



U.S. Bureau of Mines



MINERAL INDUSTRY SURVEYS

T S Ary, Director

Washington, DC 20241

For more information call:

Iron Ore, Monthly

Peter H. Kuck, Iron Ore Specialist, (202) 634-1023

Cheryl M. Cvetic, Resource Specialist, (202) 634-1023

IRON ORE IN SEPTEMBER 1989

U.S. mine production of iron ore in September was only slightly less than that of August, according to the Bureau of Mines, U.S. Department of the Interior. Mine shipments, though, decreased almost 13%. Shipments from U.S. loading docks on the upper Great Lakes totaled 5.2 million metric tons and were also down 13% from the previous month. Monthly consumption of ore and agglomerates remained constant at about 5.7 million tons.

Consumption for the first 9 months of 1989 reached 56 million tons and was 6% greater than the corresponding year-to-date total for 1988. On September 30, 49 blast furnaces were in operation, one more than on August 31. However, domestic raw steel production has been slackening since June, suggesting that the total amount of steel produced in 1989 will be about 3% less than the tonnage reported for 1988. At the same time, shortages of high-quality, industrial scrap have encouraged a pickup in blast furnace activity and hot metal production. As a result of these opposing, short-term changes, pig iron production for 1989 should be very close to that of 1988. Pellet consumption on a gross weight basis is expected to be slightly higher than the 1988 consumption figure of 61.1 million tons because of the increasing use of fluxed pellets which contain 3% to 9% less iron than traditional standard pellets.

Update: On November 5, LTV Steel Mining Co. laid off one-third of the hourly workers at its Hoyt Lakes mining operation for 2 weeks. During the 2-week period, production at the Minnesota taconite operation was cut back about 50% to trim pellet stocks. Between 400 and 450 of the 1,400 hourly and salaried employees were affected by the layoff. According to mine officials, the temporary cutback was part of a broader action taken by the parent company, LTV Steel Co., Inc., to reduce excessive inventories in its production system. In recent months, the domestic steel industry has seen a modest dropoff in orders, especially from manufacturers of automobiles and appliances. LTV is a major supplier of finished steel to both consuming industries.

THIS ISSUE ALSO INCLUDES ANNUAL IRON ORE DATA FOR 1988.

Prepared in the Branch of Ferrous Metals, December 6, 1989.

Changes to the Mineral Industry Surveys for Iron Ore: Congress enacted the Omnibus Trade and Competitiveness Act (Public Law 100-418) on August 23, 1988, to enhance the competitiveness of the Nation's industries and to improve the management of U.S. trade strategy. This comprehensive act, included among other items, provisions modifying U.S. customs laws and tariff schedules. Subtitle B of the new law requires that all tariff schedules after January 1, 1989, conform to the nomenclature of the internationally established Harmonized System. All of the iron ore trade statistics collected by the Bureau of the Census are now being compiled and published in metric units. To avoid confusion, the Bureau of Mines has decided to also present all of its iron ore production and consumption statistics in metric units. To convert from metric tons to long tons, multiply the published number by 0.984207.

The September tables dealing with foreign trade and domestic consumption will appear in a subsequent issue.

