

Mineral Industry Surveys

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NICKEL IN JUNE 2002

In June, reported domestic nickel consumption on a daily average basis was 16% greater than that of May, according to the U.S. Geological Survey. Average daily nickel consumption of cathode, pellets, briquets, and ferronickel for stainless steel was 83.7 metric tons per day (t/d)—28% greater than the 65.4 t/d (revised) for May and 8% greater than the 77.2 t/d (revised) for June 2001. Consumption of elemental nickel to make nickel-base corrosion-resistant alloys was 20% greater than the corresponding tonnage reported for May. The increase for corrosion-resistant alloys was partially offset by decreased consumption for superalloys. Sales to plating companies averaged 30.8 t/d, about 4% less than the May sales figure.

Monthly canvass returns and preliminary trade data indicate that U.S. apparent consumption of primary nickel in the first half of 2002 will be about 20% less than the corresponding 2001 figure of 66,400 t. The first half of 2002 was a difficult period for a large segment of the U.S. steel industry. Steel shipments to the oil and gas industry and to manufacturers of machinery, industrial equipment, and tools were down significantly from those of the first half of 2001. Preliminary employment data for the third quarter of 2002 and other recent business indicators, however, suggest that the downturn in U.S. economic activity, which began in March 2001, may be coming to an end (Hall and others, 2002¹).

On June 30, 2002, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,830 t—19% less than the 2,250 t for May 31 and 8% less than the 1,990 t reported for yearend 2001. Stocks in London Metal Exchange (LME) warehouses worldwide increased slightly during June to 27,990 t and were 211% greater than on March 31, 2001, when LME stocks bottomed out at 9,000 t after a 16-month slide. Preliminary data collected by the International Nickel Study Group indicated that, at the end of May 2002, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 95,700 t of nickel in primary

products in stock, of which 72,000 t or 75% were Class I materials. Class I materials are refined products with a nickel (Ni) content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, oxide sinter, and East Asian utility nickel—products with a Ni content less than 99%.

Percentages reported in the above paragraphs may not be verifiable owing to concealment of individual company proprietary data and late reporting of data.

The United States imported 45,900 t of primary nickel in the first 5 months of 2002, 24% less than the 60,500 t for the corresponding period of 2001. Class I materials accounted for 87% of total primary imports received during the first 5 months of 2002. Trade data for June 2002 will appear in a subsequent report.

JGC wins contract to build nickel extraction complex in the Philippines

On August 22, JGC Corporation of Yokohama, Japan, announced that it had won a lump-sum, turn-key contract to construct a nickel extraction complex at the Rio Tuba Mine on Palawan Island in the Philippines (JGC Corporation, 2002§). The ore processing plant—a hydrometallurgical facility—will be built adjacent to the existing open pit operated by Rio Tuba Nickel Mining Corporation (RTN). Feed for the new plant will come from a 16-million-ton stockpile of low-grade lateritic oxide ore accumulated during 20 years of mining. The stockpiled ore reportedly averages 1.26% Ni. High pressure acid leach (HPAL) technology will be used to produce an intermediate nickel-cobalt sulfide feedstock for Sumitomo Metal Mining Co., Ltd. of Japan. Sumitomo produces electrolytic nickel and electrolytic cobalt (Co) at its Niihama smelting and refining complex in Ehime Prefecture, Japan (Sumitomo Metal Mining Co., Ltd., 2001, p. 11-12).

The complex would include a hydrogen sulfide plant, a limestone quarry, two tailings dams, a 9.9-megawatt coal-fired powerplant, and new port facilities (Philippine Society of Mining Engineers, 2002§). The operation is being designed to

¹References that include a section twist (§) are found in the Internet References Cited section.

produce 10,000 t of Ni plus 750 t of Co per year in mixed sulfides. Construction is scheduled to be completed by late 2004 (JGC Corporation, 2002§).

The HPAL project is being funded and managed by the Coral Bay Nickel Corporation of the Philippines, a joint-venture company incorporated on July 1. Equity in the new joint venture is divided between Sumitomo (54%), Mitsui & Co., Ltd. (18%), Nissho Iwai Corp (18%), and RTN (10%). Coral Bay Nickel is headquartered in Bataraza, a Palawan municipality near the mine (Mitsui & Co., Ltd., 2002§).

