

Base Metal Price Forecast (2016.12.26~12.30)

	LME 3-M (USD/mt)	Change	SHFE 3-M (RMB/mt)	Change	Spot Premiums/Discounts (RMB/mt)	Change
Copper	5400~5620	↓	44000~45500	↓	(-300)~(-130)	↓
Aluminum	1700~1730	→	12500~13000	→	80~160	→
Zinc	2550~2650	→	20700~21800	→	80~180	→
Lead	2050~2150	→	17800~18800	→	(-150)~200	↓
Tin	20700~21000	→	142300~146000	→	145500~148000 (spot price)	→
Nickel	10400~10900	↓	88000~92500	↓	(-200)~550	↑

Sources: SMM, LME, SHFE

Base Metals to Keep Swinging at Highs

Highlights

This past week, base metals **fell back** to find support. The **strong dollar**, with index trading around 103 after US Federal Reserve's rate hike decision, weighed down the commodity market. **Cash liquidity** in China's market is also highly watched, especially at the year-end. During the last trading week of 2016, **risk aversion and profit-taking** will dominate the market, with prices expected to **swing at highs**.

- **Copper:** This past week, LME copper **dropped and rallied** at the tail of trading, and SHFE 1702 copper **fell by a total of 3%** in the week. (Page 1)
- **Aluminum:** LME aluminum mainly moved between **USD 1,705-1,740/mt** this past week. SHFE 1702 aluminum mainly ranged between **RMB 12,600-12,900/mt** this past week. (Page 7)
- **Zinc:** LME zinc **dipped to USD 2,549/mt** at one point this past week, and SHFE 1702 zinc **dropped to RMB 20,690/mt**. (Page 9)
- **Lead:** LME lead **dropped for 5 days** in a row, down as low as USD 2,100/mt. SHFE 1702 lead mainly moved between the 40 and 60-day moving averages with weekly lowest level **at RMB 17,665/mt**. (Page 14)
- **Nickel:** LME nickel dropped below the 60-day moving average to **USD 10,565/mt** this past week, the lowest level since November 8. SHFE 1705 nickel mainly moved above the 60-day moving average on Friday and closed the week **down 5.38%** on a weekly basis. (Page 17)

News

Shanghai Spot Premiums Expand Significantly on Supply Tightness

#0 zinc prices in Shanghai traded RMB 80-16/mt above SHFE February zinc December 22, with the premiums expanding RMB 60-70/mt from a day earlier. Spot premiums rose to around RMB 100/mt in the morning session. Meanwhile, the price spread between Shanghai and Tianjin widened to RMB 215/mt.

Spot supply tightness pushed up spot premiums in Shanghai. Market inventories are low, and maintenance at zinc smelters also tightened supply. Zinc inventories in Shanghai, Guangdong and Tianjin fell from 450,000 mt early this year to 220,000 mt, SMM statistics show. Inventories in Shanghai were 95,000 mt, the lowest from September 2008.

The average operating rate at domestic zinc smelters will slide 4.7 percentage points on the month to 75.6% in December. Output at Hanzhong Zinc Industry slid in December. Arriving shipments from smelters decreased recently because of maintenance at them.

Inflows of imported zinc increased in Shanghai recently, but were still limited since import window remains closed.

On the demand front, downstream buyers purchased modestly at lows. Zinc prices fell rapidly this week. SMM #0 zinc prices averaged RMB 21,475/mt as of Thursday, down RMB 1,165/mt on a weekly basis. This drove some bargain hunters into the market.

Some traders also sourced goods for term contract delivery at the year's end.

Copper — LME Copper to Trade between USD 5,400-5,620/mt

Survey

SMM's survey of 20 domestic copper tube/pipe producers, representing 1.54 million mt/yr in capacity, shows the following:

SMM's Survey of 20 Copper Tube/Pipe Producers on Dec. 23, 2016

Capacity (kt p.a.)	Number of Manufacturers	Total Capacity (kt p.a.)	Refined Copper Consumption (kt p.m.)	Export of Copper Pipes (kt p.m.)	Raw Material Inventory/ Monthly Production	Average Operating Rate
≥100	3	1,010	68.5	9.5	81%	81%
50- 100	3	170	8.1	0.9	57%	56%
< 50	14	363	22.1	1.6	73%	74%
Total	20	1,543	98.6	11.9	77%	77%

1) Average Operating Rate up to 76.69% in November

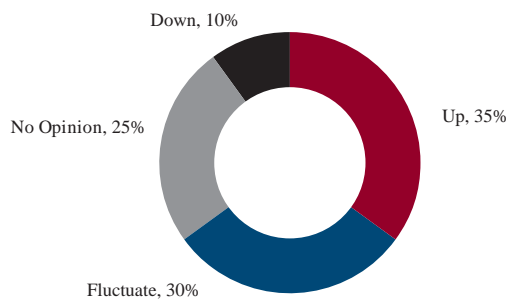
SMM's survey of 20 domestic copper tube/pipe producers showed their average operating rate was 76.69% in November, up 6.29 percentage points YoY and 3.99 percentage points MoM, the highest level so far this year. It is a busy production month for copper tube/pipe producers in November. The rarely-seen surge in copper market gave another incentive to copper tube/pipe producers, especially after market players accepted price gains in mid November, and air conditioners started replenishing goods, to avoid risks from further price gains.

2) Input Inventory Ratio Down to 12.62% in November

The ratio of raw material inventories to total production at those surveyed was 12.62% in November, flat at October's level. In early November, those producers preferred to consume on-hand inventories due to high prices, and later entered the market as the rising momentum was asserted, to avoid risks.

3) Copper Price Forecast

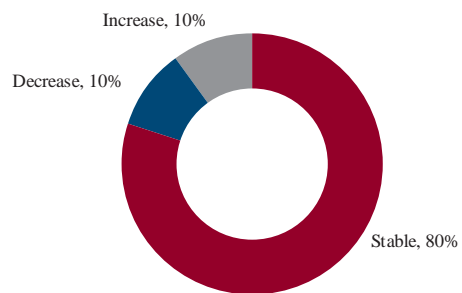
Copper Price Forecast



Source: SMM

4) Sales Forecast

Sales Forecast

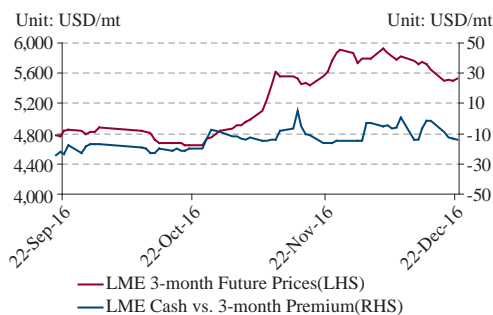


Source: SMM

Price Trends

Review

LME Copper Prices and Premium



Source: LME, SMM

LME copper started another round of price declines this past week. Market players in western countries exited from market for Christmas holiday to reduce risks and take profits. US's housing figures were positive and Bank of Japan held interest rate unchanged in December's meeting, allowing US dollar index to keep strong. The firm US dollar kept weighing down LME copper this past week. Moreover, LME copper inventory stopped 6-day rises and reduced for three days in a row since December 20, down 9,675 mt in total. Effect from falling inventory was amplified by short covering. LME copper opened the week trading at USD 5,620/mt and then dropped after meeting resistance from the moving averages. Later, LME copper swung widely at around the 40-day moving average with positions closing both by longs and shorts. The contract dipped to USD 5,419.5/mt with negative technical indicators, down 3.9%, the weekly biggest decline. LME copper railed after finding support at the lower band of Bollinger Bands. Positions reduced 22,000 due to large capital withdrawal and trading volumes fell 13,000 lots.

Capitals kept dominating China's commodity market this past week. Early the week, SHFE 1702 copper moved under pressure from tight liquidity and dropped along with falling 5-day moving average due to positions closing, and tested support at the 40-day moving average. China's central bank injected a net RMB 380 billion in total. This, together with solving of bonds scandal at Sealand Securities, eased market panic. SHFE 1702 copper remained on the downward track, but the decline slowed down. Market players preferred to take inter-day operations. The contract rallied after dropping below the 40-day moving average to RMB 44,130/mt. SHFE 1702 copper fell by a total of 3% in the week. Positions of all SHFE copper contracts increased 15,000 and trading volumes fell 300,000 lots. Despite the coming of year-end, SHFE copper market reported net capital inflows after China's central bank made cash injections into the market.

Forecast

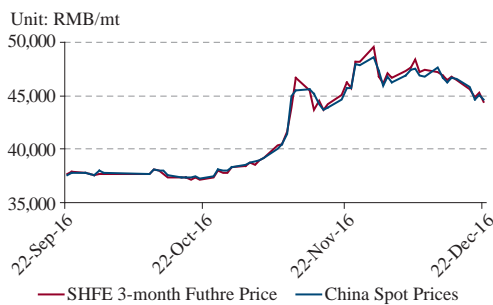
In the coming week, trading sentiment in base metal market is expected to be light due to Christmas holiday and year-end and year-end settlement at Chinese enterprises.

LME market will close on December 26 and 27 for Christmas holiday. After the holiday, market will see a light data calendar in US, only December's Conference Board's consumer confidence index and November's pending home sales. The figures are expected to remain positive, supporting US dollar index to stay at highs. Crude oil will fluctuate above USD 52/bbl and LME copper will swing widely with mixed factors.