U.S. IRON ORE

MONTHLY PRODUCTION AND SHIPMENTS

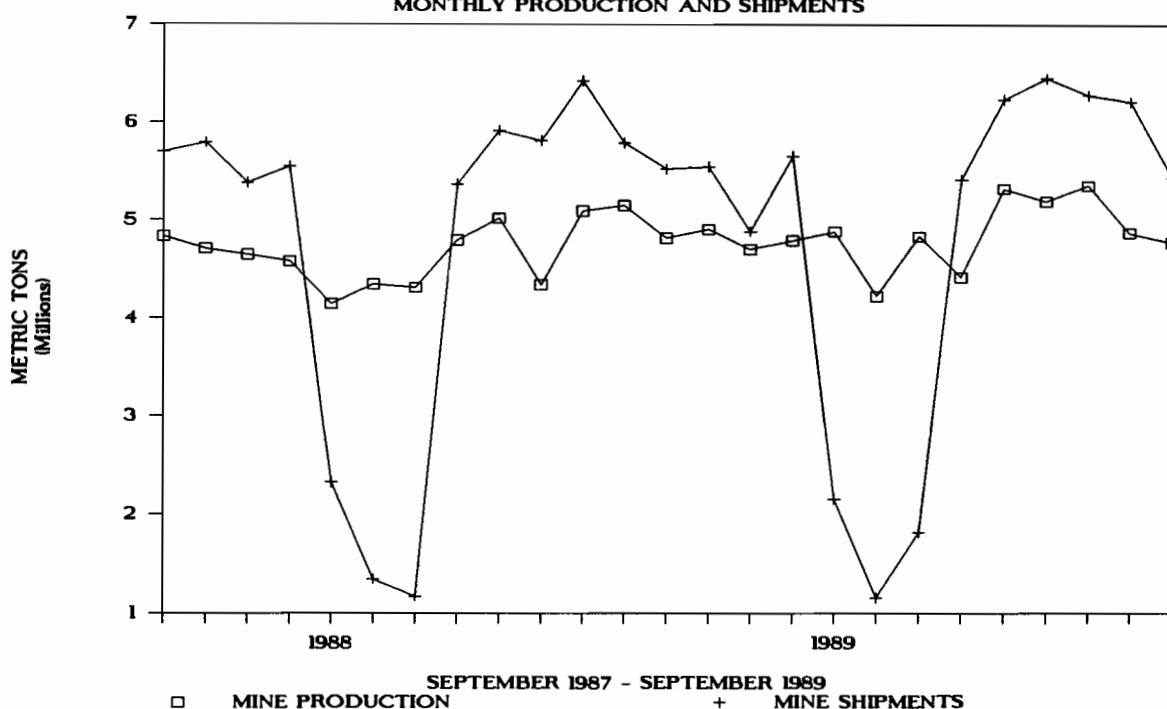


Table 1. - U.S. production and shipments of iron ore, by districts 1/
(Exclusive of ore containing 5% or more manganese)
(Thousand metric tons)

Period	Lake Superior	Other U.S.	Total <u>2/</u>	
			1989	1988
Production:				
1988 -----	56,038	1,477	--	57,515
1989:				
1st Quarter-----	13,750	210	13,960	12,809
2nd Quarter-----	14,664	282	14,946	14,156
July-----	5,265	92	5,357	5,095
August-----	4,781	95	4,876	5,153
September-----	4,684	91	4,776	4,821
Shipments:				
1988 -----	55,358	1,755	--	57,113
1989:				
1st Quarter-----	4,957	174	5,131	4,846
2nd Quarter-----	17,757	364	18,121	17,100
July-----	6,184	104	6,289	6,431
August-----	6,118	101	6,220	5,796
September-----	5,350	87	5,437	5,528

1/ Excludes byproduct ore, except where noted.

2/ Data may not add to totals shown because of independent rounding.

Table 2. - U.S. mine production, shipments, and stocks of iron ore 1/
(Exclusive of ore containing 5% or more manganese)
(Thousand metric tons)

District	Production September		Shipments September		Mine Stocks September 30	
	1989	1988	1989	1988	1989	1988
Lake Superior:						
Michigan-----	1,028	1,063	1,173	1,381	1,796	1,111
Minnesota-----	3,657	3,707	4,177	4,082	4,085	3,706
Other U.S.-----	91	52	87	65	122	179
Total <u>2/</u> -----	4,776	4,821	5,437	5,528	6,004	4,996

1/ Excludes byproduct ore.

2/ Data may not add to totals shown because of independent rounding.

Table 3. - Canada: Shipments of iron ore
(Thousand dry metric tons)

Period	Newfound- land	Quebec	Ontario	British Columbia	Total <u>1/</u>	
					1989	1988
1988 <u>p/</u> -----	20,395	16,446	2,941	59	--	39,840
1989:						
1st Quarter-----	2,679	2,448	870	11	6,008	7,052
2nd Quarter-----	6,345	3,936	929	20	11,230	10,550
July-----	2,193	2,027	291	4	4,515	3,904
August-----	1,903	1,054	219	3	3,180	3,496
September-----	1,762	1,622	269	8	3,660	3,377

p/ Preliminary.

1/ Data may not add to totals shown because of independent rounding.

Source: Energy, Mines, and Resources Canada.

