

# Mineral Industry Surveys

## For information, contact:

Peter H. Kuck, Nickel Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4965, Fax: (703) 648-7757  
E-mail: pkuck@usgs.gov

Barbara J. McNair (Data)  
Telephone: (703) 648-7952  
Fax: (703) 648-7975  
E-mail: bmcnair@usgs.gov

**Internet:** <http://minerals.usgs.gov/minerals>

## NICKEL IN DECEMBER 2004

Reported domestic nickel consumption in December, on a daily average basis, was 5% less than that of November, according to the U.S. Geological Survey. Daily average nickel consumption of cathode, pellets, briquets, powder, and ferronickel for stainless steel was 59.8 metric tons per day (t/d), 3% greater than the 58.3 t/d for November 2004, but 13% less than the 68.5 t/d (revised) for December 2003. Consumption of >99.8% nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) decreased by 13% from November levels, on a daily average basis. Consumption to make corrosion-resistant, less stress-resistant nickel-base alloys (such as INCONEL 600 and Nickel 200) decreased by 2% on a daily average basis. Sales to plating companies averaged 26.9 t/d, about 7% more than the November sales figure of 25.1 t/d.

On December 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,330 metric tons (t) (revised), 6% greater than the 1,250 t on November 30, but 5% less than the 1,390 t reported for yearend 2003. Stocks in London Metal Exchange (LME) warehouses worldwide totaled 20,898 t on December 31, 20% greater than the 17,358 t on November 30.

The United States imported 123,000 t of primary nickel in the first 11 months of 2004, 5% more than the 118,000 t for the corresponding period of 2003. Trade data for December will appear in a subsequent report.

### Update: BHP Billiton outbids Xstrata for WMC of Australia

On March 8, BHP Billiton plc outbid Xstrata plc for control of WMC Resources Ltd. of Australia. If approved, the acquisition of WMC would make BHP Billiton the third leading producer of nickel in the world, after MMC Norilsk Nickel and Inco Limited (Platts Metals Week, 2005). The Board of WMC has unanimously recommended that WMC shareholders accept BHP Billiton's offer in the absence of a superior proposal. Shareholders have until May 6 to decide. At least 90% of the shares must be offered up (WMC Resources Ltd., 2005c).

Bidding began on October 28, 2004, when Xstrata, a diversified mining group based in Zug, Switzerland, offered to purchase the entire issued share capital of WMC for A\$6.35 per share (A\$6.15 after adjusting for the dividend of March 11,

2005) (Xstrata plc, 2004§<sup>1</sup>). The WMC board carefully considered Xstrata's proposal, but declined to forward it to the WMC shareholders. Negotiations continued until November 22 when Xstrata took its takeover offer directly to the WMC shareholders. On February 2, 2005, Xstrata raised its offer to A\$7.20 per share (A\$7.00 after adjusting for the March 11 dividend), but still did not win the backing of the WMC board. When BHP Billiton offered A\$7.85 per share on March 8, Xstrata decided not to counter with a higher bid (Xstrata plc, 2005a§-c§).

In addition to nickel, WMC is a significant producer of copper, gold, phosphate fertilizer and uranium oxide. WMC's nickel assets are concentrated in the State of Western Australia and include mining operations at Leinster and Mt. Keith, a concentrator at Kambalda fed by third party mines, a smelter at Kalgoorlie, and a refinery at Kwinana. During 2004, open pit mining at Mt. Keith eased in preparation for a major expansion. As a result, WMC produced 115,774 t of nickel in concentrate, down slightly from 117,722 t in 2003 (WMC Resources Ltd., 2005b, p. 62-63). Part of the concentrate was converted at Kalgoorlie into matte containing 97,780 t of nickel, down from 99,152 t in 2003 (WMC Resources Ltd., 2005a, p. 19, 22-23). The remaining concentrate was exported to the Harjavalta smelter in Finland.

In 2007, WMC expects to begin producing 8,000 metric tons per year (t/yr) of nickel from the recently-acquired Cliffs project near Mt. Keith. A pre-feasibility study is currently under way at the Yakabindie project, 25 kilometers south of Mt. Keith. If the feasibility study is positive, the Yakabindie project would be integrated into the Mt. Keith operation, increasing the output of the Mt. Keith concentrator to 75,000 t/yr of nickel in concentrate from the present 50,000 t/yr (WMC Resources Ltd., 2005a, p. 19).