LME copper inventory finished a 6-day rises and dropped this past week, and cancelled warrants rallied to 35.27% from 31.69% seen on Monday, indicating that copper inventory will drop further. Short covering will support LME copper. LME copper traded in a wide range this past week after dropping from highs and found support at the 5-day moving average but met strong resistance from other moving averages. Positions and trading volumes both dropped, leaving no improvement in trading. LME copper will trade between USD 5,400-5,620/mt in the coming week.

In China's domestic market, risk aversion sentiment and profits taking will dominate the market in the coming week due to year-end settlement at Chinese enterprises. After easing briefly this past week, capital will be impacted by MPA evaluation, personal demand for currency exchanges and pre-holiday cash demand, and China's central bank will keep reverse repos and MLF programme in the coming week, to ease capital pressure at the end of year. Profits at above-scale industrial enterprises will be introduced in the coming week, which is expected to be positive on a yearly basis. November's PPI growth increased 3.3% YoY, indicating that most profits were at production chain, and added value at above-scale industrial enterprises also increased on a yearly basis, a sign of enterprises' optimistic outlook toward operation. Effect from economic data will be not that big at the end of year. SHFE 1702 copper will keep swinging in the coming week with support at the 60-day moving average and resistance at the 5 and 40-day moving averages. SHFE 1612 copper will trade between RMB 44,000-45,500/mt in the coming week with taking profits by longs and negative technical indicators.

SHFE and China Copper Spot Prices



Source: SHFE, SMM

Copper Concentrate

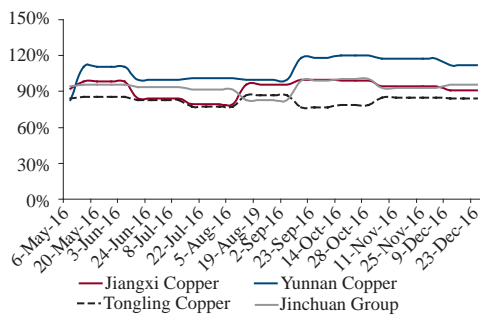
Spot TCs for clean imported copper concentrate were mainly quoted at USD 80-87/mt this past week, almost flat on a weekly basis. China Smelters Purchase Team (CSPT) members said TCs had fallen previously due to traders holding back goods. Negotiations on next year's term TCs by traders and smelters have been completed. Smelters have also built stocks for 2017 Chinese New Year holiday, so suppliers will increase in the near term. Smelters reported increased quotes by traders recently, mainly close to USD 90/mt. As such, spot TCs will rise in the near term.

The CSPT will hold a meeting December 30 to decide floor price for Q1 2017. The floor price is expected to be set at USD 90-92/mt.

Chinese mines that had closed planned to restart after copper prices rose noticeably in November. SMM learned small private mines decided to resume production after the 2017 Chinese New Year holiday. Domestic copper concentrate output will grow in Q2 2017 following restarts.

Prices of Chinese copper concentrate (Cu 20%) remained stable around 83-84% of copper prices for delivery to factory this past week, and those for Cu 25% concentrate were around 88% of copper prices for delivery to factory.

Capacity Utilization of China Major Copper Smelters



Source: SMM

Maintenance at Major Domestic Copper Smelters

Company	Capacity (1,000 mt/yr)	Starting Time	Completion Time	Notes
Chifeng Yuntong Nonferrous Metal Co., Ltd.	100	Early Jun. 2016	10 Jul. 2016	Maintenance
Baiyin Nonferrous Metal (Group) Co., Ltd.	200	Late Jul. 2016	Late Aug. 2016	Maintenance
Zhongtiaoshan Non-ferrous Metals Co., Ltd.	200	Mid Jun. 2016	Late Jul. 2016	Maintenance
Zhejiang Fuye Group Co., Ltd.	200	21 Aug. 2016	23 Sep. 2016	Maintenance
Shandong Dongying Fangyuan Nonferrous Metals Co., Ltd.	700	Late Jul. 2016	Late Aug. 2016	Maintenance
Tongling Nonferrous Metals Group Holding (Jinchang)	180	Mid Jul. 2016	Late Jul. 2016	Maintenance
Hunchun City Zijin Copper Co., Ltd.	100	28 Aug. 2016	Late Sep. 2016	Maintenance
Zhongjin Gold Corporation Limited	200	Early Sep. 2016	Late Sep. 2016	Maintenance
Minmetals (Hunan) Copper Co., Ltd.	100	Early Sep. 2016	Late Sep. 2016	Maintenance
Jiangxi Copper Company Limited.	1000	Oct. 2016	Nov. 2016	Maintenance
Jinchuan Group	400	Oct. 2016	Nov. 2016	Maintenance
Yantai Guorun Copper Industry Co., Ltd.	120	Oct. 2016	Oct. 2016	Maintenance

Source: SMM

Refined Copper Supply

Cargo holders sold actively to generate cash at the year's end, and expanded spot discounts to RMB 280-150/mt this past week. Most SOEs suspended trading due to year-end settlement and completion of term contract delivery. Spot discounts of goods with December VAT invoice narrowed to RMB 200-80/mt because of supply tightness of such goods.

Statistics of China Crude Copper Capacity Expansion

Unit: 1,000 mt

Company	New Crude Capacity	Total Capacity	Raw Materials	Production Time
Zhongtiaoshan Nonferrous Metals Group	50	150	Copper concentrate	2015
China Gold Sanmenxia Co., Ltd.	200	200	Copper concentrate	May 2015
Shandong Dongying Fangyuan Nonferrous Metals Co., Ltd.	200	400	Copper concentrate	Oct. 2015
Xinjiang Xinhui Copper	100	100	Copper concentrate	2015
Hunchun City Zijin Copper Co., Ltd.	100	100	Copper concentrate	Sep. 2015
Xiangbei Senlong Nonferrous Metals Co., Ltd.	50	50	Copper concentrate	2015
Hunan Shuikoushan Nonferrous Metals Group (Minmetals Copper (Hunan) Co., Ltd.)	100	100	Copper concentrate	Apr. 2016
Shandong Humon Smelting Co., Ltd.	140	200	Copper concentrate	Jul. 2016
Guangxi Nanguo Copper Co., Ltd.	200	200	Copper concentrate	2016
Total	1140	1500		

Source: SMM

Statistics of China Refined Copper Capacity Expansion

Unit: 1,000 mt

Company	New Refined Capacity	Total Capacity	Raw Materials	Production Time
China Gold Sanmenxia Co., Ltd.	20	20	Copper concentrate	Mid-May 2015
Xinhui Copper Co., Ltd.	10	10	Copper concentrate	2015
Tongling Nonferrous Metals Group (Zhangjiagang)	10	30	Scrap copper, blister copper	Apr. 2015
Zhongtiaoshan Nonferrous Metals Group	5	20	Copper concentrate	2015
Shandong Dongying Fangyuan Nonferrous Metals Co., Ltd.	20	70	Scrap copper, blister copper	Oct. 2015
Hunchun City Zijin Copper Co., Ltd.	10	10	Copper concentrate	Sep. 2015
Shandong Humon Smelting Co., Ltd.	12	17	Copper concentrate	Jul. 2016
Hunan Shuikoushan Nonferrous Metals Group (Minmetals Copper (Hunan) Co., Ltd.)	10	10	Copper concentrate	Apr. 2016
Shandong Xianghui Copper Co., Ltd.	10	10	Scrap copper, blister copper	May 2016
Guangxi Nanguo Copper Co., Ltd.	20	20	Copper concentrate	2017
Total	127	217		

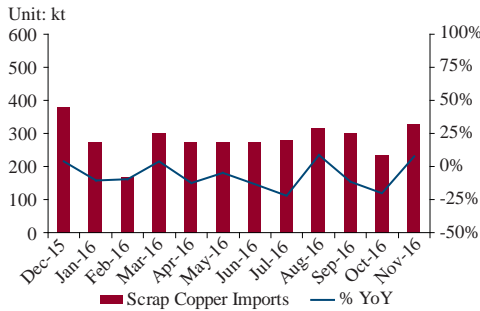
Source: SMM

Scrap Copper

Scrap copper supply remained in shortages during December 16-22. Shipments were restricted due to environmental protection factor. Meanwhile, cargo holders were reluctant to sell after copper prices fell. On the demand front, some scrap copper processors were forced to cease production. But those surviving environmental protection inspections witnessed inflows of orders. When combined with concerns over supply tightness, these scrap copper processors built stocks actively, leaving strong demand for scrap copper, despite nearing of low-demand season. Some scrap copper processors turned to refined copper given brisk orders and limited scrap copper supply. The price spread between refined and scrap copper narrowed RMB 511/mt to RMB 2,850/mt this past week. On Wednesday, all processors without environmental protection permits in Henan were forced to shut down against heavy air pollution, and production at local producers having environmental protection permits was also restricted.

CIF prices for #1 scrap copper were offered ¢17/lb below March Comex copper, and those for #2 scrap copper were offered ¢30/lb below March Comex copper.

China Scrap Copper Monthly Imports and Growth



Sources: SMM, China Customs

China Customs reported December 22 China's scrap copper imports were 327,700 mt in November, up 39.07% MoM and 7.98% YoY, the highest for the year. China stepped up environmental protection during the G20 Summit held in early September in Hangzhou, and this significantly affected domestic scrap copper dismantling, recycling and logistics. Large numbers of scraps were stockpiled at the Port of Ningbo due to strict Customs clearance, tightening scrap copper supply. Despite environmental protection issue, the peak-demand month of September helped offset negative effects from environmental protection inspections on scrap copper processors. Domestic scrap copper prices thus held firm. Besides, the import window for scrap copper opened during late August and late September. When combined with two months delivery period, scrap copper imports jumped in November. But with release of domestic scrap copper supply and yuan's sharp devaluation, import window closed again. As such, growth in scrap copper imports will unlikely sustain in the near term.