Table 4. - U.S. consumption and stocks of iron ore and agglomerates
at consuming plants and production of pig iron
(Thousand metric tons)

State or Region	Consumption			Stocks	
	August	Year to date 1/		August 31	
	1989	1989	1988	1989	1988
Alabama, Kentucky, Tennessee, Texas, and Missouri-----	415	3,802	2,638	1,383	1,057
California, Colorado, and Utah- Delaware, Maryland, and West Virginia-----	177	1,459	NA	61	NA
Illinois and Indiana-----	554	5,608	5,803	2,264	1,595
Michigan and Minnesota-----	2,221	19,000	19,080	5,386	5,662
New York, Ohio, Pennsylvania, New Jersey, and Rhode Island-	599	4,825	3,998	1,599	1,925
	1,770	15,542	15,393	3,152	3,826
Total 2/-----	5,737	50,237	46,912	13,845	14,065

Stocks at U.S. receiving/transfer docks----- 1,767 r/ 2,065

Consuming Sector	Consumption by process			Pig iron produced		
	August	Year to date 1/		August	Year to date 1/	
	1989	1989	1988	1989	1989	1988
Blast furnaces-----	5,314	44,425	41,745	3,785	34,513	33,967
Steel furnaces-----	11	204	180	--	--	--
Agglomerating plants 3/--	411	5,606	4,966	--	--	--
Miscellaneous 4/-----	(5/)	3	21	--	--	--
Total 2/-----	5,737	50,237	46,912	3,785	34,513	33,967

NA Not available.

r/ Revised.

1/ May include revisions for previous month.

2/ Data may not add to totals shown because of independent rounding.

3/ Iron ore and iron ore concentrates consumed in agglomerating plants not located at the mine site.

4/ Sold to nonreporting companies or used for purposes not listed.

5/ Less than one-half unit.

Source: American Iron Ore Association (consumption of iron ore).
American Iron and Steel Institute (production of pig iron).

Table 5. - U.S. exports of iron ore and agglomerates, by country of destination
(Thousand metric tons)

Period	Canada	Mexico	Other	Total <u>1/</u>	
				1989	1988
1988 -----	5,277	1	7	--	5,285
1989:					
1st Quarter-----	346	(<u>2/</u>)	2	348	340
2nd Quarter-----	1,990	(<u>2/</u>)	2	1,991	1,613
July-----	393	--	(<u>2/</u>)	393	685
August-----	590	(<u>2/</u>)	1	592	430

1/ Data may not add to totals shown because of independent rounding.

2/ Less than one-half unit.

Source: Bureau of the Census data reported under heading 2601 of the export classification system (Schedule B).

Table 6. - U.S. exports of iron ore and agglomerates, by type
(Thousand metric tons)

Period	Pellets	Concentrates	Direct shipping ores	Other	Total <u>1/</u>
					ores
1988 -----	NA	NA	NA	NA	5,285
1989:					
1st Quarter-----	1	347	(<u>2/</u>)	(<u>2/</u>)	348
2nd Quarter-----	1,158	824	(<u>2/</u>)	9	1,991
July-----	341	52	--	(<u>2/</u>)	393
August-----	292	151	144	6	592

NA Not Available.

1/ Data may not add to totals shown because of independent rounding.

2/ Less than one-half unit.

Source: Bureau of the Census data reported under heading 2601 of the export classification system (Schedule B).

Table 7. - U.S. imports for consumption of iron ore and agglomerates, by country
(Exclusive of ore containing 20% or more manganese)

Country of origin	August 1989		Year to date 1989			Year to date 1988
	Thousand metric tons	Value <u>1</u> / (thousand dollars)	Thousand metric tons	Value <u>1</u> / (thousand dollars)	Value <u>1</u> / (dollars per ton)	(thousand metric tons)
Australia-----	--	--	243	3,249	13.34	632
Brazil-----	660	11,564	3,682	65,463	17.78	3,219
Canada-----	788	25,660	5,542	190,187	34.32	6,176
Chile-----	--	--	61	1,200	19.74	85
India-----	--	--	--	--	--	62
Liberia-----	--	--	200	2,950	14.77	128
Mauritania-----	70	1,198	460	7,820	16.99	262
Norway-----	--	--	40	693	17.24	--
Peru-----	23	569	104	2,244	21.47	130
Philippines <u>2</u> /--	--	--	66	1,622	24.49	173
Sweden-----	--	--	--	--	--	45
Venezuela-----	379	9,719	3,059	77,729	25.41	2,027
Other-----	<u>3</u> / 2	<u>3</u> / 89	2	101	58.33	24
Total <u>4</u> /-----	1,921	48,799	13,460	353,259	26.25	12,962

1/ Customs value. Excludes international freight, insurance, and other c.i.f. charges.