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

## References Cited

- Platts Metals Week, 2005, BHP Billiton outbids Xstrata for control of WMC Resources: Platts Metals Week, v. 76, no. 11, March 14, p. 8.
- WMC Resources Ltd., 2005a, Business performance report—Annual report—Concise—2004: Southbank, Australia, WMC Resources Ltd., 81 p.
- WMC Resources Ltd., 2005b, Business performance report—Annual report—Financial—2004: Southbank, Australia, WMC Resources Ltd., 64 p.
- WMC Resources Ltd., 2005c, Target's statement by WMC Resources Ltd.: Melbourne and Southbank, Australia, WMC Resources Ltd., chair's letter to the shareholders and reply to BHP Billiton Lonsdale Investments Pty. Ltd., March 29, 33 p.

## Internet References Cited

- Xstrata plc, 2004 (November 22), Xstrata cash takeover for WMC Resources at AUD6.35 per share, accessed April 8, 2005, via URL <http://www.xstrata.com>.
- Xstrata plc, 2005a (March 2), Xstrata declares WMC offer unconditional, accessed April 8, 2005, via URL <http://www.xstrata.com>.
- Xstrata plc, 2005b (February 2), Xstrata offer for WMC Resources increased to AUD7.20/share, accessed April 8, 2005, at URL [http://www.xstrata.com/press\\_release.php?id=ac&nb=200502021.en.html](http://www.xstrata.com/press_release.php?id=ac&nb=200502021.en.html).
- Xstrata plc, 2005c (March 8), Xstrata's offer not to be increased, accessed April 8, 2005, at URL [http://www.xstrata.com/press\\_release.php?id=ac&nb=200503081.en.html](http://www.xstrata.com/press_release.php?id=ac&nb=200503081.en.html).

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

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2003:					
December	4,130	902	30	5,070 <sup>r</sup>	62,500
2004:					
January	4,300 <sup>r</sup>	595	34	4,930 <sup>r</sup>	4,930 <sup>r</sup>
February	4,950 <sup>r</sup>	455	26	5,430 <sup>r</sup>	10,400 <sup>r</sup>
March	5,020 <sup>r</sup>	529	36	5,590 <sup>r</sup>	15,900
April	4,670 <sup>r</sup>	458	52	5,180 <sup>r</sup>	21,100 <sup>r</sup>
May	5,280 <sup>r</sup>	528	27	5,840 <sup>r</sup>	27,000 <sup>r</sup>
June	5,230 <sup>r</sup>	556	39	5,830 <sup>r</sup>	32,800 <sup>r</sup>
July	4,790 <sup>r</sup>	536	43	5,370 <sup>r</sup>	38,200 <sup>r</sup>
August	4,850	677	36	5,570 <sup>r</sup>	43,700
September	4,540 <sup>r</sup>	549 <sup>r</sup>	47	5,140 <sup>r</sup>	49,000 <sup>r</sup>
October	5,080 <sup>r</sup>	734 <sup>r</sup>	41	5,860 <sup>r</sup>	54,800 <sup>r</sup>
November	4,610 <sup>r</sup>	504 <sup>r</sup>	37	5,150 <sup>r</sup>	60,000 <sup>r</sup>
December:					
Steel:					
Stainless and heat resisting Alloy (excludes stainless)	1,440	482	W	1,920	24,000
Superalloys	W	--	--	W	W
Copper-nickel alloys	919	--	W	919	12,000
Electric, magnetic, and expansion alloys	W	--	--	W	W
Other nickel & nickel alloys	12	--	--	12	191
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	833	--	--	833	10,600
Chemical and chemical uses	W	--	--	W	W
Other uses	1,320	--	36	1,360	18,300
Total reported	4,520 <sup>2</sup>	482	36	5,040	65,000
Total all companies (calc) <sup>3</sup>	XX	XX	XX	9,480	122,000
2004: January-December	57,900	6,600	454	64,900	XX
2003: January-December	53,500	8,620	412	62,500	XX

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

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

<sup>2</sup>Of consumption, 3,580 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

<sup>3</sup>Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (53.17%) to apparent primary consumption for 2003.

