

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

Joseph M. Krisanda (Data) Telephone: (703) 648-7987 Fax: (703) 648-7975 E-mail: jkrisand@usgs.gov

Internet: http://minerals.usgs.gov/minerals

NICKEL IN OCTOBER 2006

Reported domestic nickel consumption in October, on a daily average basis, was slightly less than the total for September, according to the U.S. Geological Survey. Daily average use of nickel metal and ferronickel for stainless and heat resisting steels was slightly greater than the corresponding average for September. Use of nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) increased by 29% from September levels, on a daily average basis. The increase in the superalloy category was offset by a 66% decrease in the "Other nickel & nickel alloys" category (such as INCONEL 600 and Nickel 200). Sales to plating companies averaged 23.2 metric tons per day (t/d), about 17% less than the revised September figure of 27.8 t/d.

The United States imported 120,000 metric tons (t) of primary nickel during the first 9 months of 2006, about 8% more than

the 112,000 t for the corresponding period of 2005. Trade data for October will appear in a subsequent report. Percentages reported in this paragraph are based on data concealed to avoid revealing individual company proprietary data.

On October 31, stocks in London Metal Exchange (LME) warehouses worldwide totaled 6,816 t, up 33% from the 5,124 t of September 30. LME stocks were minimal throughout the third quarter of 2006 because of growing demand for austenitic stainless steel in Asia. On July 31, stocks bottomed out at 4,158 t, the lowest end-of-month figure reported in at least 12 years. The average LME cash price for October was \$32,693 per metric ton (\$14.829 per pound), a record high to that point in time.

 $\label{eq:table 1} \textbf{TABLE 1}$ 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:					
October	5,230	708	44	5,980	56,800
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	66	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	6,540	758	59	7,360	44,200
July	6,120	677	52	6,850	51,100
August	6,420	788	59	7,260	58,400
September	6,190	823	54	7,070	65,400
October:					
Steel:					
Stainless and heat resisting	3,050	851	W	3,900	34,500
Alloy (excludes stainless)	216			216	2,920
Superalloys	1,520		W	1,520	11,600
Copper-nickel alloys	W			W	W
Electric, magnetic, and expansion alloys	5		W	5	122
Other nickel & nickel alloys	W		W	W	W
Cast iron	W			W	W
Electroplating (sales to platers)	711		W	711	8,130
Chemical and chemical uses	W			W	W
Other uses	889		56	945	15,400
Total reported	6,390 ²	851	56	7,300	72,700
Total all companies (calc) ³	XX	XX	XX	14,300	143,000
2006: January-October	64,100	7,990	604	72,700	XX
2005: January-October	51,100	5,250	436	56,800	XX

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, 4,120 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.

TABLE 2 ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE $^{\!1,2}$

(Metric tons, nickel content)

	Cathodes, pellets,		Oxide-sinter,	
	briquets, and		salts, and	
Period	powder	Ferronickel	other forms	Total
2005:				
October	1,660	279	147	2,090
November	1,720	307	147	2,170
December	2,050	300	146	2,500
2006:				
January	1,830	300	153	2,280
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	2,140	307	145	2,600
July ^r	1,970	333	151	2,460
August	1,920	426	179	2,530
September	1,900	391	167	2,460
October:				
Steel (stainless, heat resisting and alloy)	477	351	(3)	828
Nonferrous alloys ⁴	956	W	(3)	956
Foundry (cast irons)	(3)	W		(3)
Chemical (catalysts, ceramics, plating				
salt, etc.) and unspecified uses	128	W	169	297
Total	1,560	351	169	2,080

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

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

(Metric tons, nickel content)

		Consumption		Stocks				
Period	Ferrous scrap ²	Nonferrous scrap ³	Total scrap	Ferrous scrap ²	Nonferrous scrap ³	Total scrap		
2005:	•				·			
October	5,000	638	5,640	3,010	110	3,120		
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 ^r	4,410 ^r	2,600	54	2,660		
February	4,130	645 ^r	4,780 ^r	2,850	45	2,900		
March	4,290	792 ^r	5,080 ^r	2,930	44	2,980		
April	5,250	691 ^r	5,940 ^r	2,660	49	2,710		
May	4,340	642 ^r	4,980 ^r	2,760	54	2,810		
June	3,840	836 ^r	4,670 ^r	3,090	44	3,130		
July	4,450	658 ^r	5,110	3,110	57	3,170		
August	5,560	705	6,260	2,720	50	2,770		
September	NA	680 ^r	NA	NA	52	NA		
October	NA NA	646	NA	NA	62	NA		
Total	35,600	7,000	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.