2/ Sinter made from raw materials supplied by Australia, Brazil, and other countries.

3/ Being questioned.

4/ Data may not add to totals shown because of independent rounding. Unit values shown above are calculated from unrounded data.

Source: Bureau of the Census data reported under heading 2601 of the Harmonized Tariff Schedules of the United States.

Table 8. - U.S. imports for consumption of iron ore and agglomerates, by type
(Exclusive of ore containing 20% or more manganese)

Type of product	August 1989		Year to date 1989			Year to date 1988
	Thousand metric tons	Value <u>1/</u> (thousand dollars)	Thousand metric tons	Value <u>1/</u> (thousand dollars)	Value <u>1/</u> (dollars per ton)	(thousand metric tons)
Concentrates-----	87	2,511	286	6,103	21.37	NA
Coarse ores-----	52	1,313	462	10,839	23.48	NA
Fine ores-----	1,092	27,144	8,046	202,568	25.18	NA
Pellets-----	<u>2/</u> 439	<u>2/</u> 13,608	3,706	114,659	30.94	NA
Briquettes-----	--	--	--	--	--	NA
Other						
agglomerates---	249	4,224	840	17,051	20.30	NA
Roasted pyrites--	--	--	121	2,038	16.92	NA
Total <u>3/</u>-----	1,921	48,799	13,460	353,259	26.25	12,962

NA Not Available.

1/ Customs value. Excludes international freight, insurance, and other c.i.f. charges.

2/ Part being questioned.

3/ Data may not add to totals shown because of independent rounding. Unit values shown above are calculated from unrounded data.

Source: Bureau of the Census data reported under heading 2601 of the Harmonized Tariff Schedules of the United States.

Table 9. - U.S. imports for consumption of iron ore and agglomerates in August 1989
(Exclusive of ore containing 20% or more manganese)
(Thousand metric tons)

Country of origin	Type of Product						Total ^{1/}
	Concentrates	Coarse ores	Fine ores	Pellets	Briquettes and other agglomerates	Roasted pyrites	
Brazil-----	--	--	410	--	249	--	660
Canada-----	87	--	421	279	--	--	788
Mauritania---	--	--	70	--	--	--	70
Peru-----	--	--	--	23	--	--	23
Venezuela----	--	52	191	135	--	--	379
Other-----	--	--	--	<u>2/</u> 2	--	--	2
Total ^{1/} ---	87	52	1,092	439	249	--	1,921

^{1/} Data may not add to totals shown because of independent rounding.

^{2/} Being questioned.

Source: Bureau of the Census data reported under heading 2601 of the Harmonized Tariff Schedules of the United States.

Table 10. - U.S. imports for consumption of pellets, by country

Country of origin	August 1989		Year to date 1989			Year to date 1988 (thousand metric tons)
	Thousand metric tons	Value ^{1/} (thousand dollars)	Thousand metric tons	Value ^{1/} (thousand dollars)	Value ^{1/} (dollars per ton)	
Brazil-----	--	--	331	9,529	28.80	NA
Canada-----	279	9,081	2,023	66,776	33.01	NA
Peru-----	23	569	78	1,894	24.18	NA
Venezuela----	135	3,870	1,273	36,371	28.58	NA
Other-----	<u>2/</u> 2	<u>2/</u> 89	2	89	54.01	NA
Total ^{3/} -----	439	13,608	3,706	114,659	30.94	NA

NA Not Available.

^{1/} Customs value. Excludes international freight, insurance, and other c.i.f. charges.

^{2/} Being questioned.

^{3/} Data may not add to totals shown because of independent rounding. Unit values shown above are calculated from unrounded data.

Source: Bureau of the Census data reported under item 2601.12.00.30 of the Harmonized Tariff Schedules of the United States.