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

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder		Ferronickel	Oxide-sinter, salts, and other forms	Total
2003:					
December		1,390	260	46	1,700
2004:					
January		1,390	186	55	1,630
February		1,660	111	44	1,810
March		1,630	108	40	1,780
April		1,760	227	34	2,020
May		1,360	158	42	1,560
June		1,450	185	45	1,680
July		1,290	147	30	1,470
August		1,490	139	42	1,670
September		1,660	167	41	1,870
October		1,310	128	50	1,490
November		1,250	132	78	1,460
December:					
Steel (stainless, heat resisting and alloy)		509	109	(3)	618
Nonferrous alloys <sup>4</sup>		798	--	(3)	798
Foundry (cast irons)		(3)	--	--	(3)
Chemical (catalysts, ceramics, plating salt, etc.) and unspecified uses		19	--	65	84
Total		1,330	109	65	1,500

-- Zero.

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

<sup>2</sup>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 adjustments.

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

<sup>4</sup>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<sup>1</sup>

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap <sup>2</sup>	Nonferrous scrap <sup>3</sup>	Total scrap	Ferrous scrap <sup>2</sup>	Nonferrous scrap <sup>3</sup>	Total scrap
2003:						
December	4,930	647	5,580	2,820 <sup>r</sup>	85	2,900
January-December	57,500 <sup>r</sup>	8,330	65,900 <sup>r</sup>	XX	XX	XX
2004:						
January	5,060 <sup>r</sup>	698	5,760 <sup>r</sup>	2,700	73	2,770
February	4,780	708	5,490	2,710	79	2,790
March	5,520	937	6,460	3,270	80	3,350
April	5,280	865	6,140	2,950	82	3,030
May	5,210	801	6,010	2,730	63	2,790
June	5,090	804	5,890	2,750	85	2,830
July	4,850	675	5,520	2,640	76	2,720
August	5,010	952	5,970	2,410	74	2,480
September	4,390	809	5,200	2,800	77	2,880
October <sup>f</sup>	4,860	706	5,560	2,840	71	2,910
November	4,700	733	5,440	2,620	69	2,680
December	5,230	584	5,810	2,340	65	2,400
January-December	60,000	9,270	69,200	XX	XX	XX

<sup>r</sup>Revised. XX Not applicable.

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

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

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

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

(Metric tons, nickel content)<sup>2</sup>

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 <sup>3</sup>	Total year to date <sup>4</sup>	Wrought nickel
2003:										
November	7,030	625	932	--	318	889	324	10,100	128,000	28
December	6,230	860	471	(5)	530	821	284	9,190	137,000	34
January-December	99,300	9,130	13,100	90	4,790	6,690	3,790	137,000	XX	660
2004:										
January	7,360	829	1,040	40	489	933	435	11,100	11,100	77
February	7,200	834	1,070	161	667	1,020	485	11,400	22,600	49
March	10,700	812	806	134	1,430	1,660	376	15,900	38,400	72
April	10,700	720	1,680	23	574	908	296	14,900	53,400	53
May	8,530	564	941	--	698	680	381	11,800	65,200	55
June	9,190	732	978	--	553	680	324	12,500	77,600	86
July	7,370	914	1,070	--	624	663	374	11,000	88,600	79
August	9,770	800	1,020	24	585	928	434	13,600	102,000	116
September	6,590	571	1,080	207	689	697	339	10,200	112,000	88
October	11,100	976	1,280	210	535	780	321	15,200	128,000	43
November:										
Australia	1,480	--	--	--	--	--	--	1,480	10,500	--
Brazil	180	--	--	--	11	--	--	191	2,080	--
Canada	4,490	352	--	240	70	544	--	5,700	63,300	(5)
Colombia	--	--	143	--	--	--	--	143	3,030	--
Dominican Republic	--	--	928	--	--	2	--	930	7,380	--
Finland	224	60	--	--	--	1	112	397	6,340	--
France	39	--	73 <sup>6</sup>	--	29	--	51	192	2,350	3
Germany	(5)	16	--	--	182	--	72	270	1,930	13
Japan	--	3	--	--	24	1	39	67	787	5
Mexico	--	--	--	--	25	117	2	144	2,030	--
New Caledonia	--	--	100	--	--	--	--	100	1,050	--
Norway	1,130	--	--	--	--	--	--	1,130	13,700	--
Russia	1,510	120	--	--	--	--	--	1,630	17,800 <sup>7</sup>	--
South Africa	--	60	--	--	--	--	--	60	777	--
Sweden	--	3	--	--	--	--	--	3	42	--
United Kingdom	4	34	--	--	159	--	9	206	3,480	1
Venezuela	--	--	--	--	--	8	--	8	425	--
Zimbabwe	60	--	--	--	--	--	--	60	921	--
Other	20	11	--	--	102	23	93	249	2,700 <sup>6</sup>	11
Total	9,140	659	1,240	240	602	696	378	13,000	141,000	33
2004: January-November	97,700	8,410	12,200	1,040	7,450	9,640	4,140	141,000	XX	749
2003: January-November	93,100	8,270	12,600	91	4,260	5,870	3,510	128,000	XX	625

XX Not applicable. -- Zero.

