

Mineral Industry Surveys

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NICKEL IN AUGUST 2007

Reported total domestic nickel consumption in August, on a daily average basis, was 9% greater than that for July, according to the U.S. Geological Survey. Daily average use of nickel metal and ferronickel for stainless and heat resisting steels was 7% greater than that for July. Average daily use of nickel metal to make superalloys (such as INCONEL 718 and WASPALOY) increased by 11% from July levels. Average daily use increased by 41% in the "Other nickel & nickel alloys" category (such as INCONEL 600 and Nickel 200). Sales to plating companies averaged 23.8 metric tons per day (t/d), 6% less than the July figure of 25.4 t/d. Percentages reported in this paragraph are based on data withheld to avoid revealing individual company proprietary data.

The United States imported 69,900 metric tons (t) of primary nickel in the first 7 months of 2007, 26% less than the 94,800 t for the corresponding period of 2006. About 86%, or 60,300 t, of the primary nickel was Class I materials. Class I materials (electrolytic cathode, briquets, granules, pellets, powders, rondelles, etc.) are refined products with a nickel content of

99% or greater. Trade data for August 2007 will appear in a subsequent report.

On August 31, stocks in London Metal Exchange (LME) warehouses worldwide totaled 24,324 t, up 69% from 14,412 on July 31. LME stocks had been minimal during the first quarter of 2007 owing to strong demand in Asia. However, LME stocks grew dramatically during the summer as global production of austenitic stainless steel, the principal use of nickel, started to slow.

World prices weakened as LME stocks gradually built up during the summer. The average monthly LME cash price turned downward in June after reaching a record high in May of \$52,161 per metric ton (\$23.660 per pound). The average price for August was \$27,643 per metric ton (\$12.539 per pound), a 17% decrease from the July figure of \$33,417 per metric ton (\$15.158 per pound). The average LME 3-month mean nickel price for August was \$27,851 per metric ton (\$12.633 per pound).

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

(Metric tons, nickel content)

	Cathodes,		Oxide-sinter,		
	pellets,		salts, and		Total
	briquets, and		other		year to
Period	powder	Ferronickel	forms	Total	date
2006:					
August	6,550	788	57	7,390	60,000
September	6,310	823	54	7,180	67,200
October	6,530	851	55	7,440	74,600
November	6,270	709	50	7,030	81,600
December	5,390	655	49	6,100	87,700
January-December	77,700	9,350	688	87,700	XX
2007:	_				
January	6,370	854	53	7,280	7,280
February	6,020	759	53	6,830	14,100
March	5,700	846	61	6,600	20,700
April	6,280	812	56	7,150	27,900
May	6,000	723	54	6,780	34,600
June	6,080	827	60	6,970	41,600
July	5,720	700	49	6,470	48,100
August:					
Steel:	_				
Stainless and heat resisting	2,400	815	W	3,210	26,200
Alloy (excludes stainless)	239	W		239	1,930
Superalloys	1,210		W	1,210	9,400
Copper-nickel alloys	W			W	W
Electric, magnetic, and expansion alloys	- 14			14	86
Other nickel & nickel alloys	– W		W	W	W
Cast iron	– W	W		W	W
Electroplating (sales to platers)	739			739	6,310
Chemical and chemical uses	– W		W	W	W
Other uses	1,620		57	1,670	11,300
Total reported	6,210 ²	815	57	7,080	55,200
Total all companies (calc) ³	XX	XX	XX	13,900	108,000
2007: January-August	48,400	6,340	446	55,200	XX
2006: January-August	53,200	6,310	478	60,000	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, 3,910 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 2007.