Table 11. - U.S. imports for consumption of iron ore and agglomerates,
by customs district
(Exclusive of ore containing 20% or more manganese)
(Thousand metric tons)

Customs district	August 1989	Year to date	
		1989	1988
Baltimore-----	529	4,444	5,337
Charleston, SC-----	47	331	268
Chicago-----	384	1,942	938
Cleveland-----	135	951	677
Detroit-----	23	346	298
Houston-----	--	(1/)	31
Mobile-----	248	1,393	864
New Orleans-----	256	1,244	1,120
New York-----	2/ 2	2/ 2	1
Philadelphia-----	296	2,736	3,387
San Juan, PR-----	--	(1/)	(1/)
Seattle-----	--	--	26
Other-----	(1/)	3/ 72	16
Total 4/-----	1,921	13,460	12,962

1/ Less than one-half unit.

2/ Being questioned.

3/ Part being questioned.

4/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census data reported under heading 2601 of the Harmonized Tariff Schedules of the United States.

Table 12. - U.S. imports for consumption of pellets, by customs district
(Thousand metric tons)

Customs district	August 1989	Year to date	
		1989	1988
Baltimore-----	127	569	NA
Charleston, SC-----	23	247	NA
Chicago-----	75	537	NA
Cleveland-----	25	264	NA
Philadelphia-----	188	2,089	NA
Other-----	<u>1/</u> 2	<u>1/</u> 2	NA
Total <u>2/</u>-----	439	3,706	NA

NA Not available.

1/ Being questioned.

2/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census data reported under item 2601.12.00.30 of the Harmonized Tariff Schedules of the United States.

Table 13.--Salient iron ore statistics
(Thousand metric tons and thousand dollars unless otherwise specified)

	1984	1985	1986	1987	1988
United States:					
Iron ore (usable, 1/ less than 5% manganese):					
Production-----	52,092	49,533	39,486	r/ 47,648	57,515
Shipments-----	51,700	50,204	41,991	r/ 47,983	57,113
Value-----	\$2,247,686	\$2,076,730	\$1,472,511	\$1,503,087	\$1,716,661
Average value at mines, dollars per ton--	\$43.48	\$41.37	\$35.07	\$31.33	\$30.06
Exports-----	5,073	5,114	4,553	5,093	5,285
Value-----	\$239,257	\$240,557	\$204,738	\$198,254	\$193,796
Imports for consumption-----	17,463	16,024	17,011	16,849	20,183
Value-----	\$529,065	\$452,267	\$460,643	\$408,783	\$484,543
Consumption (iron ore and agglomerates)-----	73,678	71,708	62,097	67,768	2/ 83,694
Stocks, Dec. 31:					
At mines 3/-----	5,349	6,046	3,307	r/ 2,402	2,957
At consuming plants-----	24,403	21,631	17,439	16,565	18,005
At U.S. docks-----	2,989	2,442	2,019	2,056	2,537
Manganiferous iron ore (5% to 35% manganese):					
Shipments-----	80	18	13	W	W
World: Production-----	r/ 829,349	r/ 862,158	868,360	p/ 890,057	e/ 916,431

e/ Estimated. p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data.

1/ Direct-shipping ore, concentrates, agglomerates, and byproduct ore.

2/ Consumption data for 1988 are not entirely comparable to those of previous years owing to changes in data collection.

3/ Excludes byproduct ore. These stocks are not comparable to those of 1982 and earlier years owing to the reclassification of some stocks from the usable to the byproduct category.

PRELIMINARY

Table 14.--Employment at iron ore mines and beneficiating plants, quantity and tenor of ore produced, and average output per worker hour in the United States in 1988, by district and State

District and State	Average number of employees (thousands)	Worker hours (thousands)	Production (thousand metric tons)			Average per worker hour (metric tons)		
			Crude ore	Usable ore (in usable ore)	Iron content (natural) (percent)	Crude ore	Usable ore	Iron contained
Lake Superior:								
Michigan-----	2,090	4,023	44,317	14,590	62.1	11.02	3.63	2.25
Minnesota-----	4,706	9,816	137,225	41,449	64.0	13.98	4.22	2.70
Total or average 1/-----	6,796	13,839	181,542	56,038	63.5	13.12	4.05	2.57
Other States 2/-----	210	389	1,624	1,477	60.7	4.18	3.80	2.30
Grand total or average 1/--	7,006	14,229	183,166	57,515	63.4	12.87	4.04	2.56

1/ Data may not add to totals shown because of independent rounding.

2/ Includes California, Missouri, Montana, New Mexico, South Dakota, Texas, and Utah.