Price Spread Between Refined & Scrap Copper

Unit: RMB/mt

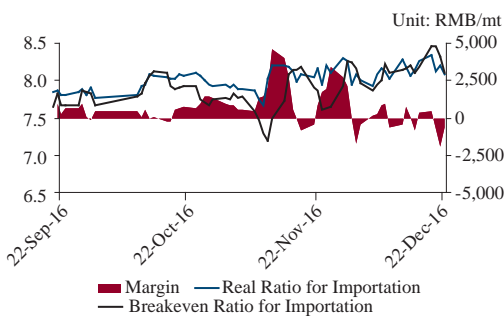
Date	Refined Copper	#1 Scrap Copper	#1 Scrap Copper	Price Spread (A-B)		Price Spread (A-C)	
	VAT Included (A)	VAT Included (B)	VAT Excluded (C)	Spread (A-B)	Reasonable	Spread (A-C)	Reasonable
12.9-12.15	46821	40070	36670	6751	4431	10151	6620
12.16-12.22	45312	39150	35750	6162	4327	9562	6487

Source: SMM

Note: 1. Price spread (A-B) for copper rod producers. Price spread (A-C) for other scrap copper smelters.

2. If price spread between refined and scrap copper is less than the SMM Reasonable Price Spread, buyers will prefer to purchase refined copper.

China Copper Import Arbitrage Ratio



Sources: SMM, LME

Refined Copper Imports

Yangshan copper premiums fell slightly this past week, and were quoted at USD 58-68/mt as of Friday, with the average down USD 2/mt on a weekly basis. The SHFE/LME copper price ratio rose slightly, but import losses remained high.

Both inquiries and quotes were limited with the nearing of Christmas holiday, leaving trading slack. Traded prices for import premiums continued falling and were close to term premiums for 2017 at one point, but failed to boost trading. Transactions will unlikely improve in the near term. As of Friday, premiums were USD 68/mt for three high-quality Chilean brands, USD 63/mt for mainstream pyro-copper and USD 58/mt for hydro-copper, priced in January.

On the bill of lading front, quotes for three high-quality Chilean brands arriving around the 2017 New Year holiday in China fell from USD 70/mt to USD 62-63/mt, priced in January, because of soft demand. Supplies of goods arriving in mid-to-late January were also sufficient, and traded prices will be dragged down by soft demand in the foreseeable future.

Downstream Demand

More downstream buyers entered the market as SHFE copper stabilized this past week. Spot discounts expanded initially and then narrowed, and trading was mainly made among traders in the latter half of the week.

Aluminum — LME Aluminum to Trade at USD 1,700-1,730/mt, and Alumina Prices Remain Strong

Price Trends

Review

Base metals dropped across the board on last Friday's night trading. LME aluminum dropped 1.46% last Friday and then kept falling to around the 60-day moving average on Tuesday. The contract rallied to the 40-day moving average after dipping to USD 1,703.5/mt on Wednesday. LME aluminum mainly moved between USD 1,705-1,740/mt this past week. SHFE 1702 aluminum dived on Monday with falling LME aluminum due to large amount of positions opening by shorts, down 2.21% totally on Monday. The contract dipped to the weekly lowest level at RMB 12,530/mt on Tuesday and rallied with positions closing by shorts. The contract mainly ranged between RMB 12,600-12,900/mt this past week.

In China's domestic market, aluminum smelters limited sales, restricting supply. Downstream buyers increased purchases on Tuesday and Wednesday as spot aluminum dropped below RMB 30,000/mt. So, spot aluminum kept trading at premiums after reversing to premiums from discounts last Friday. Spot aluminum mainly traded at premiums of RMB 75-170/mt this past week.

Forecast

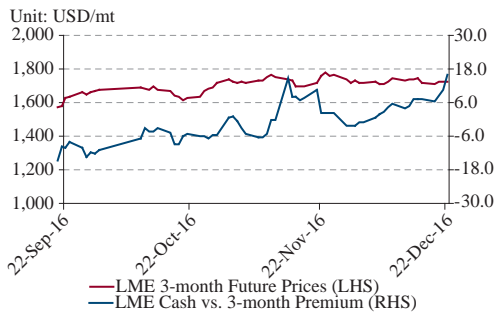
LME market will close on December 26 and 27 for Christmas in the coming week. LME aluminum will keep fluctuating as a whole with strong support at the 60-day moving average and resistance at the 40-day moving average. The contract is expected to range between USD 1,700-1,730/mt in the coming week. SHFE 1702 aluminum rallied briefly this past week due to limited selling news from aluminum smelters. The contract will meet strong resistance at RMB 13,000/mt and will move at RMB 12,500-13,000/mt with resistance at the 60-day moving average.

In China's domestic market, it is said that shipments from Xinjiang drop slightly while downstream buyers are active in purchases with prices below RMB 13,000/mt. Spot aluminum will remain premiums in the coming week, pushed by demand and supply, and is expected to trade at premiums of 80-160/mt.

Alumina

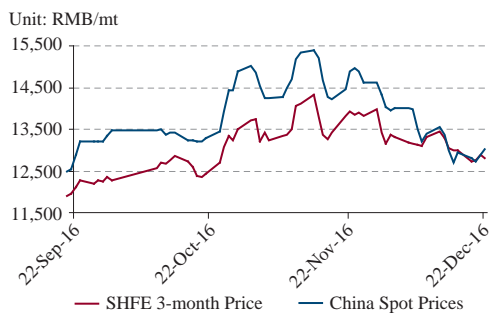
This past week, alumina prices in China's domestic market were stable, and trading was light. Prices in southwest China were still higher than other regions. SMM data showed the weighted average traded price in domestic four major alumina markets was RMB 2,970/mt on Thursday, and was RMB 2,969/mt for the week, up 0.14% on a weekly basis. Supported by firm prices of domestic alumina, FOB prices of West Australian alumina advanced USD 9/mt to USD 350/mt this past week.

LME Aluminum Prices and Premium



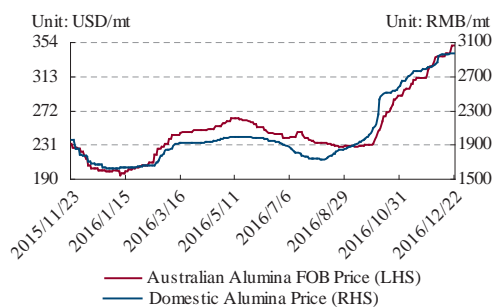
Source:LME, SMM

SHFE and China Aluminum Spot Prices



Source:SHFE, SMM

Prices of Domestic and Imported Alumina in China 2015-2016



Source: SMM

In the face of volatile aluminum price, high alumina price and squeezed profits, domestic aluminum producers will take a wait-and-see stance in raw material purchases. Release of alumina output is expected to be limited before 2016's year end, according to SMM data. It is learnt that East Hope Jinzhong Chemicals will put operation 800,000 mt-capacity in December, and Henan Pingdingshan Huiyuan Aluminum and Shandong Lubei Chemical is on the way to restart their capacities by 300,000 mt and 500,000 mt, respectively, and full recovery will not be reached until February 2017. On the other hand, aluminum capacities from newly-built or expanded projects will be continuing at the year end. SMM expects alumina prices to remain firm until Q1 2017.

Alumina Price

	Dec. 15 th	Dec. 22 nd	+/-
West Australia (FOB)	341	350	+9
At Port	2960-3020	2980-3040	+20/+20
Domestic Goods	2920-3050	2930-3070	+10/+20

Source: SMM

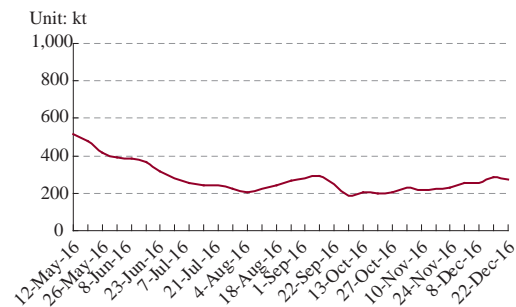
Aluminum Supply

As of December 22, aluminum ingot inventories were 85,000 mt in Shanghai, 113,000 mt in Wuxi, 75,000 mt in Nanhai, 42,000 mt in Hangzhou, and 16,000 mt in Gongyi, bringing total stocks in these five regions to 331,000 mt, up 1,700 mt on a weekly basis, growing for four weeks in a row.

The rise in inventories was due mainly to concentrate arrivals of goods and waning demand from aluminum processing enterprises, which saw orders falling, especially for construction extrusions. Meanwhile, some producers in Henan and Guangdong stopped buying aluminum ingot as environmental protection inspections in the two regions ceased production at casting lines. By region, outflows from Shanghai were the most as high spot premiums in south China attracted goods to Foshan, Guangdong. Inventories in Hangzhou were up significantly with growing shipments from Xinjiang, Gansu and Shandong. SMM learns that some aluminum producers increased shipments directly to aluminum processing enterprises, also explaining the changes in inventories at warehouses in east China.