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

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

<sup>3</sup>Excludes wrought nickel.

<sup>4</sup>May include revisions for prior months.

<sup>5</sup>Less than 1/2 unit.

<sup>6</sup>All or part of these data have been referred to the U.S. Census Bureau for verification.

<sup>7</sup>Includes 528 tons erroneously assigned to Estonia.

Source: U.S. Census Bureau.

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

(Metric tons, nickel content)<sup>2</sup>

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 <sup>3</sup>	Total year to date	Wrought nickel
2003:										
November	210	127	1	5	819	1,600	371	3,130	49,000	102
December	44	92	10	4	809	3,190	441	4,590	53,600	72
January-December	996	1,100	181	161	9,460	37,800	3,900	53,600	XX	2,890
2004:										
January	52	129	15	5	657	2,370	399	3,630	3,630	153
February	85	166	--	17	540	2,550	396	3,750	7,380	54
March	116	150	(4)	8	1,000	3,800	497	5,570	12,900	59
April	144	132	3	8	1,070	2,660	563	4,570	17,500	227
May	54	127	23	4	1,290	3,100	323	4,920	22,400	120
June	187	138	3	4	1,310	4,720	567	6,930	29,400	65
July	18	171	(4)	2	1,160	2,600	473	4,420	33,800	100
August	39	172	--	1	1,190	2,330	200	3,940	37,700	68
September	112	238	--	7	1,170	2,610	498	4,640	42,400	86
October	60	257	1	2	1,110	3,620	197	5,240	47,600	44
November:										
Australia	1	(4)	--	--	20	--	--	21	81	(4)
Belgium	--	4	--	--	--	1	3	8	244	1
Canada	3	8	--	(4)	622	147	45	825	13,100	4
China	--	84	--	--	--	1,160	--	1,250	11,300	4
Finland	--	--	--	--	--	601	--	601	5,200	--
Germany	(4)	12	--	30	22	11	4	79	722	2
India	--	21	--	--	--	56	12	89	1,700	--
Italy	--	(4)	--	(4)	--	--	--	(4)	83	2
Japan	3	3	--	4	98	33	10	151	1,020	6
Korea, Republic of	--	21	--	--	--	115	10	146	6,890	2
Mexico	70	22	--	(4)	--	19	18	129	1,080	2
Netherlands	--	14	--	--	--	62	1	77	1,170	4
South Africa	--	--	--	6	--	--	1	7	55	--
Spain	--	--	--	--	--	--	--	--	326	--
Sweden	--	--	--	--	64	--	(4)	64	350	--
Taiwan	--	9	--	--	--	191	14	214	3,110	(4)
United Kingdom	1	13	1	--	52	6	3	76	1,090	3
Other	(4)	46	--	5	12	120	164	347	4,200	12
Total	78	257	1	45	890	2,530	285	4,080	51,700	42
2004:January-November	946	1,940	45	103	11,400	32,900	4,400	51,700	XX	1,020
2003:January-November	952	1,000	172	156	8,650	34,600	3,460	49,000	XX	2,820

XX Not applicable. -- Zero.

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

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

<sup>3</sup>Excludes wrought nickel.

