

Mineral Industry Surveys

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NICKEL IN NOVEMBER 2006

Reported domestic nickel consumption in November, on a daily average basis, was 3% less than the revised total for October, according to the U.S. Geological Survey. Daily average use of nickel metal and ferronickel for stainless and heat resisting steels was 7% less than the corresponding average for October (revised). Use of nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) decreased by 5% from October levels, on a daily average basis. The decrease in the superalloy category was partially offset by a slight increase in the "Other nickel & nickel alloys" category (such as INCONEL 600 and Nickel 200). Sales to plating companies averaged 27.3 metric tons per day (t/d), about 12% more than the revised October figure of 24.3 t/d. Percentages reported in this paragraph are based on data concealed to avoid revealing individual company proprietary data.

The United States imported 131,000 metric tons (t) of primary nickel during the first 10 months of 2006, about 7% more than the 122,000 t for the corresponding period of 2005. Trade data for November will appear in a subsequent report.

On November 30, stocks in London Metal Exchange (LME) warehouses worldwide totaled 6,066 t, down 11% from the

6,816 t of October 31. LME stocks were minimal throughout the second half of 2006 owing to growing demand for austenitic stainless steel in Asia (International Nickel Study Group, 2007). On July 31, stocks bottomed out at 4,158 t, the lowest end-ofmonth figure reported in at least 12 years. The average LME cash price for November was \$32,100 per metric ton (\$14.560 per pound), down slightly from October's record-breaking price of \$32,693 per metric ton (\$14.829 per pound).

On November 2, Xstrata plc completed its acquisition of Falconbridge Limited, Canada's second ranked nickel producer—a development closely followed by private investment funds with nickel holdings (Xstrata plc, 2006).

References Cited

International Nickel Study Group, 2007, World nickel statistics—Monthly bulletin [v. 16, no. 2, February]: Lisbon, Portugal, International Nickel Study Group CD-ROM.

Xstrata plc, 2006, Xstrata completes acquisition of Falconbridge; Falconbridge completes redemption of preferred shares: Zug, Switzerland and Toronto, Ontario, Canada, Xstrata plc press release, November 2, 3 p.

 $\label{eq:table 1} \textbf{TABLE 1}$ CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND \textbf{USE}^1

(Metric tons, nickel content)

	Cathodes,		Oxide-sinter,			
	pellets,		salts, and		Total	
	briquets, and		other		year to	
Period	powder	Ferronickel	forms	Total	date	
2005:						
November	5,220	585	57	5,860	62,700	
December	4,750	619	52	5,420	68,100	
January-December	61,100	6,450	544	68,100	XX	
2006:	_					
January	6,730	831	71	7,630	7,630	
February	6,360	842	67 ^r	7,270	14,900	
March	6,370	776	68	7,220	22,100	
April	6,510	788	59	7,350	29,500	
May	6,500	850	59	7,410	36,900	
June	6,520 ^r	758	59	7,340 ^r	44,200	
July	6,170 ^r	677	52	6,900 ^r	51,100	
August	6,370 ^r	788	59	7,210 ^r	58,300	
September	6,090 ^r	823	57 ^r	6,970 ^r	65,300	
October	6,300 ^r	851	57 ^r	7,210 ^r	72,500	
November:						
Steel:						
Stainless and heat resisting	2,380	709	W	3,090	36,700	
Alloy (excludes stainless)	187			187	3,110	
Superalloys	1,130		W	1,130	12,600	
Copper-nickel alloys	W			W	W	
Electric, magnetic, and expansion alloys	13			13	147	
Other nickel & nickel alloys	W		W	W	W	
Cast iron	W			W	W	
Electroplating (sales to platers)	808		W	808	9,020	
Chemical and chemical uses	W			W	W	
Other uses	1,510		52	1,560	17,700	
Total reported	6,030 ²	709	52	6,790	79,300	
Total all companies (calc) ³	XX	XX	XX	13,300	156,000	
2006: January-November	69,900	8,700	661	79,300	XX	
2005: January-November	56,400	5,830	491	62,700	XX	

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

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

²Of consumption, 3,823 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

³Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (50.94%) to apparent primary consumption for 2004.