PRELIMINARY

Table 15.--Crude iron ore 1/ mined in the United States in 1988, by district, State, and mining method (Thousand metric tons, unless otherwise specified, and exclusive of ore containing 5% or more manganese)

District and State	Number of mines	Open pit	Underground	Total quantity 2/
Lake Superior:				
Michigan-----	2	44,317	--	44,317
Minnesota-----	7	137,225	--	137,225
Total-----	9	181,542	--	181,542
Other States:				
Missouri-----	1	--	1,075	1,075
Other 2/-----	11	549	--	549
Total -----	12	549	1,075	1,624
Grand total -----	21	182,091	1,075	183,166

1/ Excludes byproduct ore.

2/ Includes California, Montana, New Mexico, South Dakota, Texas, and Utah.

PRELIMINARY

Table 16.--Usable iron ore produced in the United States in 1988,
by district, State, and type of product
(Thousand metric tons and exclusive of ore containing 5% or more manganese)

District and State	Direct- shipping ore	Concentrates	Agglomerates	Total quantity
Lake Superior:				
Michigan-----	(1/)	--	14,590	14,590
Minnesota-----	--	825	40,624	41,449
Total 2/-----	(1/)	825	55,213	56,038
Other States:				
Missouri-----	--	50	744	794
Other 3/-----	683	W	--	683
Total-----	683	50	744	1,477
Grand total 2/-----	683	875	55,957	57,515

W Withheld to avoid disclosing company proprietary data; included with "Direct-shipping ore."

1/Included with "Agglomerates" to avoid disclosing company proprietary data.

2/Data may not add to totals shown because of independent rounding.

3/Includes California, Montana, New Mexico, South Dakota, Texas, and Utah.

PRELIMINARY

Table 17.--Shipments of usable iron ore 1/ from mines in the United States in 1988
(Exclusive of ore containing 5% or more manganese)

District and State	Gross weight of ore shipped (thousand metric tons)			Average iron content (natural) (percent)	Value (thousands)
	Direct- shipping ore	Concentrates	Agglomerates		
Lake Superior:					
Michigan-----	165	--	14,458	14,623	62.1 W
Minnesota-----	--	760	39,975	40,735	64.0
Total reportable or average--	165	760	54,433	55,358	63.5
Other States:					
Missouri-----	--	51	765	816	66.1 W
Other 2/-----	615	324	--	939	57.0
Total reportable or average-	615	375	765	1,755	61.2
Total withheld-----	--	--	--	--	--
Grand total or average-----	780	1,135	55,198	57,113	63.4 3/

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

1/ Includes byproduct ore.

2/ Includes California, Montana, New Mexico, New York, South Dakota, Texas, and Utah.

3/ Data do not add to total shown because of independent rounding.

PRELIMINARY

Table 18.--Usable Iron Ore Produced in the U.S. Lake Superior district, by range
(Thousand metric tons and exclusive after 1905 of ore containing 5% or more manganese)

Year	Marquette	Menominee	Gogebic	Vermilion	Mesabi	Cuyuna	Spring Valley	Black River Falls	Total 1/
1854-1981----	531,510	334,629	325,474	105,189	3,391,584	71,465	8,280	9,624	4,777,756
1982-----	6,984	--	--	--	24,281	--	--	245	31,511
1983-----	9,489	--	--	--	26,676	--	--	--	36,165
1984-----	13,190	--	--	--	37,286	--	--	--	50,476
1985-----	12,679	--	--	--	35,470	--	--	--	48,148
1986-----	10,727	--	--	--	27,476	--	--	--	38,203
1987-----	12,491	--	--	--	r/ 34,265	--	--	--	r/ 46,756
1988-----	14,590	--	--	--	41,449	--	--	--	56,038
Total 1/----	611,661	334,629	325,474	105,189	3,618,488	71,465	8,280	9,869	5,085,054

r/ Revised.

1/Data may not add to totals because of independent rounding.