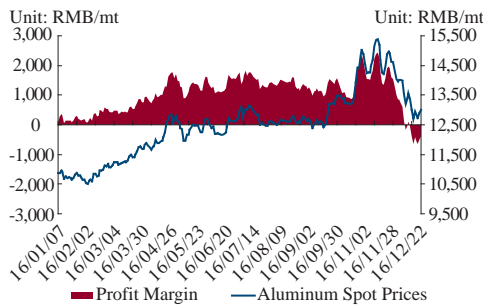
In other news, some smelters told SMM that shipments by aluminum producers from Xinjiang and Gansu were continuing falling due to maintenance at some railway lines after completing railway shipment target for 2016. And shipments of aluminum ingot are likely to increase as the 2017 railway shipment period will begin from December 25 in northwest railway line.

China Domestic Aluminum Inventories



Source: SMM

China Aluminum Smelters' Profit Margin



Sources: LME, SMM

Aluminum Costs

This past week, the average production loss was RMB 400-600/mt at domestic aluminum smelters surveyed by SMM. Prices of both alumina and prebaked anode remained high, while steam coal prices fell for seven weeks in a row to RMB 594/mt, helping aluminum producers equipped with power plants to reduce power costs. It is worth noting that coal prices will exert a small impact on power costs at aluminum producers in 4Q as producers using on-grid power did not raise power price in time. In the short term, production costs at aluminum smelters will not drop sharply due to two factors. First, power tariff in Guizhou and Henan will be raised after entering 1Q 2017. Second, supply tightness in alumina market will not ease in the short term, with prices expected to stay at highs.

Zinc — Zinc Prices to Stop Falling

Price Trends

Review

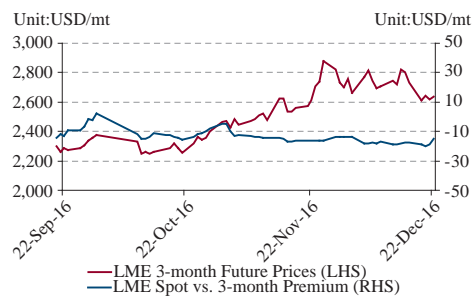
LME zinc edged down this past week. The US dollar index hit a 14-year high, weighing down base metals across the board. LME zinc fell USD 100/mt to USD 2,620 /mt, down over 4% on Monday. Longs and shorts left the market as the Christmas holiday nears. LME zinc dipped to USD 2,549/mt at one point and stayed above USD 2,600/mt level. As of Thursday, trading volumes were largely unchanged around 39,000 lots, and positions decreased 13,000 to 291,000.

The bond market fluctuated at lows early in the week due to Sealand Securities' alleged seal fraud. Market panic also affected commodity market. SHFE 1702 zinc fell around RMB 1,000/mt to below RMB 22,000/mt. With exodus of longs, SHFE 1702 zinc plummeted below RMB 21,000/mt at one point, dipping to as low as RMB 20,690/mt and then rallying to RMB 21,200/mt. As of Thursday, trading volumes on SHFE zinc were around 3.20 million lots, and positions increased 4,000 to 448,000, with short momentum stronger.

Spot discounts on #0 zinc prices in Shanghai inverted to premiums over SHFE 1702 zinc this past week, which expanded to RMB 110-130/mt. Spot discounts were RMB 30-0/mt over SHFE 1702 zinc early in the week. Downstream buyers purchased at lows as zinc prices slumped. Spot supply was limited in the latter half of the week due to low shipments from smelters. Traders thus held prices firm. Spot premiums of Jiulong, Huize and Qilin #0 zinc rose to above RMB 100/mt against SHFE 1702 zinc, and those of Shuangyan zinc were pushed up to RMB 260/mt due to scarce supply, but trading was quiet. Despite nearing of year-end settlement, some traders purchased for term contract delivery, leaving spot premiums firm. Downstream buying interest also improved.

Discounts on #0 zinc in Guangdong narrowed RMB 120/mt to RMB 150-130/mt over SHFE 1702 zinc this past week, and reached RMB 250/mt against Shanghai prices. Smelters continued selling under term contracts, and traders slowed sales and increased purchases

LME Zinc Prices and Premium



Sources: LME, SMM

in the latter half of the week. Downstream buyers purchased actively, improving trading.

Spot premiums on #0 zinc in Tianjin inverted to discounts of RMB 50/mt against Shanghai prices this past week. Smelters refrained from selling. Production at galvanizers in North China was restricted as China enhanced environmental protection inspections due to hazy weather, slowing sales by traders. Downstream demand remained weak, with trading lackluster.

Forecast

In the coming week, European and US markets will close on December 26 and 27 for Christmas and global economic data will also be light. Attention should be on profits at Chinese above-scale industrial enterprises in November, on a yearly basis, which is expected to recover, thanks to output reduction and rising profits after supply-side reform. And this will help capital flow into real economy. Tight end-year capitals will continue dominating market sentiment. People's Bank of China injected net RMB 102 million in total in 7 trading days since December 14-22, and bond market thus stopped falling and rebounded after a large amount of capital injection. Chinese central bank provided a large amount of capitals for tight liquidity at the end of year to stabilize market's sentiment, after Shibor rate advanced. But, base metals will keep fluctuating with high risk aversion sentiment at the year end.

The LME market will be closed December 26-27. A large number of investors left the market due to holiday factor. LME zinc is expected to move between USD 2,550-2,650/mt in the coming week, and SHFE 1702 zinc will fluctuate between RMB 20,700-21,800/mt.

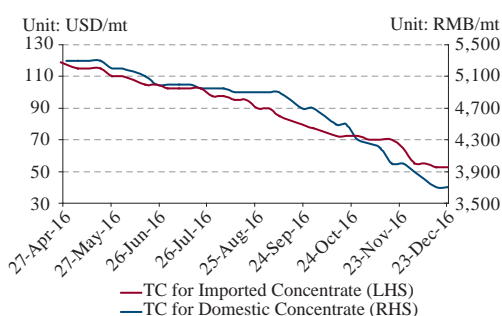
In China's spot markets, smelters hold back goods as zinc prices are low. Traders will soon complete delivery for term contracts. In this context, spot premiums will unlikely rise further. Downstream buyers will purchase as needed. Considering low inventories in Shanghai and maintenance at Hanzhong Zinc Industry, the price spread between Shuangyan and other brands will be around RMB 100/mt in the coming week. Spot premiums will be RMB 80-180/mt against SHFE 1702 zinc.

SHFE and China Zinc Spot Prices



Sources: SHFE, SMM

TC for Zinc Concentrate



Source: SMM

Zinc Concentrate

TCs of domestic zinc concentrate (50%) were traded at RMB 3,600-4,100/mt (zinc content) this past week, almost unchanged on a weekly basis. TCs for imported zinc concentrate (50%) were quoted at USD 35-40/dmt, with a few quotes at or below USD 30/mt.

Some mines completed annual production target. When combined with low temperatures, domestic mines suspended or cut production. Operations by traders were quiet. When combined with maintenance at some smelters and falling zinc prices, TCs of domestic zinc concentrate leveled out this past week.

Losses from imported ore expanded RMB 520/mt to RMB 1,380/mt (zinc content) compared with domestic ore this past week. Supplies were limited, with quotes mixed. Mainstream traded prices were USD 35-40/mt.

TCs of domestic zinc concentrate will slide further in the foreseeable future due to supply tightness.

Zinc Concentrate TC in Nov. -Dec. 2016

	Nov. 2016	Dec. 2016	MoM Changes
Imported (USD/mt)	70-90	50-70	-20
Domestic (RMB/mt)	4200-4400	3900-4200	-250

Source: SMM

Note: 50-55% zinc content in both the imported and the domestic concentrate.

Imports and Exports of Refined Zinc

The SMM/LME zinc price ratio fell 0.09 to 8.16 this past week, expanding import losses by RMB 370/mt to RMB 1,260-1,400/mt. Traded prices for import premiums were USD 130/mt, with trading weakening.

A few quotes for Spanish and Brazilian zinc were reported early in the week. Goods available were mainly AZ zinc.

Discounts of imported zinc against the average SMM #0 zinc price expanded from RMB 50-0/mt to RMB 70-10/mt this past week.

The price spread between imported and domestic zinc was below RMB 50/mt. Inflows of imported zinc were still limited over the past few weeks, and gave limited impact on domestic zinc. Trading activity weakens at the year's end, and inflows of imported zinc will remain low in the coming week.

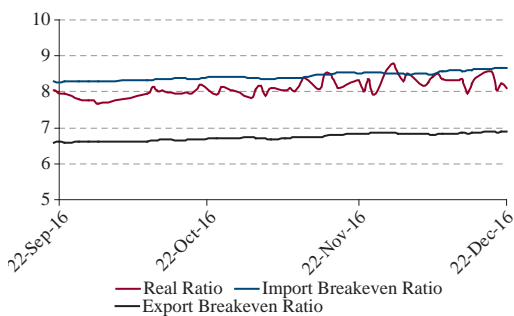
Refined Zinc Supply

Combined zinc inventories in Shanghai, Tianjin and Guangdong decreased 14,800 mt to 211,800 mt this past week. Inventories in Shanghai fell sharply due mainly to maintenance at some smelters and slowing shipments by smelters, which led to falling arriving shipments. Besides, downstream buyers purchased modestly at lows early in the week. Inventories in Guangdong fell slightly. The price spread between Shanghai and Guangdong was larger than freight charges between the two regions. This incentivized some smelters to increase shipments to Shanghai and in turn reduced arriving shipments in Guangdong.