 ${\it TABLE~2} \\ {\it ENDING~STOCKS~OF~NICKEL~(EXCLUSIVE~OF~SCRAP)~HELD~BY~CONSUMERS,~BY~FORM~AND~USE^{1,\,2}} \\ {\it ENDING~STOCKS~OF~NICKEL~(EXCLUSIVE~OF~SCRAP)~HE~US~CONSUMERS,~BY~CON$

(Metric tons, nickel content)

	Cathodes, pellets,		Oxide-sinter,	
	briquets, and		salts, and	
Period	powder	Ferronickel	other forms	Total
2005 [:]				
November	1,720	307	147	2,170
December	2,050	300	146	2,500
2006:				
January	1,830	300	153	2,290 1
February	1,960	354	154	2,470
March	1,880	409	154	2,440
April	2,100	332	170	2,610
May	2,490	292	154	2,940
June	2,250 ^r	307	145	2,710 1
July	2,010 ^r	333	151	2,500 ^r
August ^r	1,990	439	166	2,590
September ^r	1,840	413	151	2,410
October ^r	1,550	364	153	2,070
November				
Steel (stainless, heat resisting and alloy)	635	351	(3)	986
Nonferrous alloys ⁴	1,050	W	(3)	1,050
Foundry (cast irons)	(3)	W		(3)
Chemical (catalysts, ceramics, plating				
salt, etc.) and unspecified uses	89	W	158	247
Total	1,780	351	158	2,280

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

 ${\bf TABLE~3}$ Consumption and ending stocks of purchased secondary nickel, by ${\bf use}^1$

(Metric tons, nickel content)

	·	Consumption			Stocks	
	Ferrous	Nonferrous	Total	Ferrous	Nonferrous	Total
Period	scrap ²	scrap ³	scrap	scrap ²	scrap ³	scrap
2005:						
November	5,520	611	6,130	2,630	98	2,730
December	4,530	593	5,130	2,470	89	2,560
January-December	56,200	8,530	64,700	XX	XX	XX
2006:						
January	3,710	702	4,410	2,600	54	2,660
February	4,130	645	4,780	2,850	45	2,900
March	4,290	792	5,080	2,930	44	2,980
April	5,250	691	5,940	2,660	49	2,710
May	4,340	642	4,980	2,760	54	2,810
June	3,840	836	4,670	3,090	44	3,130
July	4,450	658	5,110	3,110	57	3,170
August	5,560	705	6,260	2,720	50	2,770
September	NA	717 ^r	NA	NA	47 ^r	NA
October	NA	561 ^r	NA	NA	55 ^r	NA
November	NA	508	NA	NA	43	NA
Total	35,600	7,460	41,200	XX	XX	XX

^rRevised. NA Not available. XX Not applicable.

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

²Stocks 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.