PRELIMINARY

Table 19.--Average analyses of total tonnage 1/ of all grades of agglomerates shipped from mines in the United States

Year	Quantity (thousand metric tons)	Content (percent) 2/				Moisture
		Iron	Phosphorus	Silica	Manganese	
Sinter 3/						
1979-----	398	44.45	0.150	15.73	0.14	9.00
1980-----	533	44.04	.136	13.66	.18	6.04
1981-----	423	44.57	.166	13.84	.19	6.34
1982-----	254	45.94	NA	12.99	NA	6.40
Pellets of all types						
1979-----	79,268	63.07	0.029	6.05	0.16	0.36
1980-----	63,819	63.42	.022	5.65	.14	.32
1981-----	66,994	63.59	.019	5.48	.12	.32
1982-----	33,950	63.76	.018	5.38	.10	.30
1983-----	43,865	63.64	.018	5.26	.10	.27
1984-----	49,549	63.83	.018	5.15	.11	.31
1985-----	47,182	63.91	.016	5.12	.10	.28
1986-----	40,645	63.90	.015	5.14	.09	.28
1987-----	46,337	63.86	.014	5.02	.09	.22
Standard Pellets						
1988-----	41,349	64.17	0.015	5.08	0.11	0.21
Fluxed Pellets 4/						
1988-----	13,618	60.71	0.017	4.52	0.21	0.24

NA Not available.

1/ Railroad weight - gross metric tons.

2/ Natural basis.

3/ Sinter has not been produced at U.S. mines since 1982.

4/ Ratio of (CaO + MgO)/(SiO2 + Al2O3) is 0.6 or greater.

Source: American Iron Ore Association.

Table 20.--Consumption of Iron Ore 1/ at United States Iron and Steel Plants,
1979-1988
(Thousand metric tons)

Year	Iron Ore Originating Areas						Total 2/
	United States Ores		Canadian Ores			Foreign Ores	
	Great Lakes	Other U.S.	Great Lakes	Other Canada			
1979-----	67,140	10,030	2,264	21,177	16,248	116,860	
1980-----	54,851	8,430	1,390	16,167	9,993	90,832	
1981-----	61,279	7,207	656	18,377	8,963	96,482	
1982-----	35,789	3,446	76	10,967	5,840	56,119	
1983-----	40,344	2,246	123	11,612	7,876	62,202	
1984-----	44,384	1,680	109	12,130	8,747	67,049	
1985-----	45,089	1,438	1	9,138	9,012	64,678	
1986-----	39,881	1,164	401	7,818	6,905	56,170	
1987-----	44,004	710	--	8,686	7,651	61,051	
1988-----	51,048	1,242	--	9,453	10,122	71,865	

1/ Excludes dust, mill scale, and other revert iron-bearing materials added to sinter.

2/ Data may not add to totals shown because of independent rounding.

Source: American Iron Ore Association.

PRELIMINARY

Table 21.--Consumption of iron ore and agglomerates at United States iron and steel plants, by type of product
(Thousand metric tons)

Type of Product	1984	1985	1986	1987	1988
Blast Furnaces:					
Direct-shiping Ore-----	NA	2,904	1,893	2,696	5,155
Pellets-----	53,296	51,698	43,610	49,500	61,025
Sinter 1/-----	17,152	16,182	13,221	14,420	15,497
Total 2/-----	70,448	70,784	58,725	66,616	81,676
Steelmaking Furnaces:					
Direct-shiping Ore-----	NA	90	65	123	194
Pellets-----	51	62	31	44	88
Sinter 1/-----	34	82	25	42	--
Total 2/-----	84	233	122	209	282
Grand Total 2/-----	70,533	71,017	58,846	66,824	81,958

NA Not available.

1/ Includes briquettes, nodules, and other.

2/ Data may not add to totals shown because of independent rounding.

Source: American Iron and Steel Institute.

PRELIMINARY

Table 22. Consumption of iron ore and agglomerates, by type
(Thousand metric tons and exclusive of ore containing 5% ore more manganese)

Year	Blast furnaces	Steel furnaces	Sintering plants 1/	Miscellaneous 2/	Subtotal Integrated Iron & Steel Plants	Direct-reduced iron for steelmaking	Non-steel end uses 3/	Total
1979-----	95,019	943	20,680	218	116,860	NA	1,017	117,877
1980-----	74,593	492	15,617	130	90,832	NA	1,151	91,983
1981-----	80,022	343	16,028	87	96,482	NA	1,421	97,903
1982-----	45,898	248	9,062	911	56,119	NA	1,084	57,203
1983-----	51,610	225	10,134	234	62,202	--	848	63,050
1984-----	56,072	380	10,353	245	67,049	179	1,222	68,450
1985-----	55,589	184	8,440	465	64,678	224	1,147	66,049
1986-----	48,539	97	7,424	110	56,170	244	1,099	57,513
1987-----	54,614	144	6,270	23	61,051	325	1,049	62,425
1988-----	63,172	282	8,381	30	71,866	443	1,293	73,602

1/ Excludes dust, mill scale, and other revert iron-bearing materials.