Inventories in Tianjin were stable. Arriving shipments from smelters were normal. Outward shipments were limited as downstream buyers lacked buying interest. These downstream producers cut or suspended production due to environmental protection factor and falling orders.

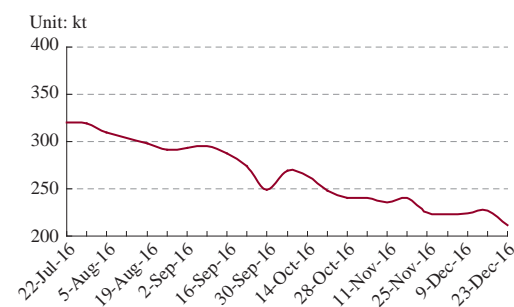
Some goods flowed to Shanghai due to expanding price spread between Shanghai and Guangdong. But availability of mainstream brands was scarce in Shanghai. Downstream buyers purchased as needed due to year-end cash tightness. In this context, total inventories in the three regions will stabilize in the coming week.

China Zinc Import & Export Arbitrage Ratio



Source: LME, SMM

China Zinc Domestic Stocks



Source: SMM

Major Zinc Smelters Ex-plant Quotation for #0 Zinc

Unit: RMB/mt

Region	Company	12/16	12/23	Up/Down	Remark	Status quo
Northeast	Liaoning Huludao Zinc Industry Company	23700	21850	-1850	ex-works #0 zinc price	normal operation
Northwest	Hanzhong Zinc Industry Company	22840	21460	-1380	#0 zinc traded price in Shanghai	maintenance
South China	Zhongjin Lingnan Nonfermet Company Limited	23420	21940	-1480	#0 zinc traded price in Guangdong	normal operation
Cetral China	Zhuye Torch Metals	23100	21820	-1280	#0 zinc traded price in Shanghai	normal operation
Southwest	Chihong Zn & Ge	22840	21365	-1475	#0 zinc traded price in Shanghai	normal operation
Cetral China	Yuguang Zinc Industry Company	22820	21365	-1455	#0 zinc traded price in Shanghai	normal operation
Southwest	Hechi Nanfang Non-ferrous Metal Smelt Co., Ltd.	22625	21065	-1560	#0 zinc traded price in Guangdong	normal operation
Northwest	Shaanxi Dongling Industry Trade Group Company	22820	21485	-1335	#0 zinc traded price in Shanghai	normal operation
North China	Chifeng NFC Zinc Industry Company	22825	21200	-1625	#0 zinc traded price in Tianjin	normal operation
North China	Bayannur Zijin Nonferrous Metals	22850	21350	-1500	#0 zinc traded price in Tianjin	normal operation

Source: SMM

Domestic #0 Zinc Prices

Unit: RMB/mt

Region	16/12/16	16/12/23	Up/Down	Inventory (kt)
Shanghai	22780-22880	21300-21500	-1430	82.4
Nanchu	22600-22650	21050-21080	-1560	107.4
Tianjin	22800-24080	21200-21850	-1915	22

Source: SMM

Operating Rates at Major Domestic Zinc Smelters

Smelters	Capacity (kt p.a.)	Month	Remark
Zhuye Torch Metals	550	2016.10	80%
Chihong Zn & Ge	440	2016.10	82%
Liaoning Huludao Zinc Industry Company	390	2016.10	68%
Hanzhong Zinc Industry Company	360	2016.10	89%
Hechi Nanfang Non-ferrous Metal Smelt Co., Ltd.	300	2016.10	100%
Yuguang Zinc Industry Company	250	2016.10	100%
Shaanxi Dongling Industry Trade Group Company	210	2016.10	100%
Chifeng NFC Zinc Industry Co., Ltd.	210	2016.10	100%
Zhongjin Lingnan Nonfermet Company Limited	200	2016.10	99%
Bayannur Zijin Nonferrous Metals	200	2016.10	100%
Sichuan Hongda	200	2016.10	37%
Shaanxi Zinc Industry Company	200	2016.10	100%
Baiyin Nonferrous Metals Company	280	2016.10	83%
Xiangyun Feilong Industry Co., Ltd.	180	2016.10	55%
Western Mining	100	2016.10	48%
Yunnan Jinding Zinc Corporation	140	2016.10	43%
Yuntong Zinc Industry Company	135	2016.10	100%
Inner Mongolia Xing'an Copper & Zinc Smelting Company	125	2016.10	96%
Yunnan Luoping Zinc & Electricity Co., Ltd.	120	2016.10	67%
Sichuan Sihuan Electrolytic Zinc Company	120	2016.10	70%
Hunan Taifeng Mining Group	105	2016.10	17%

Gansu Chengzhou Mining and Metallurgical Group	100	2016.10	94%
Anhui Tongguan Non-ferrous Metals (Chizhou) Co., Ltd.	100	2016.10	100%
Jiangxi Copper Lead & Zinc	100	2016.10	100%
Hunan Sanli Group	100	2016.10	60%
Hunan Shuikoushan Nonferrous Metals Group	70	2016.10	100%
Mengzi Mining and Zinc Smelting Limited	100	2016.10	66%
Xichang Heli Zinc	60	2016.10	23%
Jinshan Indium & Germanium Metallurgy & Chemistry Industry	60	2016.10	Shutdown
Gansu Baohui	60	2016.10	76%

Source: SMM

New Capacity in 2016

Company	Existing Capacity (10,000 mt)	New Capacity (10,000 mt)	Commissioning	Note
Mengzi Mining and Zinc Smelting Limited	70	Expand 70,000 to 100,000 mt	2016Q2	In operation
Hunan Sanli Group	60	100(existing 60,000 mt/yr will be eliminated)	2016Q1	In operation
Inner Mongolia Xing'an Copper and Zinc Smelting Limited	100	25	2016Q1	In operation
Hunan Xuanhua Zinc Industry Co., Ltd.	40	60	2016Q3	trial production
Anyang Minshan Nonferrous Metals Co., Ltd.	0	10	2016Q2	In operation
GanSu Baiyin	280	100	2016Q3	trial production
Xiangyun Feilong Industry Co., Ltd.	180	200	Indeterminate	Being planned
Xinjiang Shache Hengchang Smelting Co., Ltd.	0	100	2017	Under construction
Sichuan Huili Lead & Zinc Mine	0	100	2018	Under construction
Xilin Gol Shanjin Zinc Industry Co., Ltd.	0	100	Indeterminate	To be constructed
Inner Mongolia Xing'an Boyuan Nonferrous Metals Company	0	100	Indeterminate	To be constructed
Zhongjin Lingnan	200	200	Indeterminate	To be constructed
Yunnan Tin Group	20	100	Indeterminate	To be constructed
Xichang Heli	60	40	Indeterminate	To be constructed
Hunan Huaxin Nonferrous Metals Company	0	100	Indeterminate	To be constructed
Xinjiang Jinwang Mining Company	0	100	Indeterminate	Under construction

Source: SMM

Zinc Oxide

Quotes for zinc oxide fell RMB 1,010/mt to RMB 20,100-21,500/mt this past week. Environmental protection issue restricted production at zinc oxide plants in Hebei. But most galvanized tube/pipe producers in North China slashed or halted production. Galvanizers were unwilling to sell as zinc prices dropped.

Mainstream traded prices for zinc slag (95%) from galvanizers in North China were RMB 17,800-18,500/mt (including tax) this past week, and the price spread between zinc slag (95%) and SMM #0 zinc narrowed RMB 640/mt to RMB 3,480/mt.

Lead — LME Lead to Trade between USD 2,050-2,150/mt

Price Trends

Review

US's housing starts and building permits released last Friday both missed expectation in November, waning US dollar index. This past week, existing home sales hit a 10-year high, sending US dollar index up to around 103. Exchange rate of Chinese yuan once fell to 6.9633 and then rallied slightly. EIA crude oil inventory increased sharply unexpectedly, dragging down oil prices. LME lead dropped significantly for 5 days in a row, down as low as USD 2,100/mt.

SHFE 1702 lead dropped to around RMB 18,000/mt and then fluctuated. Treasury bond futures dipped to its daily downward limit and then hit the largest growth since listed. Tight capitals weighed down base metals in China's market. SHFE 1702 lead mainly moved between the 40 and 60-day moving averages with weekly lowest level at RMB 17,665/mt.

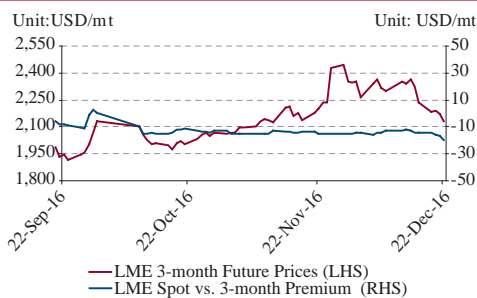
In China's domestic market, spot lead mainly traded at RMB 17,900-18,600/mt this past week. Traders in Shanghai's market sold goods actively with limited supply as SHFE 1702 lead continued falling. Spot premiums kept narrowing, against SHFE 1702 lead due to low purchase interest from battery producers at the end of year. Trading was sluggish.