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

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

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

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

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

 ${\bf TABLE~4} \\ {\bf U.S.~IMPORTS~FOR~CONSUMPTION~OF~NICKEL,~BY~COUNTRY}^1$

(Metric tons, nickel content)²

				Metal-						
	Cathodes,	Powder		lurgical-	Waste	Stainless			Total	
Period and country	pellets, and	and	Ferro-	grade	and	steel		2	year to	Wrought
of origin	briquets	flakes	nickel	oxide	scrap	scrap	Chemicals	Total ³	date ⁴	nickel
2005:	=									
October	8,410	794	728	17	719	505	286	11,500	135,000	63
November	9,690	714	1,240	107	689	581	277	13,300	148,000	94
December	7,310	423	877	110	608	731	291	10,400	159,000	128
January-December	110,000	8,120	19,200	1,540	7,170	8,340	3,620	159,000	XX	1,060
2006:	_									
January	11,800	971	864	80	651	717	307	15,400	15,400	76
February	9,740	575	1,310	178 ^r	379	771	435	13,400	28,800	74
March	12,300	695	1,530	67	567	817	369	16,400	45,200	124
April	12,900	730	1,300	121	621	1,100	287	17,100	62,200	83
May	10,400	1,170	1,090	107	561	1,370	279	15,000	77,200	99
June	10,900	648	1,050	67	713	1,500	326	15,200	92,400	174
July	9,460	802	1,530	98	731	1,540	215	14,400	107,000	105
August	11,000	785	1,200	80	543	1,620	290	15,500	122,000	88
September	10,100	739 ^r	1,020	72	418	1,150	336	13,800	136,000	78
October:	_									
Australia	1,560	20						1,580	12,900	
Brazil	40							40	1,000	
Canada	4,550	279		161	96	779	30	5,900	59,000	2
China	- 79	2	101 5		19		20	221	1,100	1
Colombia			270			24	(6)	294	2,680	
Dominican Republic			782			19		802	7,900	
Finland	355						98	452	6,500	
France	123				62		7	192	2,240	15
Germany	- 	6			9		22	37	854	42
Japan	- 	7	22		43		80	152	908	8
Mexico	- 				27	193	4	223	2,720	
New Caledonia			50					50	1,400	
Norway	1,020				8			1,030	13,600	2
Russia	392	9			20			421	27,500	
South Africa	- 3,2	60						60	709	
Sweden	- 								40	
United Kingdom	- 7	6			191		11	214	2,550	(6)
Zimbabwe	20				191			20	945	(0)
Other		153 5			100	44	86	385	3,690	18
Total	8,150	542	1,220	161	575	1,060	358	12,100	148,000	88
2006: January-October	107,000	7,650	12,100	1,030	5,760	11,600	3,200	148,000	XX	988
2005: January-October	93,500	6,980	17,100	1,030	5,880	7,030	3,200	135,000	XX	988 836
rDayised VV Not applied		0,980	17,100	1,320	2,000	7,030	3,000	155,000	ΛΛ	000

^rRevised. XX Not applicable. --Zero.

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

²The 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%).

³Excludes wrought nickel.

⁴May include revisions for prior months.

⁵All or part of these data have been referred to the U.S. Census Bureau for verification.

⁶Less than ½ unit.