<sup>4</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

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

(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
2003:									
November	195	239	331	210	23	89	156	1,240	16,300
December	314	169	388	215	45	704	147	1,980	18,300
January-December	1,910	2,520	5,750	3,330	214	2,770	1,770	18,300	XX
2004:									
January	102	278	286	193	14	134	133	1,140	1,140
February	165	214	362	251	8	374	238	1,610	2,750
March	102	166	446	213	18	362	459	1,770	4,520
April	345	255	504	164	44	773	172	2,260	6,770
May	123	269	494	131	14	231	115	1,380	8,150
June	227	344	517	301	40	136	100	1,670	9,820
July	271	322	504	192	32	140	87	1,550	11,400
August	324	251	496	236	31	89	109	1,540	12,900
September	528	193	440	192	30	317	79	1,780	14,700
October	295	285	477	215	7	148	206	1,630	16,300
November:									
Australia	111	--	--	--	--	--	(2)	111	868
Belgium	15	--	(2)	--	--	(2)	(2)	15	127
Canada	7	--	4	--	--	9	1	21	187
China	--	--	(2)	--	--	--	42	42	415
France	2	--	186	11	--	27	2	228	1,470
Germany	38	139	127	256	41	53	4	658	7,160
Italy	--	54	3	--	--	(2)	9	66	1,280
Japan	10	--	15	1	--	4	(2)	30	627
Mexico	--	--	(2)	--	--	--	48	48	423
Netherlands	--	--	(2)	--	--	--	15	15	178
South Africa	20	--	--	--	--	--	--	20	398
Sweden	--	--	275	8	--	7	--	290	2,760
United Kingdom	23	49	2	4	(2)	16	20	114	1,050
Other	19	5	12	(2)	--	130	92	258	1,290
Total	245	247	624	280	41	246	233	1,920	18,200
2004: January-November	2,730	2,830	5,150	2,370	279	2,950	1,930	18,200	XX
2003: January-November	1,590	2,350	5,370	3,110	170	2,070	1,630	16,300	XX

XX Not applicable. -- Zero.

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

<sup>2</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

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

(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
2003:									
November	274	621	121	382	49	254	208	1,910	24,000
December	379	571	69	350	107	203	199	1,880	25,900
January-December	6,660	7,960	1,190	3,960	661	2,420	3,050	25,900	XX
2004:									
January	522	731	155	366	9	118	231	2,130	2,130
February	543	777	155	343	15	172	299	2,300	4,440
March	980	640	92	491	30	184	333	2,750	7,190
April	283	649	99	472	22	144	303	1,970	9,160
May	457	976	168	334	46	119	543	2,640	11,800
June	511	722	130	427	33	170	272	2,270	14,100
July	614	1,100	177	350	11	132	244	2,630	16,700
August	629	760	176	234	10	123	221	2,150	18,800
September	1,010	1,080	169	389	16	163	257	3,090	21,900
October	517	776	190	390	26	178	236	2,310	24,200
November:									
Australia	--	(2)	(2)	(2)	--	3	1	4	259
Belgium	136	220	5	16	--	(2)	(2)	377	2,450
Canada	93	26	12	18	3	47	11	210	2,570
China	6	35	1	14	--	6	48	110	1,080
France	94	274	1	41	(2)	(2)	(2)	410	3,370
Germany	5	58	4	5	1	6	1	80	1,100
India	(2)	6	(2)	1	(2)	(2)	(2)	7	103
Ireland	(2)	--	(2)	1	--	--	1	2	22
Italy	176	1	2	12	(2)	--	5	196	1,100
Japan	39	76	(2)	15	(2)	14	4	148	3,320
Korea, Republic of	--	11	3	42	(2)	12	2	70	874
Mexico	1	23	98	54	16	9	133	334	2,990
Netherlands	--	1	39	1	--	(2)	19	60	326
Singapore	1	8	1	25	--	3	2	40	174
Spain	2	1	--	3	--	(2)	(2)	6	62
Sweden	1	--	(2)	4	--	--	(2)	5	146
Switzerland	6	(2)	(2)	(2)	--	5	2	13	241
Taiwan	6	12	--	17	--	1	(2)	36	375
United Kingdom	34	273	6	15	(2)	13	10	351	3,710
Other	13	88	11	43	1	29	17	202	2,660
Total	613	1,110	183	327	21	148	256	2,660	26,900
2004: January-November	6,680	9,330	1,690	4,120	238	1,650	3,200	26,900	XX
2003: January-November	6,280	7,390	1,120	3,610	555	2,220	2,850	24,000	XX

XX Not applicable. -- Zero.