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
2006:				
August	2,000	439	166	2,610
September	1,860	413	151	2,430
October	1,570	364	153	2,080
November	1,790	364	175	2,330
December	1,880	380	159	2,420
2007:				
January	1,920	427	163	2,510
February	1,660	466	171	2,290
March	1,790	471	156	2,420
April	1,470	463	166	2,100
May	1,570	466	172	2,210
June	1,550	403	149	2,110
July	1,640	432 ^r	160 ^r	2,230
August:	•			
Steel (stainless, heat resisting and alloy)	751	491	(3)	1,240
Nonferrous alloys 4	822	W	(3)	822
Foundry (cast irons)	(3)			(3)
Chemical (catalysts, ceramics, plating				
salt, etc.) and unspecified uses	W		249	249
Total	1,570	491	249	2,310

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

 ${\bf TABLE~3}$ CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE $^{\rm l}$

(Metric tons, nickel content)

		Consumption		Stocks				
	Ferrous	Nonferrous	Total	Ferrous	Nonferrous	Total		
Period	scrap ²	scrap ³	scrap	scrap ²	scrap ³	scrap		
2006:	_							
August	5,560	705	6,260	2,710	50	2,760		
September	5,950	741	6,690	2,340	47	2,380		
October	5,050	590	5,640	2,460	58	2,520		
November	4,390	506	4,890	2,630	45	2,670		
December	3,540	465	4,000	2,740	48	2,790		
January-December	54,500	7,980	62,400	XX	XX	XX		
2007:	_							
January	7,630	745 ^r	8,370 °	4,240	57 ^r	4,300		
February	6,190	591 ^r	6,780	4,180	80 r	4,260		
March	5,500	906 ^r	6,400	5,430	51 ^r	5,480		
April	6,750	750	7,500	4,550	53 ^r	4,610		
May	5,620	761	6,380	4,810	51 ^r	4,860		
June	6,060	NA	NA	5,120	50 ^r	5,170		
July	5,640	NA	NA	4,880	32	4,910		
August	5,540	NA	NA	4,700	28	4,730		

^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.

 $\label{eq:table 4} \textbf{U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY}^{I}$

(Metric tons, nickel content)²

		ъ.		Metal-						
	Cathodes,	Powder	_	lurgical-	Waste	Stainless			Total	
Period and country	pellets, and	and	Ferro-	grade	and	steel		3	year to	Wrought
of origin	briquets	flakes	nickel	oxide	scrap	scrap	Chemicals	Total ³	date ⁴	nickel
2006:	_									
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	1,020	72	418	1,150	336	13,800	136,000	78
October	8,150	542	1,220	161	575	1,060	358	12,100	148,000	88
November	_ 10,300	513	932	99	564	881	311	13,600	162,000	61
December	_ 7,450	609	1,570	76	526	957	168	11,400	173,000	59
January-December	_ 125,000	8,780	14,600	1,210	6,850	13,500	3,680	173,000	XX	1,110
2007:	_									
January	8,330	536	627	107	476	728	348	11,200	11,200	51
February	6,610	562	832	97	463	674	254	9,490	20,600	75
March	8,550	626	1,350	7	579	1,090	357	12,600	33,200	51
April	8,460	600	941	80	549	898	329	11,900	45,100	77
May	8,090	583	1,020	18	570	1,020	274	11,600	56,600	67
June	8,130	552	965	2	712	858	205	11,400	68,100	79
July:									,	
Australia	961	20					64	1,050	6,350	
Belgium		19			2		13	33	193	
Brazil	100	6						106	133	
Canada	4,130	289			73	281	7	4,780	37,400	(5)
China	,120	2			19	(5)	21	42	225	1
Colombia			611			8		619	1,840	
Denmark	- 						88	88	140	(5)
Dominican Republic			726			6		732	4,480	
Finland	- 75		720				43	118	1,450	
France	- 73 90	(5)			89		14	193	700	5
Germany		15			27		19	62	655	29
Israel	- 				36	2		38	208	
Japan	_	21			4	(5)	15	40	651	11
Mexico					27	94	2	123	1,750	(5)
Netherlands							44	123 44	250	(5)
New Caledonia			150		10			150	956	
Norway	_ 908				10			917	6,510	
Russia	_ 1,870	20						1,890	12,100	
South Africa		40						40	449	
Sweden									21	
United Kingdom	_ 15	33	2		247		7	304	1,900	1
Zimbabwe	_ 36							36	499	
Other		1			43	13	13	68	637	3
Total	8,190	466	1,490		578	403	350	11,500	79,500	50
2007: January-July	_ 56,400	3,920	7,220	312	3,930	5,670	2,120	79,500	XX	451
2006: January-July	77,600	5,590	8,650	719	4,220	7,810	2,220	107,000	XX	734

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.

