

# Mineral Industry Surveys

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## NICKEL IN JULY 2006

Reported domestic nickel consumption in July, on a daily average basis, was 10% less than the revised total for June, according to the U.S. Geological Survey. Daily average use of nickel metal and ferronickel for stainless and heat resisting steels was slightly lower than the corresponding average for June. Use of nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) increased by 11% from June levels, on a daily average basis. However, the increase in the superalloy category was more than offset by a 36% decrease in the "Other nickel & nickel alloys" category. Sales to plating companies averaged 24.3 metric tons per day (t/d), about 18%

less than the June figure of 29.5 t/d. The United States imported 82,800 metric tons (t) of primary nickel during the first half of 2006, about 10% more than the 75,300 t for the corresponding period of 2005. Trade data for July will appear in a subsequent report. Percentages reported in this paragraph are based on data concealed to avoid revealing individual company proprietary data.

On July 31, stocks in London Metal Exchange warehouses worldwide totaled 4,158 metric tons—the lowest end-of-month figure reported in at least 12 years.

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
2005:					
July	4,590	378	38	5,010	39,400
August	5,060	437	42	5,540	45,000
September	5,190	658	44	5,900	50,800
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	6,760	831	71	7,660	7,660
February	6,390	842	66	7,300	15,000
March	6,400	776	68	7,250	22,200
April	6,530	788	59	7,380	29,600
May	6,530	850	59	7,440	37,000
June	6,570 <sup>r</sup>	758	59	7,380 <sup>r</sup>	44,400 <sup>r</sup>
July:					
Steel:					
Stainless and heat resisting	2,530	677	W	3,210	23,200
Alloy (excludes stainless)	274	--	--	274	2,540
Superalloys	1,030	--	W	1,030	7,890
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	11	--	--	11	98
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	743	--	--	743	5,850
Chemical and chemical uses	W	--	--	W	W
Other uses	1,570	--	52	1,620	11,700
Total reported	6,150 <sup>2</sup>	677	52	6,880	51,300
Total all companies (calc) <sup>3</sup>	XX	XX	XX	13,500	101,000
2006: January-July	45,300	5,520	435	51,300	XX
2005: January-July	35,700	3,440	306	39,400	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, 4,000 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 (50.94%) to apparent primary consumption for 2004.

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
2005:					
July		1,610	283	141	2,030
August		1,680	276	139	2,100
September		1,680	273	153	2,110
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 <sup>†</sup>	292	154	2,940 <sup>†</sup>
June <sup>†</sup>		2,140	307	145	2,600
July:					
Steel (stainless, heat resisting and alloy)		584	321	(3)	905
Nonferrous alloys <sup>4</sup>		1,250	W	(3)	1,250
Foundry (cast irons)		(3)	W	--	(3)
Chemical (catalysts, ceramics, plating salt, etc.) and unspecified uses		131	W	164	295
Total		1,970	321	164	2,450

<sup>†</sup>Revised. W Withheld to avoid disclosing company proprietary data. -- 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
2005:						
July	4,120	658	4,780	2,740	102	2,840
August	4,360	748	5,110	2,630	113	2,740
September	4,490	709	5,200	2,800	99	2,900
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	710 <sup>†</sup>	4,420	2,600	100	2,700
February	4,130	653 <sup>†</sup>	4,790	2,850	92	2,950
March	4,290	800	5,090	2,930	93	3,030
April	5,250	699 <sup>†</sup>	5,950 <sup>†</sup>	2,660	98	2,760
May	4,340	651 <sup>†</sup>	4,990	2,760	103	2,860
June	3,840	845	4,680 <sup>†</sup>	3,090	44 <sup>†</sup>	3,130 <sup>†</sup>
July	3,880	666	4,540	1,600	57	1,650
Total	25,600	5,020 <sup>†</sup>	30,600 <sup>†</sup>	XX	XX	XX