2/ Sold to non-reporting companies or used for purposes not listed.

3/ Includes iron ore consumed in production of cement and iron ore shipped for use in manufacturing paint, ferrites, heavy media, cattle feed, refractory and weighting materials, and for use in lead smelting.

Source: Integrated iron and steel plants: American Iron Ore Association; DRI: Bureau of Mines estimate based on production reports compiled by Midrex Corp.; Non-steel end uses: Bureau of Mines surveys.

PRELIMINARY

Table 23.--U.S. exports of iron ore, by country
(Thousand metric tons and thousand dollars)

Country	1986		1987		1988	
	Quantity	Value	Quantity	Value	Quantity	Value
Canada-----	4,551	204,600	5,091	198,108	5,277	193,249
India-----	(1/)	17	--	--	(1/)	25
Mexico-----	1	45	1	42	1	62
Netherlands-----	(1/)	17	--	--	(1/)	3
Venezuela-----	(1/)	39	1	95	4	348
Other-----	(1/)	20	(1/)	9	3	109
Total 2/-----	4,553	204,738	5,093	198,254	5,285	193,796

1/ Less than 1/2 unit.

2/ Data may not add to totals shown because of independent rounding.

PRELIMINARY

Table 24.--U.S. imports for consumption of iron ore, by country
(Thousand metric tons and thousand dollars)

Country	1986		1987		1988	
	Quantity	Value	Quantity	Value	Quantity	Value
Australia-----	10	86	194	5,141	1,076	16,780
Brazil-----	3,752	71,045	3,698	64,820	4,935	78,092
Canada-----	8,836	311,757	7,981	246,181	9,157	285,961
Chile-----	94	2,126	636	12,601	139	2,772
India-----	--	--	--	--	126	2,820
Liberia-----	1,511	21,855	994	13,707	128	1,460
Mauritania-----	66	1,158	412	6,403	522	7,864
Peru-----	92	2,429	84	1,691	181	2,939
Philippines 1/----	56	1,504	59	1,575	239	5,432
Spain-----	--	--	1	27	--	--
Sweden-----	106	2,473	139	3,334	88	4,678
Venezuela-----	2/ 2,346	42,126	3/ 2,622	52,889	3,568	75,443
Other-----	140	4,083	29	413	4/ 24	301
Total 5/-----	17,011	460,643	16,849	408,783	20,183	484,543

1/ Sinter made from raw materials supplied by Australia, Brazil, and other countries.

2/ Excludes approximately 84,300 metric tons of sponge iron valued at \$8,340,609, originally reported as iron ore.

3/ Excludes 18,370 metric tons of sponge iron valued at \$1,849,584, originally reported as iron ore.

4/ Excludes 28,923 metric tons of crude iron sulfate crystals valued at \$318,651, originally reported as iron ore from the Federal Republic of Germany.

5/ Data may not add to totals shown because of independent rounding.

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Table 25.--U.S. Imports for consumption of iron ore, by customs district
 (Thousand metric tons and thousand dollars)

Customs District	1986		1987		1988	
	Quantity	Value	Quantity	Value	Quantity	Value
Baltimore-----	5,656	144,725	5,975	125,887	7,759	183,932
Buffalo-----	(1/)	25	(1/)	30	(1/)	14
Chicago-----	1,562	37,958	2,007	40,224	1,837	28,820
Cleveland-----	1,734	67,123	1,490	54,551	1,401	41,315
Detroit-----	388	17,798	637	27,196	520	19,607
Houston-----	42	745	9	177	62	1,115
Mobile-----	2,473	64,317	1,063	22,645	1,595	40,708
New Orleans-----	1,594	31,052	1,530	27,230	1,496	22,673
Philadelphia-----	3,289	90,592	3,809	103,101	5,031	135,335
Other-----	271	6,308	328	7,743	482	11,024
Total 2/-----	17,011	460,643	16,849	408,783	20,183	484,543

1/ Less than 1/2 unit.

2/ Data may not add to totals shown because of independent rounding.

PRELIMINARY