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

<sup>2</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8  
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
December 2004:		
Stainless and heat resisting steels	100	(1)
Alloy steels	99	1
Superalloys	88	12
Copper-nickel alloys	90	10
Other nickel-base alloys	100	(1)

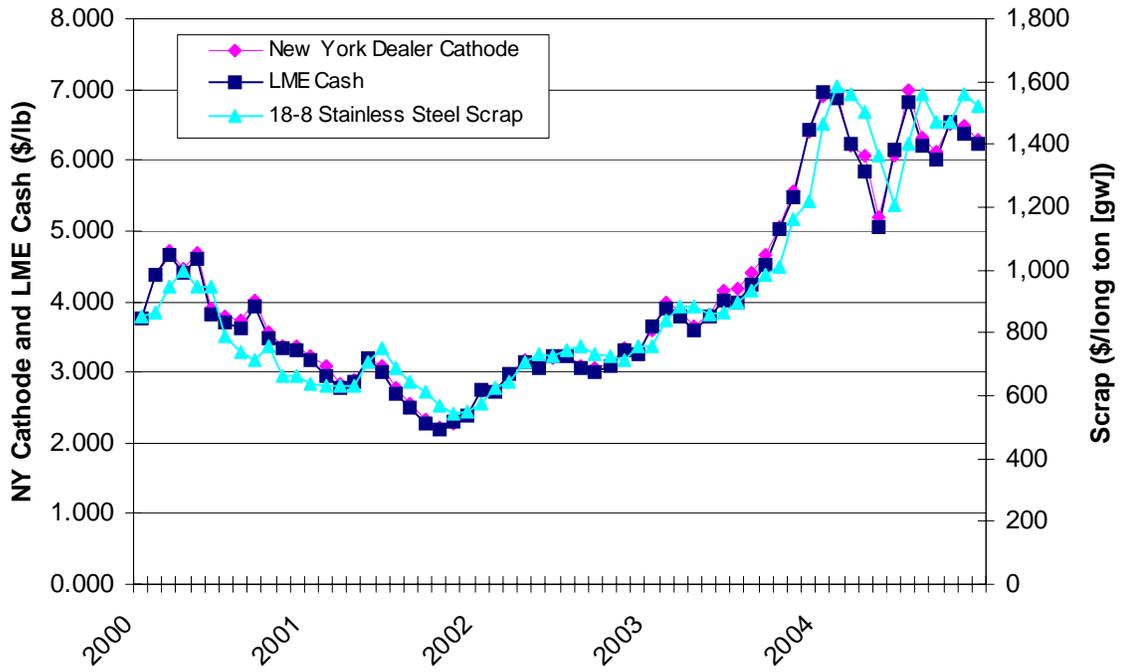
<sup>1</sup>Less than 1/2 unit.

TABLE 9  
NICKEL PRICES

Date	Platts Metals Week			18/8 Stainless steel scrap Free market	American Metal Market, 18/8 Stainless steel scrap Pittsburgh
	Cathode NY Dealer \$/lb.	LME Cash mean <sup>1</sup> \$/t	LME Cash mean <sup>1</sup> \$/lb.	\$/long ton (gw)	\$/long ton (gw)
2003:					
Average for month of:					
December	6.390	14,162.500	6.424	1,262	1,222
Yearly average	4.446	9,629.469	4.368	961	942
2004:					
Average for week ending:					
December 3	6.46-6.70	13,894.500	6.302	1,500-1,525	1,550-1,575
December 10	5.98-6.28	12,942.000	5.870	1,490-1,530	1,500-1,525
December 17	5.98-6.26	13,040.000	5.915	1,375-1,450	1,500-1,525
December 24	6.26-6.94	14,583.000	6.615	1,400-1,450	1,500-1,525
December 31	6.75-6.96	15,074.167	6.838	1,400-1,450	1,500-1,525
Average for month of:					
January	6.900	15,326.548	6.952	1,517	1,463
February	6.968	15,145.125	6.870	1,537	1,585
March	6.203	13,715.000	6.221	1,458	1,563
April	6.056	12,848.125	5.828	1,397	1,503
May	5.185	11,118.289	5.043	1,281	1,367
June	6.063	13,533.523	6.139	1,241	1,208
July	6.990	15,023.295	6.814	1,430	1,402
August	6.320	13,679.524	6.205	1,481	1,560
September	6.112	13,270.909	6.020	1,405	1,470
October	6.523	14,404.286	6.534	1,413	1,470
November	6.488	14,045.455	6.371	1,506	1,562
December	6.286	13,768.810	6.245	1,457	1,523
Yearly average	6.341	13,823.241	6.270	1,427	1,473

<sup>1</sup>Mean of the cash buyer price and the cash seller and settlement price.

**2000-2004 AVERAGE MONTHLY PRICES**  
 (Derived from Metals Week and American Metal Market quotations)



**2000-2004 STOCKS**