<sup>†</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
2005:										
June	9,010	335	2,470	--	583	776	308	13,500	83,800	119
July	9,050	543	1,700	--	633	624	177	12,700	96,500	89
August	10,500	772	1,370	--	447	402	295	13,800	110,000	116
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	19,300	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	870	1,300	121	621	1,100	287	17,200	62,400	83
May	10,400	1,170	1,090	107	561	1,280	279	14,900	77,300	99
June:										
Australia	920	20	--	--	--	--	--	940	7,380	--
Brazil	--	--	--	--	--	--	--	--	885	--
Canada	3,520	266	--	67	184	1,180	31	5,240	37,800	--
China	151	--	--	--	13	--	26	190	679	2
Colombia	--	--	--	--	--	--	(5)	(5)	1,170	--
Dominican Republic	--	--	771	--	--	--	--	771	4,890	--
Finland	481	17	--	--	--	1	118	617	4,470	--
France	162	1	--	--	85	--	23	271	1,540	34
Germany	--	6	--	--	108	--	18	132	548	49
Japan	--	16	25	--	23	1	44	109	463	20
Mexico	--	--	--	--	27	293	2	322	1,520	--
New Caledonia	--	--	252	--	--	--	--	252	1,000	--
Norway	1,830	--	--	--	--	--	--	1,830	9,070	2
Russia	3,750	--	--	--	--	--	--	3,750	16,500	--
South Africa	--	60	--	--	--	--	--	60	417	--
Sweden	--	1	--	--	--	--	--	1	17	1
United Kingdom	--	112	--	--	176	24	2	314	1,620	30
Zimbabwe	100	--	--	--	--	--	--	100	688	--
Other	--	149 <sup>6</sup>	--	--	97	8	62	316	1,840	36
Total	10,900	648	1,050	67	713	1,500	326	15,200	92,500	174
2006: January-June	68,100	4,930	7,130	621	3,490	6,190	2,000	92,500	XX	630
2005: January-June	56,100	4,370	11,500	1,310	3,430	5,060	2,010	83,800	XX	475

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 ½ unit.

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

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
2005:										
June	168	176	9	2	523	2,950	460	4,280	31,700	214
July	173	113	4	3	814	3,020	335	4,460	36,200	105
August	91	84	--	1	1,270	3,350	506	5,300	41,500	156
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	106
March	87	92	5	69	942	2,700	631	4,520	14,900	114
April	189	111	22	8	989 <sup>r</sup>	2,520 <sup>r</sup>	386	4,230	19,100	151
May	79	100	6	8	2,070	3,420	636	6,320	25,400	119
June:										
Australia	--	2	--	--	24	--	1	27	185	1
Belgium	--	1	--	--	14	6	40	61	438	4
Canada	2	11	--	--	728	248	172	1,160	6,590	11
China	--	2	--	--	--	1,310	25	1,340	8,170	2
Finland	--	--	--	--	--	452	42	494	3,340	--
Germany	--	9	--	--	18	12	11	50	297	1
India	--	2	--	(4)	--	86	(4)	88	841	1
Italy	--	(4)	--	--	--	--	--	(4)	1,000	(4)
Japan	6	10	--	--	404	104	30	554	2,290	6
Korea, Republic of	--	5	--	--	--	90	10	105	1,010	9
Mexico	39	5	--	--	(4)	1	6	51	610	5
Netherlands	--	(4)	--	--	89	51	--	140	494	(4)
South Africa	--	--	--	1	--	--	6	7	37	--
Sweden	--	--	--	--	32	--	1	33	180	--
Taiwan	1	(4)	--	--	19	369	4	393	2,420	1
United Kingdom	--	1	--	2	88	4	1	96	614	5
Other	(4)	16	(4)	1	--	170	105	294	1,780	38
Total	48	64	(4)	4	1,420	2,910	454	4,890	30,300	84
2006: January-June	633	560	57	110	7,480	18,600	2,870	30,300	XX	732
2005: January-June	494	1,280	41	178	5,380	22,200	2,090	31,700	XX	697

