WA	776	115,000	820	201,000
Tampa, FL	4	854	3	2,080
Other	(3) ^r	1,274 ^r	4	705
Total	3,700	1,040,000	3,600	1,450,000

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Excludes used rails for rerolling and other uses and ships, boats, and other vessels for scrapping. Import valuation is customs value.

³Less than ½ unit.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 14
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP, BY CLASS^{1,2}

(Thousand metric tons and thousand dollars)

Class	2007		2008	
	Quantity	Value	Quantity	Value
No. 1 heavy-melting scrap	134	25,800	166	56,300
No. 2 heavy-melting scrap	60	13,300	36	11,600
No. 1 bundles	866	254,000	865	458,000
No. 2 bundles	14	1,810	36	8,150
Shredded steel scrap	512	114,000	444	129,000
Borings, shovelings, and turnings	98	14,800	76	19,300
Cut plate and structural	142	26,700	162	42,600
Tinned iron or steel	7	2,050	26	7,040
Remelting scrap ingots	8	345	1	9
Stainless steel scrap	118	198,000	140	217,000
Other alloy steel scrap	693	138,000	629	186,000
Other steel scrap ³	734	177,000	666	219,000
Iron scrap	313	69,900	349	95,100
Total	3,700	1,040,000	3,600	1,450,000
Ships, boats, and other vessels for scrapping	(4)	157	1	18
Used rails for rerolling and other uses ⁵	83	40,400	151	80,600
Grand total	3,780	1,080,000	3,750	1,530,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Import valuation is customs value.

³Includes tinplate and terneplate.

⁴Less than 1/2 unit.

⁵Includes mixed (used plus new) rails. More information can be found in table 16.

Source: U.S. Census Bureau.

TABLE 15
U.S. EXPORTS OF USED RAILS FOR REROLLING AND OTHER USES, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Anguilla	11	\$42	53	\$106
Antigua and Barbuda	29	443	5	11
Argentina	9	16	80	205
Australia	1,920	3,390	1,370	2,590
Austria	85	118	--	--
Bahamas, The	121	171	173	216
Barbados	65	163	336	349
Brazil	--	--	11	45
British Virgin Islands	68	57	1	6
Canada	26,000	16,100	32,900	19,000
Cayman Islands	191	149	173	317
Chile	52	62	51	139
China	29	55	52	30
Colombia	480	438	226	283
Costa Rica	3	16	--	--
Dominican Republic	725	570	803	1,120
France	23	37	(3)	4
Germany	26	44	441	1,110
Guatemala	29	58	321	267
Honduras	16	11	86	82
Hong Kong	123	185	--	--
Hungary	36	30	52	370
India	221	721	326	231
Ireland	55	46	59	50
Israel	3	12	27	112
Italy	--	--	86	186
Jamaica	800	775	2,900	2,820
Japan	1	13	--	--
Korea, Republic of	242	261	13	11
Malaysia	51	43	--	--
Mexico	60,800	42,600	28,100	17,900
Netherland Antilles	150	215	328	318
New Zealand	15	50	--	--
Nicaragua	--	--	20	53
Panama	48	45	28	57
Peru	346	257	124	139
Philippines	16	26	4	12
Singapore	24	64	8	31
South Africa	26	22	486	504
Spain	58	242	--	--
St. Lucia	31	27	--	--
Taiwan	2,580	966	2,830	1,320
Thailand	2	5	74	62
Trinidad and Tobago	4	13	561	2,700
Turkey	685	573	8	15
Turks and Caicos Islands	37	44	28	72
United Arab Emirates	15 ^r	73 ^r	37	93
United Kingdom	35	38	216	408
Venezuela	20	30	187	265
Vietnam	538	204	1,940	878
Other	91 ^r	120 ^r	345	362
Total	96,900	69,600	75,800	54,900

See footnotes at end of table.

TABLE 15—Continued
U.S. EXPORTS OF USED RAILS FOR REROLLING AND OTHER USES, BY COUNTRY^{1,2}

¹Revised. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Export valuation is free alongside ship.