 $\label{eq:table 5} \text{U.S. EXPORTS OF NICKEL, BY COUNTRY}^1$

(Metric tons, nickel content)²

Period and country	Cathodes, pellets, and	Powder and	Ferro-	Metal- lurgical- grade	Waste and	Stainless steel			Total year to	Wrough
of destination	briquets	flakes	nickel	oxide	scrap	scrap	Chemicals	Total ³	date	nickel
2005:	oriqueis	Hakes	HICKEI	Oxide	scrap	scrap	Chemicais	Total	uate	HICKEI
October	134	148	1	8	1,040	3,450	281	5,070	52,200	94
November	- 134 70	116	(4)	5	1,040	3,430	271	5,100	57,300	79
December	- ⁷⁰ 80	87		33	1,000					99
	_		21			4,200	430	5,940	63,200	
January-December 2006:	1,190	1,910	72	234	11,700	43,800	4,230	63,200	XX	1,340
	- 105	107	1.5	10	1 200	4.100	207	5 020 I	5 020 1	1.50
January	_ 105	107	15	12	1,200	4,100	387	5,920 ^r	5,920 ^r	15
February	_ 125	87	8	8	860	2,950	370	4,410	10,300	10
March	_ 87	92	5	69	942	2,700	631	4,520	14,900	114
April	189	111	22	8	975	2,540	387	4,230	19,100	15
May	_ 79	100	6	8	2,070	3,420	636	6,320	25,400	119
June	_ 48	64	(4)	4	1,420	2,910	454	4,890	30,300	84
July	_ 39	73	3	4	2,120	3,090	358	5,690	36,000	10
August	_ 25	78	3	5	2,010	3,120	673	5,920	41,900	9
September	68 ^r	67	(4)	9	2,000	112 5	556	2,820 5	44,700 5	8
October:	_									
Australia	_	1			58	1		60	403	-
Belgium					9	17	(4)	26	572	-
Canada	6	8		(4)	785	414	312	1,530	11,200 5	1
China		2				713	6	721	11,600 5	:
Finland							17	17	3,900	-
Germany		9			107	13	4	133	616	
India		1				220		221	1,160 5	(4
Italy		(4)				15	1	16	1,020	
Japan		8		(4)	1,280	106	37	1,440	7,380	9
Korea, Republic of	-	4			20	217	3	244	1,670 5	
Mexico	7	3		(4)	1	1	15	26	950	
Netherlands	- 	(4)				38	7	45	721	
South Africa		(4)					1	1	51	_
Sweden	<u>-</u>	1			41		1	43	321	_
Taiwan	(4)					660	12	672	4,610 5	
United Kingdom	- ` ' '	8		3	87	6	37	141	1,030 5	
Other	-4	26	1	2	33	207	138	407	3,260 5	
Total	13	71	1	5	2,420	2,630	591	5,740	50,500 ⁵	
2006: January-October	778	850	65	132	16,000	27,600 ⁵		50,500 ⁵	XX	1,10
2005: January-October	1,040	1,710	50	195	9,660	36,000	3,530	52,200	XX	1,16

^rRevised. XX Not applicable. -- Zero.

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

²The 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%).

³Excludes wrought nickel.

⁴Less than ½ unit.

⁵All or part of these data has been referred to the U.S. Census Bureau for verification.

TABLE 6 U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY $^{\!1}$

(Metric tons, gross weight)

	Unwrought	Bars, rods,		Plates		Tubes	Other		Total
Period and country	alloyed	and		and		and	alloyed		year to
of origin	ingot	profiles	Wire	sheets	Foil	pipes	articles	Total	date
2005:									
October	491	333	480	241	20	170	466	2,200	19,200
November	551	214	629	262	16	286	198	2,160	21,300
December	429	295	552	221	35	183	243	1,960	23,300
January-December	4,840	3,740	6,580	3,150	350	1,850	2,790	23,300	XX
2006:	=								
January	557	379	478	354	6	204	137	2,110 ^r	2,110
February	434	292	550	276	2	198	335	2,090	4,200
March	1,040	398	516	302	41	335	204	2,840	7,040
April	400	427	472	224	25	251	127	1,930	8,960
May	404	338	596	262	17	382	266	2,270	11,200
June	486	338	524	259	31	373	276	2,290	13,500
July	578	581	526	242	10	457	182	2,580	16,100
August	705	522	427	338	3	217	133	2,350	18,400
September	373	281	501	272	14 ^r	183	143	1,770	20,200
October:									
Australia	233						(2)	233	2,420
Belgium			5	2		7	(2)	14	143
Canada		3	6	(2)	(2)	7	5	21	787
China		2		(2)			31	33	910
France		3	159	28		67	27	284	2,140
Germany	186	136	167	334	18	192	3	1,040	7,530
Italy	- 	178	3			8	(2)	189	2,160
Japan			2	13		18	(2)	33	991
Mexico						(2)	(2)	(2)	33
Netherlands	11	(2)	(2)	1			8	20	100
South Africa	39							39	331
Sweden	- 	57	126	8		10		201	2,430
United Kingdom	29	67	2	4	16	7	39	164	1,610
Other	19	18	22				47	106	987
Total	517	464	492	390	34	316	160	2,370	22,600
2006: January-October	5,490	4,020	5,080	2,920	182	2,920	1,960	22,600	XX
2005: January-October	3,860	3,230	5,400	2,660	298	1,380	2,350	19,200	XX

¹Data are rounded to no more than three significant digits; may not add to totals shown.
²Less than ½ unit.