On July 10, the Philippine Department of Environment and Natural Resources issued the environmental compliance certificate (ECC) needed to build and operate the \$175 million complex. The project was also approved by the Palawan Council for Sustainable Development. The ECC was issued only after lengthy and somewhat controversial hearings. The project had been opposed by several nongovernmental organizations who expressed concerns about the handling and disposal of some 270,000 t of sulfuric acid per year. Potential emissions of hydrogen sulfide were another concern. Palawan is home to many diverse species of flora and fauna, and has been declared a biosphere reserve by the United Nations. The island also has two spectacular natural attractions—the Puerto Princesa Subterranean Park and the Tubbataha Reef (Palawan Times, 2002§; Tesorio, 2002§; Ticke and Sy-siong, 2002§).

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TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2001:					
June	5,750	818	76	6,650	45,100 r/
July	6,470	799	197	7,470	52,600 r/
August	5,920	981	296	7,190	59,700 r/
September	5,460	1,090	187	6,730	66,500 r/
October	5,490	757	160	6,410	72,900 r/
November	5,000	608	323	5,930	78,800 r/
December	4,460	537	215	5,210	84,000 r/
January-December	71,300	10,100	2,580 r/	84,000 r/	XX
2002:					
January	5,080	774	292	6,150	6,150
February	5,000	890	281	6,170	12,300
March	5,030	723	375	6,130	18,500
April	5,370	879	286	6,540	25,000
May	5,030	722	87	5,840	30,800
June:					
Steel:					
Stainless and heat resisting	1,630	873	W	2,500	14,200
Alloy (excludes stainless)	164	--	--	164	1,780
Superalloys	1,150	--	W	1,150	7,200
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	W	--	--	W	65
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	923	--	--	923	5,820
Chemical and chemical uses	W	--	--	W	W
Other uses	1,580	--	261	1,840	8,350
Total reported	5,440 2/	873	261	6,570	37,400
Total all companies (calc) 3/	XX	XX	XX	9,380	53,300
2002: January-June	31,000	4,860	1,580	37,400	XX
2001: January-June	38,500	5,360	1,200	45,100	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.

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

2/ Of consumption, 4,600 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (70.11%) to apparent primary consumption for 2000.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder		Ferronickel	Oxide-sinter, salts, and other forms	Total
2001:					
June		2,660	957	75	3,690
July		2,140	995	93	3,230
August		2,390	645	107	3,140 r/
September		2,500 r/	309	102	2,910
October		2,770	391	226	3,390
November		2,480	330	198	3,010
December		1,990	522	289	2,800
2002:					
January		1,800	832	282 r/	2,920
February		2,110	454	106	2,670
March		2,230	152	134	2,510
April		2,490	513	94	3,100
May		2,250	82	127 r/	2,460
June:					
Steel (stainless, heat resisting and alloy)		643	63	(3/)	706
Nonferrous alloys 4/		1,170	--	(3/)	1,170
Foundry (cast irons)		(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses		17	--	138	155
Total		1,830	63	138	2,040

r/ Revised. -- Zero.

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

2/ Stocks held by companies that consume nickel in more than one end-use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
2001:						
June	4,330	854 r/	5,180 r/	2,890	123	3,010
July	5,360	771 r/	6,130 r/	2,770	120	2,890
August	5,590	777 r/	6,370 r/	2,780	113	2,890
September	5,590	751 r/	6,350 r/	3,030	105	3,130
October	5,150	1,540 r/	6,690 r/	3,170	100	3,270
November	3,970	829 r/	4,800 r/	3,330	92	3,420
December	3,950	784 r/	4,730 r/	3,750	93	3,850
January-December	55,100	11,400	66,400	XX	XX	XX
2002:						
January	4,940	784 r/	5,720	3,180	86	3,270
February	4,920	810 r/	5,730	3,070	88	3,160
March	5,050	767 r/	5,810	2,960	102	3,060
April	5,190	740 r/	5,930	2,980	109 r/	3,090
May	5,020	620	5,640	3,690	97	3,790
June	6,340	502	6,850	3,340	103	3,440

r/ Revised. XX Not applicable.