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

(Metric tons, nickel content)²

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste	Stainless steel	Chemicals	Total ³	Total year to date	Wrought nickel
2006:	briquets	Hakes	піскеі	oxide	scrap	scrap	Chemicais	1 otal	date	Піскеі
	_ 20	73	3	4	2 120	3,090	358	5,690	36,000	101
July	_ 39				2,120					
August		78	3	5	2,010	3,120	673	5,920	41,900	96
September	68	67	(4)	9	2,000	4,170	556	6,870	48,800	89
October	13	71	1	5	2,420	2,630	591	5,740	54,500	85
November	47	106	3	11	2,650	3,140	491	6,450	61,000	66
December	57	71		7	2,610	3,350	389	6,480	67,400	61
January-December	882	1,030	67	150	21,300	38,100	5,920	67,400	XX	1,230
2007:	_									
January	64	88	2	2	3,160	4,440	254	8,010	8,010	144
February	112	79	(4)	2	2,620	5,940	525	9,280	17,300	192
March	93	112	5	249	2,810	6,330	659	10,300	27,500	99
April	83	79	1	752	2,900	4,350	802	8,960	36,500	187
May	81	76	(4)	475	3,580	5,230	703	10,200	46,700	226
_ June	54	82	2	525	5,970	5,800	438	12,900	59,500	125
July:	_									
Australia		1			16			17	252	
Bangladesh						150		150	792	
Belgium		(4)		2		13	2	17	258	
Canada	8	5		557	1,450	102	229	2,350	17,000	2
China		3				854	10	867	7,590	2
Finland									2,230	
France		(4)			19	2	11	32	109	
Germany	(4)	12			17	(4)	9	38	1,500	1
India		(4)				817	1	818	3,040	1
Italy		(4)				9	1	10	62	6
Japan	6	5			1,660	355	27	2,060	12,200	3
Korea, Republic of	_ 1	1			-,	661	72	735	3,450	3
Mexico		3		(4)			24	47	976	3
Netherlands	_ 20	(4)				35	40	75	883	1
Pakistan						430		430	775	
Singapore		3				99	8	110	262	(4)
South Africa					9		1	10	38	(4)
Spain	_					94		94	3,550	(4)
Sweden	_					52		52	386	(4)
Taiwan		1		(4)		1,260	6	1,270	10,400	18
Thailand	_ 1	3		(4)		82	4	1,270	593	(4)
United Kingdom		10			64	24	2	100	593 715	16
				(4)						
Vietnam		1.7				219		219	727	25
Other	_ 1	17			2.240	5 200	522	151	1,500	25
Total	36	63		560	3,240	5,300	533	9,730	69,300	81
2007: January-July	_ 524	580	11	2,570	24,300	37,400	3,910	69,300	XX	1,050
2006: January-July XX Not applicable Zero.	672	633	61	113	9,600	21,700	3,220	36,000	XX	833

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.

 $\label{eq:table 6} \textbf{U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY}^{I}$

(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
2006:	=								
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	183	143	1,770	20,200
October	517	464	492	390	34	316	160	2,370	22,600
November	336	482	755	355	26	237	133	2,330	24,900
December	351	485	431	363	25	465	149	2,270	27,200
January-December	6,180	4,990	6,270	3,640	234	3,620	2,250	27,200	XX
2007:	_								
January	438	481	573	204	29	307	91	2,120	2,120
February	390	459	452	311	21	188	148	1,970	4,090
March	418	480	691	328	12	183	139	2,250	6,340
April	423	505	688	403	25	257	178	2,480	8,820
May	412	432	648	360	(2)	157	235	2,240	11,100
June	219	495	657	255	10	253	205	2,090	13,200
July:								,	
Australia	49						(2)	49	804
Belgium			(2)					(2)	56
Canada	18	1	2	(2)		7	86	113	377
China				(2)		1	72	73	458
France		4	102	23		48	3	179	1,610
Germany	47	103	251	227	11	53	10	701	5,750
Italy	355	164	1			1	(2)	522	2,020
Japan		7	5	2		7	2	23	474
Mexico			1			23	1	25	73
Netherlands			(2)				3	3	78
Sweden		85	174	5		8		272	1,930
United Kingdom	- 13	35	1	(2)		6	8	64	708
Other	- 48	50	20	1		2	24	144	982
Total	529	449	558	258	11	156	209	2,170	15,300
2007: January-July	2,830	3,300	4,270	2,120	109	1,500	1,200	15,300	XX
2006: January-July	3,900	2,750	3,660	1,920	132	2,200	1,530	16,100	XX

XX Not applicable. -- Zero.