<sup>r</sup>Revised. 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 ½ 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
2005:									
June	437	422	558	260	20	159	237	2,090	11,100
July	325	342	603	275	29	64	194	1,830	12,900
August	447	360	462	242	20	172	293	2,000	14,900
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:									
Australia	154	2	1	--	--	--	(2)	157	1,580
Belgium	19	--	(2)	--	--	--	(2)	19	123
Canada	--	--	6	16	(2)	30	40	92	633
China	--	--	1	(2)	1	1	162	165	605
France	1	(2)	173	35	--	32	2	243	1,240
Germany	114	131	109	204	30	74	5	667	4,220
Italy	--	127	6	--	--	2	1	136	876
Japan	--	--	3	2	--	183	1	189	589
Mexico	--	--	(2)	--	--	3	2	5	23
Netherlands	--	1	(2)	--	(2)	--	15	16	56
South Africa	59	--	--	--	--	--	--	59	214
Sweden	--	25	213	1	--	38	--	277	1,580
United Kingdom	125	42	1	(2)	(2)	4	13	185	1,100
Other	14	10	11	1	--	6	35	77	688
Total	486	338	524	259	31	373	276	2,290	13,500
2006: January-June	3,320	2,170	3,140	1,680	121	1,740	1,340	13,500	XX
2005: January-June	1,950	1,880	3,360	1,670	196	795	1,240	11,100	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 ½ 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
2005:									
June	726	1,220	108	275	5	216	272	2,820	18,600
July	1,130	1,060	170	409	5	211	293	3,280	21,900
August	1,010	1,310	114	301	9	285	360	3,390	25,300
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:									
Australia	--	1	1	1	--	2	1	6	44
Belgium	30	332	9	5	--	3	--	379	2,630
Canada	7	69	16	34	7	70	27	231	1,310
China	2	193	1	50	(2)	14	31	291	1,620
France	136	288	1	7	(2)	2	1	435	2,960
Germany	2	132	3	26	(2)	1	2	166	803
India	--	7	2	1	5	1	(2)	16	92
Ireland	--	--	2	(2)	(2)	(2)	(2)	2	23
Israel	9	84	(2)	(2)	--	(2)	--	93	816
Italy	40	26	4	44	--	1	1	116	502
Japan	223	67	(2)	18	1	6	4	319	2,240
Korea, Republic of	(2)	5	2	36	(2)	5	1	49	581
Mexico	(2)	49	21	7	(2)	40	183	300	2,010
Netherlands	--	2	--	14	(2)	2	5	23	99
Singapore	2	22	1	5	--	2	(2)	32	147
Spain	1	(2)	1	1	--	6	(2)	9	88
Sweden	--	31	3	31	5	(2)	4	74	276
Switzerland	56	3	(2)	1	--	5	(2)	65	233
Taiwan	--	5	--	10	--	5	1	21	256
United Kingdom	21	317	1	82	1	10	5	437	2,530
Other	21	15	7	54	--	52	21	170	1,420
Total	550	1,650	75	426	21	226	286	3,230	20,700
2006: January-June	4,110	9,890	462	2,340	157	1,910	1,810	20,700	XX
2005: January-June	5,530	7,320	768	2,090	44	1,190	1,690	18,600	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 ½ unit.

Source: U.S. Census Bureau.

TABLE 8  
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

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

<sup>1</sup>Less than ½ unit.