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

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
2001:										
May	9,740	474	857	--	467	450	238	12,200	64,200	68
June	8,230	674	1,130	200	563	415	253	11,500	75,600	87
July	9,490	505	795	195 r/	548	274	207	12,000	87,600	99
August	6,510	1,100	1,790	16	569	352	176	10,500	98,200	82
September	7,980	438	1,080	120	238	294	202	10,400	109,000	156
October	11,200	617	160	263	434	265	279	13,200	122,000	142
November	9,160	434	1,330	162	429	174	322	12,000	134,000	54
December	8,360	640	707	188	344	193	276	10,700	144,000	95
January-December	111,000	8,310	11,600	1,350	5,580	3,180	3,200	144,000	XX	1,140
2002:										
January	6,550	597	446	400	443	283	244	8,960	8,960	74
February	11,900	428	620	128	341	235	235	13,900	22,900	109
March	5,760	813	679	54	315	275	277	8,180	31,000	30
April	6,220	551	983	--	221	349	274	8,590	39,600	116
May:										
Australia	702	120	--	--	--	--	--	822	3,700	--
Brazil	40	--	--	--	--	--	--	40	617	--
Canada	4,080	393	--	14	153	348	45	5,030	25,300	--
Colombia	--	--	88	--	--	13	--	101	701	--
Dominican Republic	--	--	847	--	--	1	--	848	1,900	--
Finland	239	63	--	--	--	--	77	379	2,100	--
France	133	--	--	--	25	--	2	160	1,030	1
Germany	--	2	--	--	--	--	17	19	287	25
Japan	--	2	--	(5/)	13	2	60	77	227	6
Mexico	--	--	--	--	--	85	2	87	407	--
New Caledonia	--	--	--	--	--	--	--	--	300	--
Norway	1,280	--	--	--	--	--	--	1,280	2,610	--
Russia	--	--	--	--	--	--	1	1	7,490	--
South Africa	20	1	--	--	--	--	--	21	122	--
Sweden	--	1	--	--	--	--	--	1	25	--
United Kingdom	20	8	--	--	10	--	3	41	374	11
Venezuela	--	--	309	--	--	22	--	331	816	--
Zimbabwe	76	--	--	--	--	--	--	76	526	--
Other	17	--	--	--	21	7	90	135	577	10
Total	6,600	590	1,240	14	222	478	297	9,450	49,100	53
2002: January-May	37,100	2,980	3,970	596	1,540	1,620	1,330	49,100	XX	383
2001: January-May	50,300	3,900	4,600	202	2,460	1,210	1,490	64,200	XX	420

r/ Revised. XX Not applicable. -- Zero.

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

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: U. S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
2001:										
May	74	122	3	136	1,810	3,320	445	5,910	27,200	552
June	166	162	--	95	1,480	2,680	219	4,800	32,000	49
July	154	73	12	161	1,370	3,520	452	5,740	37,700	99
August	90	108	11	205	1,160	1,600	224	3,400	41,100	116
September	156	115	1	161	1,030	1,970	178	3,610	44,800	151
October	170	90	14	142	1,740	2,680	346	5,180	49,900	177
November	158	85	--	132	1,100	1,350	148	2,970	52,900	124
December	125	72	(4/)	131	1,290	2,310	198	4,130	57,000	163
January-December	1,400	1,380	50	1,940	15,700	32,900	3,680	57,000	XX	2,400
2002:										
January	344	135	6	122	1,110	1,030	233	2,990	2,990	192
February	170	81	3	152	989	3,720	229	5,350	8,330	167
March	245	151	(4/)	64	1,470	2,040	219	4,190	12,500	262
April	187	113	--	67	1,280	3,890	226	5,770	18,300	139
May:										
Australia	--	--	--	--	1	--	1	2	37	1
Belgium	--	(4/)	--	--	122	4	4	130	209	(4/)
Canada	3	36	--	97	914	243	58	1,350	6,380	7
Germany	--	7	--	--	62	6	1	76	352	--
India	--	--	--	--	--	38	--	38	534	--
Italy	--	2	--	--	--	2	--	4	10	(4/)
Japan	--	2	10	2	78	38	41	171	1,030	1
Korea, Republic of	--	13	--	1	44	863	23	944	4,440	1
Mexico	43	3	(4/)	1	1	(4/)	3	51	848	133
Netherlands	--	1	--	--	--	12	5	18	274	(4/)
South Africa	--	(4/)	--	3	--	--	--	3	6	(4/)
Spain	--	--	--	--	--	--	--	--	674	5
Sweden	--	--	--	--	131	--	1	132	411	--
Taiwan	--	--	--	--	--	194	8	202	4,010	(4/)
United Kingdom	--	3	--	8	--	7	--	18	266	35
Other	19	52	(4/)	(4/)	3	500	68	642	2,590	88
Total	65	119	10	112	1,360	1,910	213	3,780	22,100	271
2002: January-May	1,010	599	20	516	6,210	12,600	1,120	22,100	XX	1,030
2001: January-May	382	673	11	912	6,550	16,800	1,920	27,200	XX	1,520

XX Not applicable. -- Zero.