 $\label{eq:table 7} \textbf{U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY}^{1}$

(Metric tons, gross weight)

	Unwrought	Bars, rods,		Plates		Tubes	Other		Total
Period and country	alloyed	and		and		and	alloyed		year to
of destination	ingot	profiles	Wire	sheets	Foil	pipes	articles	Total	date
2005:									
October	731	1,100	125	393	27	417	401	3,190	31,300
November	628	1,430	104	335	5	419	288	3,210	34,500
December	762	1,510	65	282	3	243	267	3,130	37,700
January-December	10,400	15,000	1,440	4,200	119	3,000	3,580	37,700	XX
2006:									
January	472	1,460	67	358	35	645	251	3,280	3,280
February	411	1,650	91	321	19	277	336	3,110	6,390
March	1,040	1,800	63	473	33	281	360	4,050	10,400
April	955	1,730	71	371	30	245	246	3,650	14,100
May	687	1,610	95	394	19	236	326	3,360	17,400
June	550	1,650	75	426	21	226	286	3,230	20,700
July	317	1,230	61	391	16	194	261	2,470	23,100
August	606	1,460	95	400	16	234	292	3,110	26,200
September	814	1,350	62	443	14	494	207	3,380	29,600
October:									
Australia		2	1	2		2	1	8	75
Belgium	29	162	3	1		17	(2)	212	3,680
Canada	15	81	14	49	2	31	17	208	2,120
China	33	111	2	55	(2)	23	23	246	2,470
France	92	223	(2)	20	1	1	2	339	4,250
Germany	9	72	3	47	(2)	3	1	136	1,470
India		12		37		26	(2)	76	301
Ireland			(2)	(2)		(2)	(2)	1	39
Israel	14	73	(2)	4		(2)	(2)	92	1,180
Italy	80	36	1	16		(2)	(2)	133	976
Japan	457	78	(2)	3	5	15	1	558	3,740
Korea, Republic of	1	25	2	8	(2)	6	(2)	42	844
Mexico	2	45	21	5	7	68	161	309	3,220
Netherlands		2		13		2	8	25	283
Singapore	(2)	15	1	6		73	1	96	286
Spain		(2)		1		3	(2)	4	129
Sweden	(2)	3	5	21	4	(2)	3	37	381
Switzerland	(2)	2		4	(2)	(2)	3	10	389
Taiwan		3		7	1	6	1	18	340
United Kingdom	74	443	3	55	(2)	6	8	589	4,350
Other	23	42	10	58	1	889	23	1,040	3,290
Total	829	1,430	66	412	21	1,170	253	4,180	33,800
2006: January-October	6,680	15,400	746	3,990	224	4,000	2,820	33,800	XX
2005: January-October	8,970	12,000	1,270	3,590	113	2,340	3,030	31,300	XX

XX Not applicable. -- Zero.

 ${\it TABLE~8} \\ {\it NICKEL~CONSUMPTION~IN~CAST~AND~WROUGHT~PRODUCTS} \\$

	Percent			
	Wrought	Cast		
November 2006:				
Stainless and heat resisting steels	100	(1)		
Alloy steels	99	1		
Superalloys	91	9		
Copper-nickel alloys	97	3		
Other nickel-base alloys	100	(1)		

¹Less than ½ unit.

 $^{^{1}\}mathrm{Data}$ are rounded to no more than three significant digits; may not add to totals shown.

²Less than ½ unit.