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

²Less than ½ unit.

TABLE 7 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
2006:									
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	829	1,430	66	412	21	1,170	253	4,180	33,800
November	488	1,170	80	361	14	182	223	2,520	36,300
December	387	1,430	55	537	14	226	198	2,850	39,200
January-December	7,550	18,000	881	4,890	252	4,410	3,240	39,200	XX
2007:	-								
January	417	1,340	48	395	6	255	244	2,700	2,700
February	688	1,280	43	508	9	265	157	2,950	5,650
March	720	1,600	78	702	15	316	158	3,590	9,250
April	519	1,300	76	780	8	235	167	3,090	12,300
May	615	1,190	123	458	13	217	326	2,940	15,300
June	457	1,430	132	492	20	202	239	2,970	18,200
July:									
Australia			1	7		1	1	9	46
Belgium	166	145	12	13		1	(2)	337	2,430
Canada	6	47	9	31	1	42	13	149	1,470
China	1	62	16	95	(2)	8	38	221	1,830
France	232	203	1	22	(2)	1	1	460	2,890
Germany	68	102	6	27		2	3	208	1,990
India	1	(2)	(2)	4		1	(2)	7	124
Ireland	- 		1	2		1	1	5	25
Israel	(2)	69	(2)	1	2	1	(2)	75	614
Italy	34	14	3	22		(2)	10	83	847
Japan	- 6	71	(2)	10	1	5	(2)	94	1,450
Korea, Republic of	4	47	11	30		6	(2)	98	551
Mexico	1	59	8	10	12	60	77	228	1,720
Netherlands		26	(2)	2	(2)	2	2	32	203
Singapore	10	5	9	2		2	2	30	238
Spain	14		(2)	1		1	(2)	16	105
Sweden	(2)	31	13	3		2	1	50	120
Switzerland	19	(2)		3	(2)	(2)	(2)	22	100
Taiwan	(2)	(2)		7		2	2	11	107
United Kingdom	37	93	4	27	1	4	5	171	2,080
Other	13	73	3	44	1	21	64	214	1,820
Total	612	1,050	97	363	19	163	220	2,520	20,800
2007: January-July	4,030	9,180	597	3,700	91	1,650	1,510	20,800	XX
2006: January-July	4,430	11,100	523	2,740	173	2,100	2,070	23,100	XX

XX Not applicable. -- Zero.

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

TABLE 8 NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent		
	Wrought	Cast	
August 2007:			
Stainless and heat resisting steels	100	(1)	
Alloy steels	97	3	
Superalloys	89	11	
Copper-nickel alloys	94	6	
Other nickel-base alloys	100	(1)	

¹Less than 1/2 unit.