Supply and demand were both quiet in Guangdong and trading was quiet. Lead smelters in Henan cut output due to environmental protection inspections, resulting in falling supply, and held back sales with low selling purchase. Moreover, downstream battery producers demand was also sluggish. Spot premiums dropped to RMB 0-50/mt, against SMM #1 average price. It is heard that lead smelters in Henan sold non-deliverable brand lead with widening premiums at RMB 300-500/mt, against SMM #1 average price. Trading remained sluggish. There were no spot goods traded in Jiangxi.

Forecast

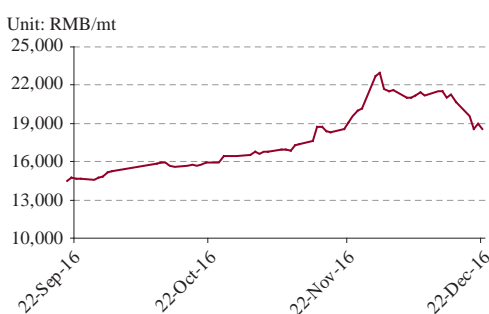
In the coming week, European and US markets will close on December 26 and 27 for Christmas and global economic data will also be light. Attention should be on profits at Chinese above-scale industrial enterprises in November, on a yearly basis, which is expected to recover, thanks to output reduction and rising profits after supply-side reform. And this will help capital flow into real economy. Tight end-year capitals will continue dominating market sentiment. People's Bank of China injected net RMB 102 million in total in 7 trading days since December 14-22, and bond market thus stopped falling and rebounded after a large amount of capital injection. Chinese central bank provided a large amount of capitals for tight liquidity at the end of year to stabilize market's sentiment, after Shibor rate advanced. But, base metals will keep fluctuating with high risk aversion sentiment at the year end.

LME Lead Prices and Premium



Sources: LME, SMM

China Lead Spot Prices



Source: SMM

LME lead will trade between USD 2,050-2,150/mt in the coming week with resistance from the moving averages and negative technical indicators.

Chinese government has shown its determination in reducing leveraging. This, combined with firm US dollar index, will weigh down SHFE lead in a short term. SHFE 1702 lead is expected to move at RMB 17,800-18,800/mt in the coming week.

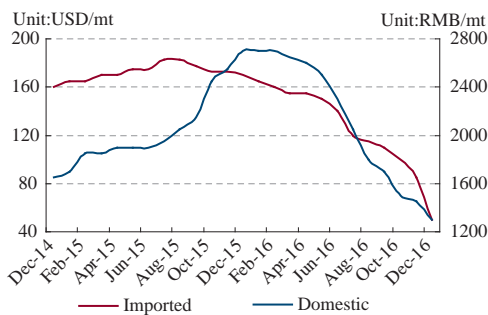
In China's domestic market, trading will remain sluggish at the end of year. Spot premiums are predicted to keep narrowing and trading will not improve in a short term. Spot lead should trade at RMB 17,800-18,800/mt in the coming week.

Lead Concentrate

TCs for Chinese 50% lead concentrate mainly traded at RMB 1,500-1,600/mt (Pb content) this past week. Imported concentrate (Pb 60%, Ag < 1,000g) staged small change this past week and mainly traded at USD 20-30/dmt, with limited offers down as low as USD 0/dmt, but no trading was heard.

The SMM/LME lead price ratio dropped slightly. More and more mines in north China suspended output with cold weather and finishing year's production target at some mines. Mines in south China couldn't restart operation due to strict environmental protection inspections. Those resulted in tight ore supply in China's market. TCs for domestic lead concentrate increased due to cash demand at mines and low purchase interest from lead smelters. Profits of imported lead concentrate narrowed with falling SMM/LME lead price ratio and rising TCs for domestic lead ore. Lead smelters thus reduced purchases, leading to quiet trading in China's market.

TC for Imported and Domestic Lead Concentrate



Source:SMM

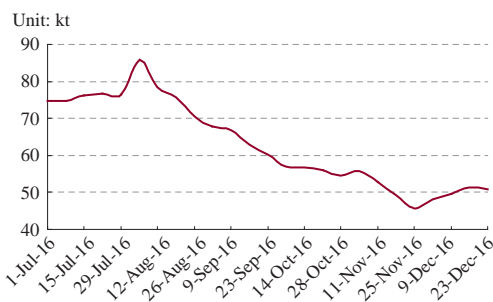
Lead Concentrate TC in Nov. -Dec. 2016

	Nov. 2016	Dec. 2016	MoM Changes
Imported (USD/mt)	80-90	40-60	-35
Domestic (RMB/mt)	1400-1500	1200-1400	-150

Source: SMM

Note: 50% lead content in the imported concentrate. 60% lead content in the domestic concentrate.

China Domestic Lead Inventories



Source:SMM

Refined Lead Supply

Henan's environmental protection department called local primary lead smelters to cut output due to heavy air pollution with 30%-50% cut at crude lead production lines. Hence, refined lead output reduced slightly. Yunnan's government asked most local smelters to remove some blast furnaces, affecting most local smelters. Yunnan Zhenxing Industry Group is operating as normal, which plans to take unit maintenance at the end of year. It should be corrected that Yunnan Tin has suspended crude lead production line and refined lead production line is still under normal operation, but at lower output.

Secondary lead supply was tight in China's market this past week because traders held back sales even at high prices. Most small secondary lead smelters in Guangdong, Hebei and Yunnan shut

down after strict environmental protection inspections. Moreover, operating enthusiasm at some small secondary lead smelters reduced at the end of year, leading to slight decline of secondary lead output. In addition, Anhui Huaxin Lead Industry Group was heard to restart output on Friday.

Inventory

Primary lead inventory in Shanghai and Guangdong dropped by 1,900 mt to 51,400 mt over this past week. Downstream battery producers purchased with low interest at the end of year as SHFE 1702 lead dropped from highs this past week, leading to low outflows and inflows. Inventory reduced slightly this past week and will keep at current level in a short term.

Downstream Demand

Downstream distributors, fearing prices to fall, were wary on purchases this past week due to low demand in China's motive battery market and large decline of lead prices. Hence, orders at battery producers reduced. Moreover, distributors strengthened promotions both in wholesale and retailing market with sluggish demand in end-user market, such as leading brand's 48v20Ah falling to RMB 600/mt. Moreover, some battery producers reduced battery prices by RMB 20-30.

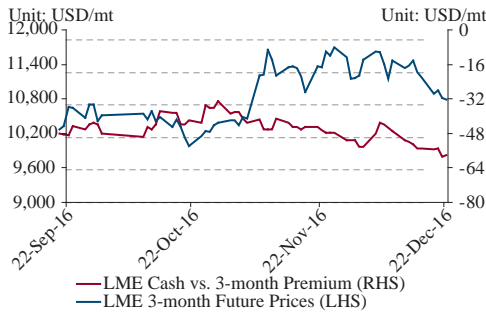
Ignition battery inventories at most distributors can be used for 2 months and some even can be used for 3 months with tough sell, resulted by quiet replacement demand in ignition battery market. Wholesale price of ignition battery reduced, such as 6-QW-45Ah dropping to RMB 260-300. Moreover, distributors' purchase interest fell sharply due to dipping lead prices. So, orders at most battery producers keep dropping with operating rate down 20%-30% and some battery producers even shut down. In other news, some battery producers in Hebei and Henan were called to cut, or suspended output due to environmental protection inspections.

Nickel — LME Nickel to Trade at USD 10,400-10,900/mt

Price Trends

Review

LME Nickel Prices and Premium



Sources: LME, SMM

China Nickel Spot Prices



Source: SMM

LME nickel dropped below the 60-day moving average to USD 10,565/mt this past week, the lowest level since November 8. The 5-day moving average of LME nickel dropped and crossed the 60-day moving average on Friday. As of 15:00 Friday, LME nickel was USD 10,680/mt, down 4.47% week-on-week. LME market will close until December 27 for Christmas holiday. SHFE 1705 nickel fell this past week. The contract dropped below the 40-day moving average on Thursday and tested support at the 60-day moving average, down as low as RMB 89,620/mt. SHFE 1705 nickel mainly moved above the 60-day moving average on Friday. The contract closed Friday's mid-day trading at RMB 90,150/mt, down 5.38% on a weekly basis. Trading volumes fell 854,000 to 2.46 million lots and positions increased 17,000 to 550,000.

In China's domestic market, the average spot price of SMM #1 refined nickel was RMB 90,930/mt, down RMB 2,910/mt on a weekly basis. Prices of Jinchuan nickel traded at premiums of RMB 0-500/mt against Wuxi's 1701 nickel contract, and those of Russian nickel traded at RMB 250-0/mt lower against the same contract. With year-end coming, some traders showed low selling interest while others, having not reached year's target, were active in the market. Premiums of Jinchuan Nickel increased significantly, but Russia nickel only traded at lower discounts as market expected supply of Russian nickel to grow with the opening of import window after import losses of imported nickel reduced sharply this past week. The price gap between Jinchuan and Russia nickel widened to around RMB 500/mt. Downstream buyers increased purchases this past week after nickel prices dropped. This past week, Jinchuan Group adjusted ex-works prices 5 times and finally closed the week lower RMB 4,400/mt to RMB 89,800/mt on a weekly basis, the lowest level since November 10.