³Less than ½ unit.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 16
U.S. IMPORTS FOR CONSUMPTION OF USED RAILS FOR REROLLING
AND OTHER USES, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Austria	3	\$6	7	\$14
Canada	37,400	12,700	95,800	45,300
Czech Republic	81	59	4	9
Germany	468	784	6	11
Italy	7	17	--	--
Japan	6	6	9	17
Luxembourg	9	28	--	--
Mexico	92	67	196	267
Netherlands	5	13	--	--
Russia	42,800	24,300	53,500	33,700
Switzerland	--	--	1	3
Taiwan	6	28	9	27
Ukraine	2,380	2,340	--	--
United Kingdom	--	--	1,780	1,320
Total	83,200	40,400	151,000	80,600

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Import valuation is customs value.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 17
U.S. EXPORTS OF DIRECT-REDUCED IRON, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Canada	--	--	155	\$16
Switzerland	--	--	254	39
Taiwan	--	--	352	37
United Arab Emirates	219	\$23	--	--
Venezuela	--	--	43	5
Total	219	23	804	97

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Data are for steelmaking-grade direct-reduced iron only.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 18
U.S. IMPORTS FOR CONSUMPTION OF DIRECT-REDUCED IRON, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Brazil	67,700	\$5,790	5,000	\$1,500
Canada	5,330	1,440	--	--
China	75	14	--	--
Sweden	110	57	--	--
Trinidad and Tobago	1,410,000	332,000	1,380,000	493,000
Turkey	36,600	8,510	--	--
Venezuela	810,000	171,000	954,000	477,000
Total	2,330,000	519,000	2,340,000	971,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Data are for steelmaking-grade direct-reduced iron only.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 19
U.S. EXPORTS OF PIG IRON, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Australia	6	\$3	--	--
Brazil	--	--	30	\$20
Canada	3,860	1,640	22,600	8,600
China	22	7	156	167
Denmark	--	--	1	4
Dominican Republic	--	--	189	201
Finland	--	--	10	5
France	--	--	37	6
Guatemala	--	--	261	15
Guyana	14,600	24	--	--
Hong Kong	--	--	35	37
India	--	--	47	28
Israel	20	7	43	25
Japan	67	60	--	--
Korea, Republic of	25	27	152	163
Kuwait	--	--	81	87
Malaysia	585	177	--	--
Mexico	6,180	2,110	4,630	1,900
Russia	440	146	--	--
Singapore	44,900	38	55	55
Spain	65	21	--	--
Switzerland	225	139	--	--
Taiwan	31	33	15	14
United Arab Emirates	17	18	--	--
United Kingdom	141	151	22,800	38
Total	71,200	4,610	51,100	11,400

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes the following grades of pig iron: less than or equal to 0.5% phosphorus content, greater than 0.5% phosphorus content, and alloy grade. Export valuation is free alongside ship value.

Sources: U.S. Census Bureau and U.S. International Trade Commission.

TABLE 20
U.S. IMPORTS FOR CONSUMPTION OF PIG IRON, BY COUNTRY^{1,2}

Country	2007		2008	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Austria	14 ^r	\$16	--	--
Brazil	3,510,000	1,120,000	3,610,000	\$1,990,000
Canada	114,000	39,800	182,000	102,000
China	29 ^r	8	--	--
Germany	51 ^r	15	--	--
India	2 ^r	4	2	6
Japan	10 ^r	12	--	--
Russia	1,140,000	354,000	711,000	413,000
Singapore	--	--	3	6
South Africa	112,000	34,700	92,900	52,300
Sweden	--	--	33,400	19,400
Trinidad and Tobago	47,100	11,200	12,000	5,990
Ukraine	282,000	96,400	310,000	207,000
United Kingdom	--	--	35	61
Venezuela	15,300	4,250	29,200	8,460
Total	5,220,000	1,660,000	4,980,000	2,800,000

^rRevised. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes the following grades of pig iron: less than or equal to 0.5% phosphorus content, greater than 0.5% phosphorus content, and alloy grade. Import valuation is customs value.

Sources: U.S. Census Bureau and U.S. International Trade Commission.