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

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2001:									
May	245	396	414	261	(2/)	442	175	1,930	8,870
June	276	366	423	238	(2/)	358	152	1,810	10,700
July	413	389	511	293	1	199	141	1,950	12,600
August	520	308	318	203	(2/)	148	159	1,660	14,300
September	357	161	247	202	(2/)	193	129	1,290	15,600
October	321	271	452	312	1	234	182	1,770	17,300
November	341	268	467	122	(2/)	153	143	1,490	18,800
December	350	354	342	300	1	140	126	1,610	20,400
January-December	4,110	3,860	5,030	3,070	15	2,600	1,770	20,400	XX
2002:									
January	353	231	399	329	--	203	155	1,670	1,670
February	183	177	408	227	1	248	154	1,400	3,070
March	256	207	407	293	(2/)	327	159	1,650	4,720
April	390	229	531	254	(2/)	233	151	1,790	6,500
May:									
Australia	24	--	1	--	--	--	--	25	522
Belgium	27	--	--	--	--	--	--	27	79
Canada	--	(2/)	--	--	--	27	9	36	145
France	--	34	67	10	--	6	1	118	507
Germany	(2/)	130	169	98	(2/)	44	15	456	2,810
Italy	--	46	7	--	(2/)	1	(2/)	54	297
Japan	49	--	2	(2/)	--	241	(2/)	292	923
Mexico	--	--	--	--	--	--	68	68	400
Netherlands	--	--	--	--	--	--	3	3	28
South Africa	39	--	--	--	--	--	--	39	193
Sweden	--	4	180	9	--	--	--	193	1,080
United Kingdom	39	33	17	171	--	17	18	295	784
Other	1	1	13	1	1	1	48	66	404
Total	179	248	456	289	1	337	162	1,670	8,170
2002: January-May	1,360	1,090	2,200	1,390	3	1,350	780	8,170	XX
2001: January-May	1,530	1,740	2,270	1,400	12	1,180	739	8,870	XX

XX Not applicable. -- Zero.

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

2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2001:									
May	1,170	722	156	420	12	179	243	2,900	13,700
June	1,210	648	184	668	4	128	221	3,060	16,700
July	1,420	744	106	615	9	163	263	3,320	20,100
August	1,240	642	165	548	5	129	354	3,080	23,100
September	1,610	667	97	543	6	155	390	3,470	26,600
October	1,300	601	171	770	13	107	950	3,920	30,500
November	1,190	641	135	623	23	124	333	3,070	33,600
December	954	591	82	404	7	164	160	2,360	36,000
January-December	13,400	7,890	1,660	7,030	146	1,900	3,970	36,000	XX
2002:									
January	861	599	93	572	9	134	247	2,520	2,520
February	808	600	106	596	43	115	340	2,610	5,120
March	884	626	178	505	11	197	653	3,050	8,180
April	618	451	96	476	12	204	278	2,130	10,300
May:									
Australia	137	(2/)	(2/)	5	--	2	1	145	377
Belgium	(2/)	98	2	(2/)	--	(2/)	(2/)	100	906
Canada	4	47	16	44	4	20	48	183	1,340
France	134	65	(2/)	7	(2/)	(2/)	18	224	2,200
Germany	410	30	2	7	--	4	31	484	965
India	--	--	--	1	--	--	(2/)	1	52
Ireland	--	--	(2/)	2	--	--	1	3	30
Italy	97	--	1	26	(2/)	7	1	132	641
Japan	--	12	1	38	--	3	1	55	448
Korea, Republic of	4	1	2	23	--	14	1	45	214
Mexico	--	(2/)	31	2	1	47	117	198	1,310
Netherlands	1	--	--	2	--	--	1	4	26
Singapore	6	5	1	(2/)	3	1	(2/)	16	76
Spain	--	1	--	--	--	(2/)	1	2	24
Sweden	--	1	--	--	2	--	(2/)	3	25
Switzerland	19	(2/)	(2/)	7	--	(2/)	--	26	343
Taiwan	18	(2/)	2	54	--	4	1	79	160
United Kingdom	30	129	36	180	(2/)	4	2	381	2,020
Other	2	106	5	240	22	30	73	478	1,710
Total	862	495	99	638	32	136	297	2,560	12,900
2002: January-May	4,030	2,770	572	2,790	107	786	1,820	12,900	XX
2001: January-May	4,440	3,350	721	2,860	78	928	1,300	13,700	XX

XX Not applicable. -- Zero.