Forecast

	Positive Factors	Negative Factors
1	Nickel ore inventories fell 230,000 wmt at major domestic ports.	The profitable import window is going to be opening, weighing down domestic market, and discounts of Russian nickel are estimated to grow.
2	Chinese yuan is continuing depreciating, supporting nickel price.	Thin demand will weigh down high-grade NPI price.
3		Stainless steel prices are down.
	Price Range	Outlook
LME nickel price	USD 10,400-10,900/mt	down slightly
SHFE three-month nickel	RMB 88,000-92,500/mt	down slightly
China spot nickel price	RMB 87,200-91,200/mt	down slightly
High-grade NPI price	RMB 950-970/mtu	drop
Low-grade NPI price	RMB 3,000-3,100/mt	stable

Source: SMM

Nickel Ore

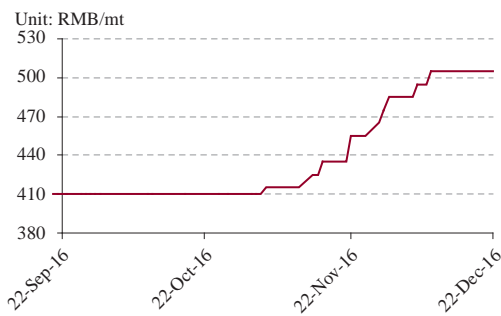
Nickel Ore Prices at China Major Ports

Date	0.9%-1.1%	1.4%-1.6%	1.6%-1.7%	1.7%-1.8%	1.8%-1.9%	1.9%-2.0%
2016/12/19	180-210	370-420	420-450	450-490	490-520	520-570
2016/12/20	180-210	370-420	420-450	450-490	490-520	520-570
2016/12/21	180-210	370-420	420-450	450-490	490-520	520-570
2016/12/22	180-210	370-420	420-450	450-490	490-520	520-570
2016/12/23	180-210	370-420	420-450	450-490	490-520	520-570
Weekly Change	0.00%	1.54%	0.00%	0.00%	0.00%	0.00%

Unit: RMB/wmt

Source: SMM

Spot Nickel Ore Prices



Source: SMM

Medium and High-Grade Nickel Ore to Hold Stable or Rise

This past week, prices for medium and high-grade nickel ore, for future delivery, held stable. The average weekly spot price of Ni 1.4%-1.6% ore was up 1.54% on a weekly basis, while that for Ni 1.8%-1.9% was stable.

Recently, a small amount of Ni 1.96% ore from Guatemala was traded at CIF price of USD 78/wmt, and traded prices offered no reference meaning due to small volumes. Currently, CIF prices for Ni 1.5% ore were offered at USD 52-53/wmt, and traded at USD 50-51/wmt. CIF prices for Ni 1.8% ore traded at USD 65-66/wmt.

Supply of Philippine ore was limited due to the monsoon season and environmental crackdowns. S.R. Languyan in Tawi-Tawi started loading and shipping, and three ships carrying medium and high-grade ore are scheduled to arrive in China in January 2017. Some traders were not sure about shipments for January 2017 due to unfavorable shipping conditions in the Philippines and congestion at ports.

Medium and high-grade ore supply is now in shortages, while domestic high-grade NPI producers show low buying interest due to on-hand inventories, with thin trading. SMM expects prices of medium and high-grade ore, for spot and future delivery, to hold stable or rise for the foreseeable future.

Low-Grade Nickel Ore Spot Prices to Inch up

This past week, prices for Ni 0.9% and Fe 49%, for spot and future delivery, held stable, with no deals reported. Currently, supply of low-grade ore for future delivery was extremely low, and low-grade NPI producers made moderate purchases, but overall trading was low. SMM expects low-grade nickel ore price, for future delivery, to hold stable in the coming week.

In the spot market, supply was mainly ore with low Ni and Fe content, and NPI producers show low buying interest in this kind of ore, with no deals reported. It was said that supply of Ni 0.9% and Fe 49% ore at port in Shandong was tight, with spot traded prices at RMB 220-230/mt, and this is estimated to push up low-grade nickel ore spot price.

FOB and CIF Prices for Philippine Nickel Ore

Unit: USD/wmt

Date	Ni 1.5%		Ni 1.8%		Ni 0.9%, Fe 49%	
	FOB	CIF	FOB	CIF	FOB	CIF
2016/12/16	54-56	65-66	40-42	50-51	13.5-14.5	21-22
2016/12/23	54-56	65-66	40-42	50-51	13.5-14.5	21-22
Weekly Change	0	0	0	0	0	0

Source: SMM

Nickel Ore Inventories Fall 230,000 Wmt at Seven Major Chinese Ports

Nickel ore inventories at seven major Chinese ports were 8.84 million wmt this past week, down 230,000 wmt on a weekly basis, according to SMM data.

Over this past week, the Port of Lianyungang saw arrivals of 80,000 wmt of goods, and new arrivals of ore to the Port of Lanshan and Lianyungang are estimated at 50,000 wmt and 150,000 wmt in the coming week, respectively.

Based on inventories at the seven major ports, SMM estimates China's total nickel ore port inventories at around 11.79 million wmt, or 96,700 mt in Ni content.

Nickel Ore Inventories at Seven Major Chinese Ports

Unit: 1,000 wmt

Date	Tianjin	Rizhao	Lanshan	Lianyungang	Jingtang	Yingkou	Lanqiao	Total
2016/12/16	2050	500	1660	2150	570	1190	950	9070
2016/12/23	2000	480	1610	2100	570	1180	900	8840
Change	-50	-20	-50	-50	0	-10	-50	-230

Source: SMM

Lateritic Stock at China Major Ports

Source: SMM

Note: The survey sample covers seven major nickel ore ports in China, including Tianjin, Rizhao, Lanshan, Lianyungang, Jingtang, Yingkou and Lanqiao.

Nickel Supply

This past week, import losses narrowed further to RMB 93.6/mt, and traders turned active in the market as a result, but offers were mixed. Actual transactions saw no obvious improvement at the year end. Import premiums are expected to edge up in the coming week with trading sentiment picking up.

Premiums for Imported Nickel

Unit: USD/mt

Date	Russian Nickel	Sumitomo Nickel
2016/12/16	110	140
2016/12/23	120	150

Source: SMM

Refined Nickel Inventories in South China

Unit: mt

	2016/12/23	2016/12/16	Change
Inventories	462	415	47

Source: SMM

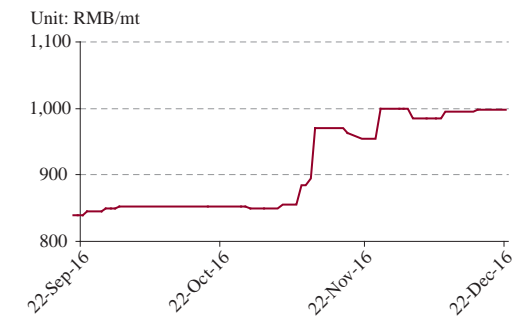
This past week, inventories of refined nickel were 462 mt in south China, up 47 mt on a weekly basis. In early week, goods purchased by traders arrived at the region, and downstream producers reduced purchases, sending up local inventories.

Nickel Pig Iron

China NPI Price (Ex-works, including tax)

Date	Ni 1.6-1.7% (Unit: RMB/mt)	Ni 4-6% (Unit: RMB/mtu)	Ni 10-15% (Unit: RMB/mtu)
2016/12/19	3000-3050	1020-1040	990-1005
2016/12/20	3000-3050	1020-1040	990-1005
2016/12/21	3000-3050	1020-1040	990-1005
2016/12/22	3000-3100	1020-1040	990-1005
2016/12/23	3000-3100	1000-1020	960-980
Change	1.17%	-0.39%	-0.35%

Source: SMM

China Domestic Nickel Pig Iron Prices

Source: SMM

High-Grade NPI Price to Weaken

The average ex-works price for high-grade NPI fell RMB 3.5/mtu or 0.35% on a weekly basis this past week.

LME nickel fell this past week. High-grade NPI prices remained steady during Monday-Thursday due to no trading. Spot nickel prices in China fell with LME nickel, expanding price spread between high-grade NPI and refined nickel. Zhangjiagang Pohang Stainless Steel lowered bid price for high-grade NPI on Thursday, pushing down market prices on Friday. A few stainless steel plants also lowered their prices.

Trading for high-grade NPI was extremely sluggish this past week as nickel prices dropped. High-grade NPI plants were unwilling to sell at lows, while stainless steel plants also lacked buying interest.

Several thousands mt of spot NPI was available at one port of Liaoning's, but buyers showed little buying interest due to high quotes.

SMM expects ex-works price for high-grade NPI to weaken in the coming week due to anemic demand from lower economics of high-grade NPI against refined nickel.

Bid Price for High-Grade NPI (Price to factory, including tax)

Company	Procurement Category	Purchase Frequency	Procurement Price (Unit: RMB/mtu)	Change (Unit: RMB/mtu)	Payment Term
Zhangjiagang Pohang Stainless Steel	NPI(8~10%)	Weekly	980/990	-30/-40	Cash on delivery
Inner Mongolia Thai Industry	NPI(8~10%)	Weekly	970	-30/-40	Cash on delivery

Source: SMM

Zhangjiagang Pohang Stainless Steel only purchased 1,000-2,000 mt of high-grade NPI this past week.

Economics of High-Grade NPI Strengthens Significantly over Refined Nickel

Premiums of high-grade NPI were RMB 82.7/mtu against refined nickel this past week, up RMB 25.6/mtu on a weekly basis. LME nickel prices declined this past week, weighing down spot nickel prices in China. As prices for medium and high-grade nickel ore stayed high, high-grade NPI prices were stable during Monday-Thursday. High-grade NPI prices dropped on Friday after stainless steel plants lowered their bid prices.