TABLE 9 NICKEL PRICES

						American	American	American
			Platts Meta	ıls Week		Metal Market	Metal Market	Metal Market
					18/8 Stainless	18/8 Stainless	304 Stainless steel	316 Stainless stee
		Cathode	LME	LME	steel scrap	steel scrap	scrap: solids, clips	scrap: solids, clips
		NY Dealer	Cash mean ¹	Cash mean ¹	free market	Pittsburgh	Pittsburgh ²	Pittsburgh ²
Date		\$/lb.	\$/t	\$/lb.	\$/long ton (gw)	\$/long ton (gw)	\$/long ton (gw)	\$/long ton (gw)
2005:								
Average for month	h of:							
November		5.429	12,111.477	5.494	1,038	1,244	XX	XX
December		5.923	13,425.625	6.090	1,225	1,193	XX	XX
Yearly average		6.814	14,737.960	6.685	1,409	1,469	XX	XX
2006:								
Average for week	ending:	-						
November	3	14.738-15.351	32,481.000	14.733	2,600-2,650	XX	2,625-2,650	XX
November	10	14.511-15.278	31,518.000	14.296	2,550-2,600	XX	2,765-2,800	3,700-3,800
November	17	14.006-14.643	30,439.000	13.807	2,500-2,565	XX	2,765-2,800	3,700-3,800
November	24	14.053-14.983	32,319.500	14.660	2,425-2,475	XX	2,765-2,800	3,700-3,800
December	1	15.366-16.117	34,249.500	15.535	2,600-2,650	XX	2,765-2,800	3,700-3,800
December	8	15.983-16.315	34,739.500	15.758	2,600-2,700	XX	2,765-2,800	3,700-3,800
December	15	16.210-16.392	34,820.000	15.794	2,700-2,800	XX	2,800-2,825	3,900-3,950
December	22	15.217-16.305	34,204.500	15.515	2,700-2,725	XX	2,800-2,825	3,900-3,950
December	29	15.217-16.079	34,417.500	15.612	2,750-2,850	XX	2,800-2,825	3,900-3,950
Average for month	h of:							
January		6.408	14,549.643	6.600	1,379	1,275	XX	XX
February		6.944	14,975.000	6.793	1,497	1,387	XX	XX
March		6.949	14,893.043	6.755	1,499	1,493	XX	XX
April		8.184	17,931.806	8.134	1,656	1,531	XX	XX
May		9.425	21,064.524	9.555	1,909	1,813	XX	XX
June		9.664	20,747.045	9.411	1,963	2,088	XX	XX
July		11.750	26,568.571	12.051	2,275	2,138	XX	XX
August		13.808	30,727.955	13.938	2,493	2,419	XX	XX
September		13.634	30,117.381	13.661	2,534	2,681	XX	XX
October		14.822	32,692.500	14.829	2,584	2,662	XX	XX
November		14.535	32,099.773	14.560	2,561	XX	2,754	3,750
December		15.657	34,559.079	15.676	2,728	XX	2,805	3,881
Yearly average		10.982	24,243.860	10.997	2,090	2,087	2 XX	XX
2007:						·		
Average for week	ending:	=						
January	5	15.409-16.144	33,819.375	15.340	2,750-2,800	XX	2,800-2,825	3,900-3,950
January	12	15.373-16.441	34,129.500	15.481	2,750-2,825	XX	2,925-2,950	4,100-4,200
	19	16.506-17.072	36,193.500	16.417	2,800-2,900	XX	2,925-2,950	4,100-4,200
	26	17.419-19.236	40,436.500	18.342	3,000-3,100	XX	2,925-2,950	4,100-4,200
Average for month								, , , , ,
January		16.177	36,795.227	16.690	2,866	XX	2,906	4,094
XX Not applicable.					,		,	,

XX Not applicable.

¹Mean of the cash buyer price and the cash seller and settlement price.

²On November 1, 2006, American Metal Market (AMM) changed its price listings for austenitic stainless steel scrap. AMM has begun reporting prices for Type 316 solids and clips and has changed its listing for 18-8 bundles, solids and clips to Type 304 solids and clips. See November AMM Scrap Iron and Steel Prices section for details. All prices remain in dollars per gross (long) ton. More complete AMM price data will appear in subsequent U.S. Geological Survey Mineral Industry Surveys.