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

2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
June 2002:		
Stainless and heat resisting steels	68	32
Alloy steels	100	(1/)
Superalloys	82	18
Copper-nickel alloys	100	(1/)
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

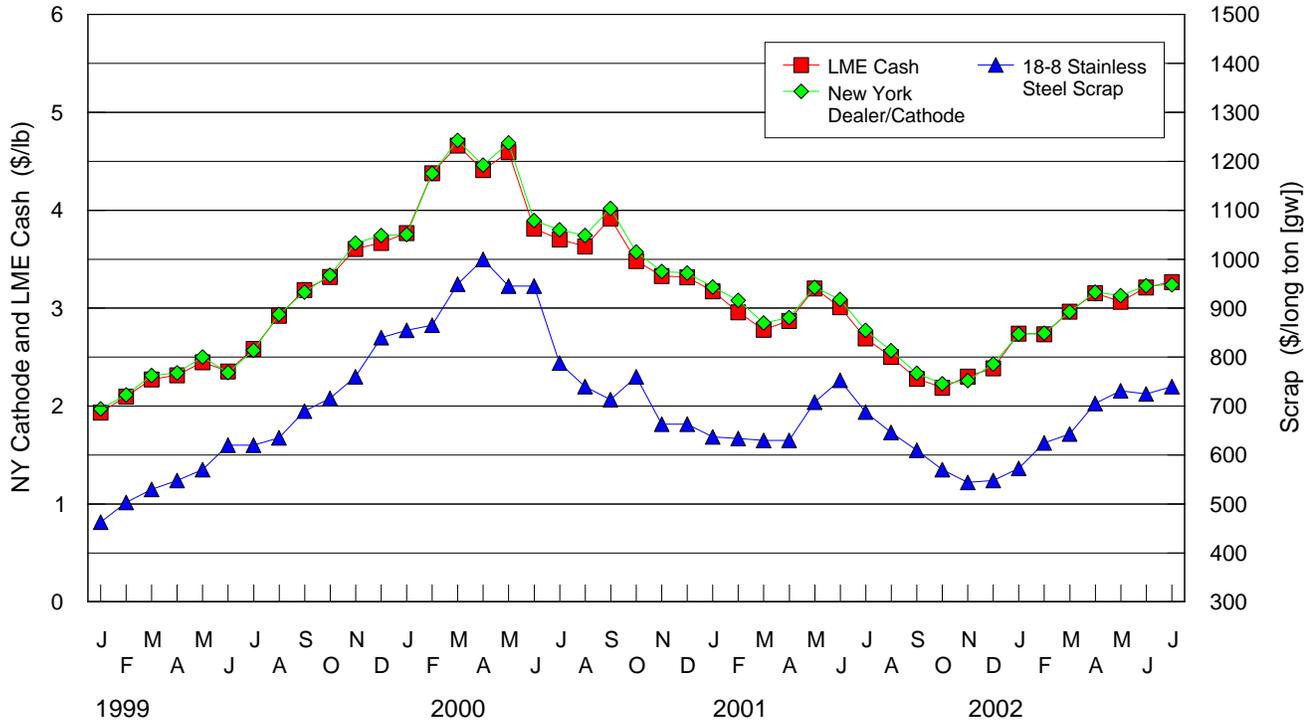
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
2002:				
Average for week ending:				
June 7	3.07-3.30	7,045.000	3.196	720-730
June 14	3.26-3.29	6,995.000	3.173	720-730
June 21	3.24-3.47	7,320.500	3.321	720-730
June 28	3.28-3.37	7,089.000	3.216	720-730
July 5	3.27-3.37	7,126.500	3.233	720-730
July 12	3.30-3.46	7,395.500	3.355	745-765
July 19	3.45-3.53	7,504.000	3.404	745-765
July 26	3.05-3.45	6,823.000	3.095	745-765
Average for month of:				
January	2.736	6,043.182	2.741	573
February	2.745	6,029.250	2.735	625
March	2.963	6,537.500	2.965	643
April	3.163	6,958.214	3.156	705
May	3.130	6,761.364	3.067	731
June	3.213	7,119.861	3.230	725
July	3.268	7,142.717	3.240	748

Source: Platts Metals Week and American Metal Market.

1999-2002 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



1999-2002 STOCKS