TABLE 9 NICKEL PRICES

			Platts Me	Platts Metals Week			American Metal Market ^{2, 3}		
Date		Cathode NY Dealer \$/lb.	LME Cash mean ¹ \$/t	LME Cash mean ¹ \$/lb.	18/8 Stainless steel scrap free market \$/long ton (gw)	18/8 Stainless steel scrap Pittsburgh \$/long ton (gw)	304 Stainless steel scrap: solids, clips Pittsburgh \$/long ton (gw)	316 Stainless steel scrap: solids, clips Pittsburgh \$/long ton (gw)	
2006:		_							
Average for mon	th of:	_							
November		14.535	32,099.773	14.560	2,561	XX	2,783	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	2,090	XX	XX	
2007:		_							
Average for wee	k ending:	_							
September	7	12.560-14.171	27,825.500	12.621	1,900-2,020	XX	2,000-2,050	3,100-3,150	
September	14	12.393-12.835	27,014.500	12.254	1,900-2,015	XX	2,000-2,050	3,100-3,150	
September	21	13.151-15.407	30,976.500	14.051	2,200-2,315	XX	2,000-2,050	3,100-3,150	
September	28	15.058-15.310	32,287.500	14.645	2,465-2,530	XX	2,000-2,050	3,100-3,150	
October	5	13.969-14.534	30,248.500	13.720	2,350-2,575	XX	2,300-2,325	3,600-3,650	
October	12	13.854-15.101	30,932.500	14.031	2,350-2,575	XX	2,300-2,325	3,600-3,650	
October	19	14.564-15.169	31,745.000	14.399	2,350-2,575	XX	2,300-2,325	3,600-3,650	
October	26	14.514-15.124	31,295.500	14.195	2,550-2,620	XX	2,300-2,325	3,600-3,650	
November	2	14.466-14.803	31,245.500	14.173	2,550-2,620	XX	2,300-2,325	3,600-3,650	
November	9	14.564-15.008	31,739.000	14.397	2,690-2,730	XX	2,575-2,600	3,950-4,000	
November	16	15.010-15.716	32,748.500	14.854	2,755-2,800	XX	2,575-2,600	3,950-4,000	
November	23	13.881-15.033	29,639.000	13.444	2,645-2,730	XX	2,575-2,600	3,950-4,000	
November	30	12.969-13.695	27,852.500	12.634	2,352-2,465	XX	2,575-2,600	3,950-4,000	
Average for mon	nth of:								
January		16.177	36,795.227	16.690	2,866	XX	2,917	4,114	
February		18.309	41,171.125	18.675	3,141	XX	3,146	4,243	
March		21.238	46,303.409	21.003	3,738	XX	3,481	4,856	
April		23.139	50,249.474	22.793	4,069	XX	3,925	5,550	
May		23.737	52,160.833	23.660	3,638	XX	4,060	5,589	
June		18.491	41,704.762	18.917	2,016	XX	3,719	5,018	
July		15.285	33,416.591	15.158	1,501	XX	2,804	4,032	
August		12.680	27,643.182	12.539	1,571	XX	2,364	3,708	
September		13.291	29,526.000	13.393	2,168	XX	2,036	3,151	
October		14.225	31,044.891	14.082	2,493	XX	2,263	3,538	
November		14.178	30,599.886	13.880	2,634	XX	2,533	3,905	
XX Not applicable	e								

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

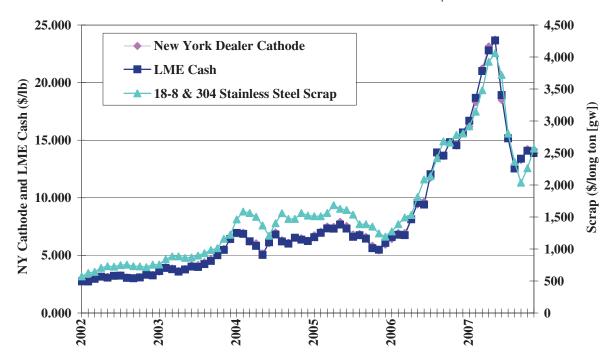
²On November 1, 2006, American Metal Market (AMM) changed its price listings for austenitic stainless steel scrap. AMM has begun reporting prices for Type 316 solids & clips and has changed its listing for 18-8 bundles, solids & clips to Type 304 solids & clips. See November 2006 AMM Scrap Iron & Steel 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. AMM monthly averages prior to July 2007 were calculated by the U.S. Geological Survey.

³American Metal Market began publishing monthly stainless consumer buying prices for the first time in its September 2007 issue. Computation of the monthly

average price is based on the number of actual working days in the month and does not include weekends and holidays. See individual issues for details.

2002-2007 AVERAGE MONTHLY PRICES

[Derived from Platts Metals Week (MW) and American Metal Market (AMM) quotations] New York dealer cathode and LME cash from MW and stainless steel scrap from AMM



2002-2007 STOCKS

End of month stocks for the London Metal Exchange (LME) actually represent opening reported stocks for the first business day of the following month