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

(Metric tons, nickel content)²

	a			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:	=									
September	9,410	500	1,890		645	443	294	13,200	123,000	94
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	177	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 ^r	62,200	83
May	10,400	1,170	1,090	107	561	1,370	279	15,000 ^r	77,200	99
June	10,900	648	1,050	67	713	1,500	326	15,200	92,400 r	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:	-									
Australia	1,570							1,570	11,300	
Brazil									962	
Canada	3,790	334		72	147	903	39	5,280	53,100	6
China	18				9		16	43	876	4
Colombia			134				(5)	134	2,380	
Dominican Republic			731			1		732	7,100	
Finland	449						64	513	6,050	
France	83				4		32	119	2,050	30
Germany	17	3					43	63	816	27
Japan		3			42		36	81	756	3
Mexico	- 				34	231	3	268	2,500	
New Caledonia	- 		150			231		150	1,350	
Norway	1,080							1,080	12,600	
Russia	3,010							3,010	27,100	
South Africa	18	80						98	650	
Sweden		7			7	3		17	40	
United Kingdom	15	30			110		4	159	2,330	8
Zimbabwe	20	30 					4	20	925	
Other		283 ⁶				7	99	454	3,310	
Total		740		72	65					(5)
	10,100		1,020		418	1,150	336	13,800	136,000	78
2006: January-September	98,700	7,110	10,900	872	5,190	10,600	2,840	136,000	XX	901
2005: January-September *Revised XX Not applicate	85,000	6,190	16,400	1,310	5,160	6,520	2,770	123,000	XX	774

^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.

⁵Less than ½ unit.

 $^{^6}$ All or part of these data has been referred to the U.S. Census Bureau for verification.

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

(Metric tons, nickel content)²

				Metal-						
	Cathodes,	Powder		lurgical-	Waste	Stainless			Total	
Period and country	pellets, and	and	Ferro-	grade	and	steel			year to	Wrough
of destination	briquets	flakes	nickel	oxide	scrap	scrap	Chemicals	Total ³	date	nickel
2005:	=									
September	147	85	4	5	1,150	3,950	315	5,650	47,100	105
October	134	148	1	8	1,040	3,450	281	5,070	52,200	94
November	70	116	(4)	5	1,000	3,640	271	5,100	57,300	79
December	80	87	21	33	1,080	4,200	430	5,940	63,200	99
January-December	1,190	1,910	72	234	11,700	43,800	4,230	63,200	XX	1,340
2006:										
January	105	107	15	12	1,200	4,100	387	5,930	5,930	158
February	125	87	8	8	860	2,950	370	4,410	10,300	100
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	151
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	90
September:						•				
Australia	. 1				101			102	343	-
Belgium		5		3	9	3		20	546	-
Canada	1	6		(4)	664	(5)	181	852 ⁶	9,680 ⁶	•
China		(4)	(4)			(5)	16	16 ⁶	10,900 ⁶	4
Finland						45	33	78	3,880	-
Germany		10		(4)	30	2	31	73	483	2
India		1				(5)		1 6	940 6	1
Italy		(4)					1	1	1,010	(4
Japan		6		1	1,090	44	14	1,160	5,940	4
Korea, Republic of		2			28	(5)	42	72 6	1,430 6	ç
Mexico	66	9			1	2	49	127	924	12
Netherlands						16	20	36	676	
South Africa				2			5	7	50	_
Sweden	· 				32			32	278	_
Taiwan	· 	1			18	(5)	15	34 6	3,940 6	(4
United Kingdom	1	5			28	(5)	17	51 ⁶	893 ⁶	
Other	·	22		3		(5)	132	157 ⁶	2,860 ⁶	
Total	69	67	(4)	9	2,000	112 6		2,810 6	44,700 ⁶	
2006: January-September	765	778	64	127	13,600	24,900 6		44,700 ⁶	XX	1,020
2005: January-September	906	1,560	49	187	8,620	32,600	3,250	47,200	XX	1,060

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.

 $^{^5\}mbox{These}$ data have been referred to the U.S. Census Bureau for verification.