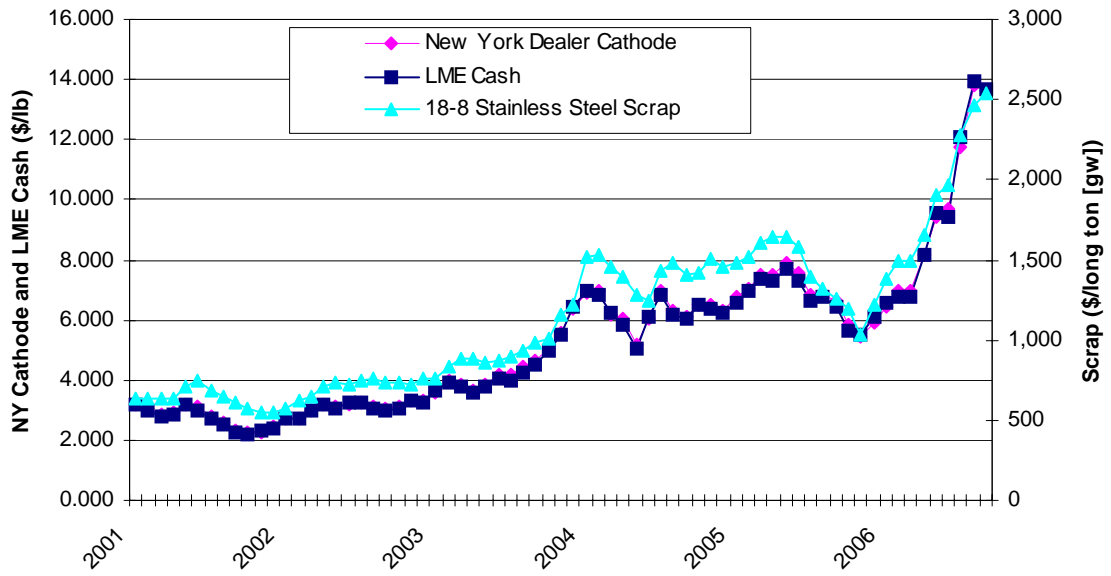
TABLE 9  
NICKEL PRICES

Date	Platts Metals Week			18/8 Stainless steel scrap free market \$/long ton (gw)	American Metal Market
	Cathode NY Dealer \$/lb.	LME Cash mean <sup>1</sup> \$/t	LME Cash mean <sup>1</sup> \$/lb.		18/8 Stainless steel scrap Pittsburgh \$/long ton (gw)
2005:					
Average for month of:					
July	6.820	14,570.833	6.609	1,390	1,538
August	6.863	14,886.932	6.753	1,315	1,388
September	6.610	14,223.088	6.451	1,260	1,388
October	5.840	12,396.548	5.623	1,194	1,350
November	5.429	12,111.477	5.494	1,038	1,244
December	5.923	13,425.625	6.090	1,225	1,193
Yearly average	6.814	14,737.960	6.685	1,409	1,469
2006:					
Average for week ending:					
July 7	10.603-11.477	23,934.500	10.857	2,100-2,200	2,125-2,150
July 14	12.069-13.926	28,182.500	12.783	2,300-2,350	2,125-2,150
July 21	12.021-14.040	27,284.500	12.376	2,275-2,350	2,125-2,150
July 28	12.305-12.928	26,746.000	12.132	2,275-2,350	2,125-2,150
August 4	12.293-13.382	27,816.500	12.617	2,300-2,400	2,125-2,150
August 11	13.110-13.495	28,318.500	12.845	2,300-2,400	2,500-2,525
August 18	13.745-15.650	31,378.000	14.233	2,500-2,600	2,500-2,525
August 25	15.104-16.206	33,674.500	15.274	2,600-2,650	2,500-2,525
September 1	14.788-16.262	32,381.875	14.688	2,575-2,600	2,500-2,525
September 8	14.082-15.103	30,568.500	13.866	2,550-2,650	2,500-2,525
September 15	13.768-14.763	30,167.000	13.684	2,525-2,600	2,725-2,750
September 22	12.924-13.672	28,605.000	12.975	2,450-2,500	2,725-2,750
September 29	13.763-14.581	30,703.000	13.927	2,475-2,525	2,725-2,750
Average for month of:					
January	6.408	14,549.643	6.600	1,379	1,275
February	6.944	14,975.000	6.793	1,497	1,387
March	6.949	14,893.043	6.755	1,499	1,493
April	8.184	17,931.806	8.134	1,656	1,531
May	9.425	21,064.524	9.555	1,909	1,813
June	9.664	20,747.045	9.411	1,963	2,088
July	11.750	26,568.571	12.051	2,275	2,138
August	13.808	30,727.955	13.938	2,493	2,419
September	13.634	30,117.381	13.661	2,534	2,681

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



### 2001-2006 AVERAGE MONTHLY PRICES (Derived from Metals Week and American Metal Market quotations)



### 2001-2006 STOCKS