 $^{^6}$ Incomplete total. All 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)

Period and country	Unwrought alloyed	Bars, rods, and		Plates and		Tubes and	Other alloyed		Total year to
of origin	ingot	profiles	Wire	sheets	Foil	pipes	articles	Total	date
2005:									
September	644	314	500	241	34	176	156	2,070	17,000
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	2,120	2,120
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:									
Australia	137						(2)	137	2,190
Belgium			(2)	1			(2)	1	130
Canada	5		2			12	1	20	766
China		(2)	1	4			95	100	877
France		(2)	138	6		19	2	165	1,860
Germany	160	67	146	246	12	70	5	706	6,500
Italy		92	25			41		158	1,970
Japan			2	2	1	23	(2)	28	957
Mexico							2	2	33
Netherlands			(2)				10	10	81
South Africa	39							39	292
Sweden		58	169	6	(2)			233	2,230
United Kingdom	24	51	2	1		11	16	105	1,450
Other	8	13	16	6		7	12	62	877
Total	373	281	501	272	13	183	143	1,770	20,200
2006: January-September	4,980	3,560	4,590	2,530	149	2,600	1,800	20,200	XX
2005: January-September	3,370	2,900	4,920	2,420	278	1,210	1,890	17,000	XX

XX Not applicable. -- Zero.

Data 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:									
September	565	1,250	92	398	26	237	286	2,850	28,100
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:		·							
Australia		1	2	1		1	1	6	67
Belgium	11	257	1	(2)			(2)	269	3,470
Canada	13	82	16	25	3	27	28	194	1,920
China		74	1	80	(2)	2	17	174	2,230
France	114	215	2	32	(2)	(2)	8	371	3,910
Germany	37	60	2	16	(2)	2	1	118	1,330
India	2	30	8	22		4		66	225
Ireland			1	1		2	(2)	4	38
Israel	28	49	1	2	1		(2)	81	1,080
Italy	68	43	1	4	(2)	10	1	127	843
Japan	376	94	1	12	(2)	7	(2)	490	3,180
Korea, Republic of		18	1	27	(2)	8	1	55	802
Mexico	(2)	60	6	8	3	46	115	238	2,910
Netherlands	3	3	(2)	44		2	4	56	258
Singapore	1	7	5	3	(2)	(2)	1	17	191
Spain	4	(2)		26		1	(2)	31	125
Sweden	1	(2)	(2)	6	3	(2)	2	12	344
Switzerland	18	2	(2)	4	1	1	(2)	26	379
Taiwan	(2)	11	1	6		6	1	25	322
United Kingdom	129	319	3	47	2	7	7	514	3,770
Other	9	20	10	77	1	368 ³	20	508	2,250
Total	814	1,350	62	443	14	494	207	3,380	29,600
2006: January-September	5,850	13,900	679	3,580	203	2,830	2,570	29,600	XX
2005: January-September	8,240	10,900	1,140	3,190	85	1,920	2,630	28,100	XX
VV Not applicable Zer		10,700	1,170	3,170	0.5	1,720	2,030	20,100	11/1

XX Not applicable. -- Zero.

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

²Less than ½ unit.

 $^{^3\}mbox{All}$ of part of these data has been referred to the U.S. Census Bureau for verification.

TABLE 8 NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent		
	Wrought	Cast	
October 2006:			
Stainless and heat resisting steels	100	(1)	
Alloy steels	99	1	
Superalloys	89	11	
Copper-nickel alloys	97	3	
Other nickel-base alloys	100	(1)	

Less than ½ unit.

TABLE 9 NICKEL PRICES

			Platts Meta	ls Week		American Metal Market	American Metal Market	American Metal Market
		Cathode	LME	LME	18/8 Stainless steel scrap	18/8 Stainless steel scrap	304 Stainless steel scrap: solids,clips	316 Stainless steel scrap: solids, clips
		NY Dealer	Cash mean ¹	Cash mean1	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 mon	nth of:							
October		5.840	12,396.548	5.623	1,194	1,350	XX	XX
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	2	6.814	14,737.960	6.685	1,409	1,469	XX	XX
2006:								
Average for week	k ending:							
October	6	14.375-14.740	31,310.000	14.202	2,475-2,550	2,725-2,750	XX	XX
October	13	14.831-15.398	32,810.000	14.882	2,500-2,650	2,625-2,650	XX	XX
October	20	15.210-15.958	33,688.500	15.281	2,600-2,650	2,625-2,650	XX	XX
October	27	14.870-16.049	33,180.500	15.050	2,600-2,650	2,625-2,650	XX	XX
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 mon	nth 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
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 & clips and has changed its listing for 18-8 bundles, solids & clips to Type 304 solids & clips. See November AMM Scrap Iron & 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.