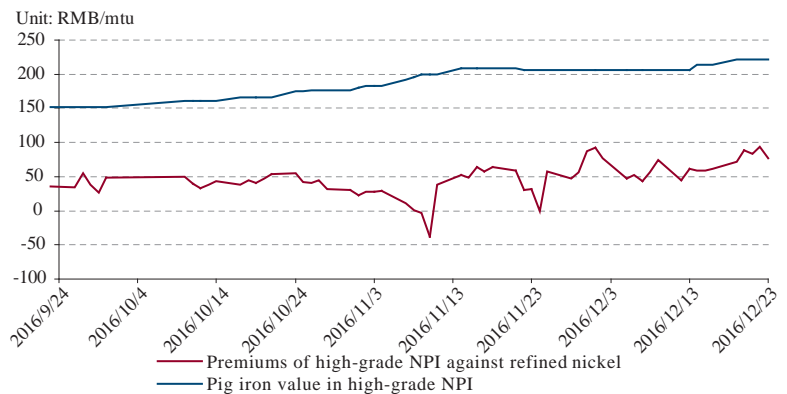
Premiums of high-grade NPI against refined nickel rose to nearly RMB 100/mtu at one point on Thursday. This incentivized some stainless steel plants to increase purchases for refined nickel.

Premiums/Discounts of High-Grade NPI against Refined Nickel

Date	Average Weekly High-Grade NPI Price (RMB/mtu)	Average Weekly SMM #1 Nickel Price (RMB/mt)	Average Weekly SMM #1 Nickel Price (RMB/mtu)	Premium/Discount (RMB/mtu)
2016/12/12-12/16	995.5	93840	938.4	57.1
2016/12/19-12/23	992	90930	909.3	82.7
Change	-3.5	-2910	-29.1	25.6

Source: SMM

Economics of High-Grade NPI vs. Refined Nickel



Source: SMM

Profitability at High-Grade NPI Shrinks Noticeably

Prices for medium-grade spot ore and ore for future delivery bought 25 days earlier jumped this past week, greatly increasing ex-works cost at high-grade NPI plants.

As the average price for high-grade NPI fell on a weekly basis, high-grade NPI plants reported shrinking profit. Considering daily cost, EAF high-grade NPI plants in Inner Mongolia had thin profits, while other EAF high-grade NPI plants all suffered losses.

Table

Product	Region	Technology	Costs (Unit: RMB/mtu)	Costs (Unit:USD/mt)	Profit Margin
NPI(8-9%)	Fujian	RKEF	876	10641	13.21%
NPI(8-9%)	Shandong	RKEF	899	10923	10.29%
NPI(8-9%)	Jiangsu	RKEF	916	11127	8.27%
NPI(8-9%)	Inner Mongolia	EAF	934	11348	6.16%
NPI(8-9%)	Jiangsu	EAF	977	11867	1.52%

Source: SMM

Note: 1. Cost (USD/mt, Ni content)=cost (RMB/mt, Ni content) *100/1.17/exchange rate/1.01(nickel import tax:1%)

2. Cost is cash cost and is based on prices of nickel ore bought 25 days earlier. 3. Cost at RKEF high-grade NPI producers is based on CIF price for nickel ore, while that at EAF high-grade NPI producers is based on spot nickel ore price at ports. 4. Above costs mean average weekly costs.

Low-Grade NPI Price to Stabilize

Ex-works price for low-grade NPI advanced this past week and was RMB 3,000-3,100/mt on Friday, with the average price up RMB 35/mt or 1.17% on a weekly basis.

Most low low-grade NPI plants remaining in production are integrated with stainless steel production. Those selling goods were mainly medium and small plants using blast furnaces. Their operating rates were low due to environmental protection inspections, leaving low-grade NPI supply limited.

Coke prices fell this past week. Based on cost for raw material bought 25 days earlier, cash cost at low-grade NPI plants was about RMB 3,020/mt, leaving extremely low profit. Falling coke prices will not help reduce cost at low-grade NPI plants any time soon.

SMM expects low-grade NPI prices to stabilize in the coming week as supplies are limited.

Stainless Steel

Cold-Rolled Stainless Steel Prices in Wuxi

Unit: RMB/mt

Date	LH/2B Coil	304/2B Coil	430/2B Coil
2016/12/16	10650	17900	10250
2016/12/23	10350	17600	10050
Change	-300	-300	-200

Source: SMM

#300 and #400 Stainless Steel Prices to Fall on Slow Sales

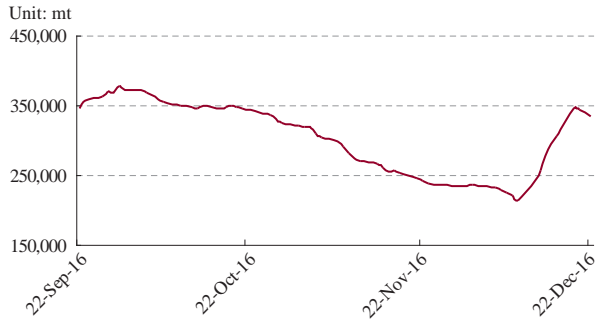
#200 stainless steel prices slid all the way this past week, and stabilized at RMB 10,350/mt at on Friday, down RMB 300/mt or 2.8% week-on-week. Angang Lianzhong Stainless Steel lowered prices for LH/2B by RMB 200/mt on Tuesday, and left prices unchanged for the rest of the week. Environmental protection inspections affected stainless steel and downstream industries recently, including kitchen and bathroom and decoration industries, leaving soft downstream demand for stainless steel. Meanwhile, traders sold off goods at due to year-end cash tightness. But with cost support, #200 stainless steel prices are expected to stabilize in the coming week, finding support from RMB 10,000/mt.

#300 stainless steel prices dropped all the way this past week. As of Friday, prices for cold-rolled #304/2B stainless steel dropped to RMB 17,600/mt, down RMB 300/mt week-on-week. Downstream buyers had hoarded stocks preciously against rising prices, so trading was quiet at present. When combined with arriving shipments of cheap resources and traders lowering prices to generate cash, #300 stainless steel prices are expected to fall further in the coming week.

#400 stainless steel prices decreased this past week. Traders sold at lower prices against weak downstream buying interest. Ferrochrome prices inched lower this past week. Raw material prices are expected to fall slightly further. When combined with quiet trading, prices for #400 stainless steel will continue falling in the coming week.

Appendix 1:

Total LME Copper Stocks



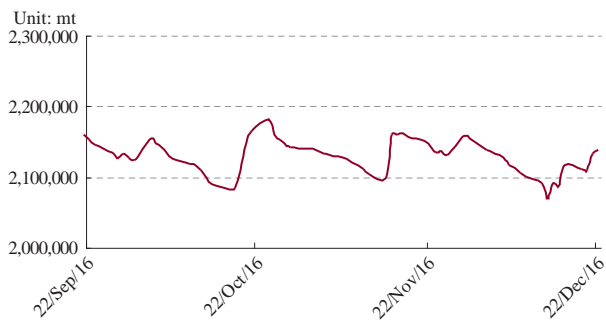
Source: LME

Total SHFE Copper Stocks



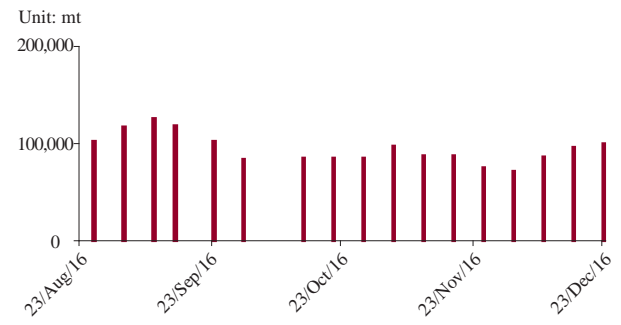
Source: SHFE

Total LME Aluminum Stocks



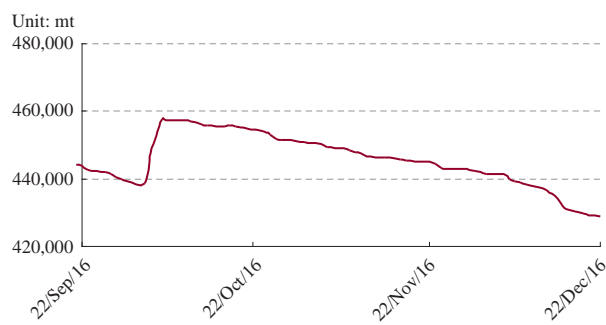
Source: LME

Total SHFE Aluminum Stocks



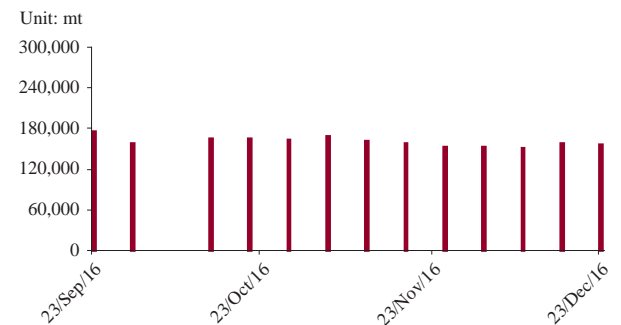
Source: SHFE

Total LME Zinc Stocks



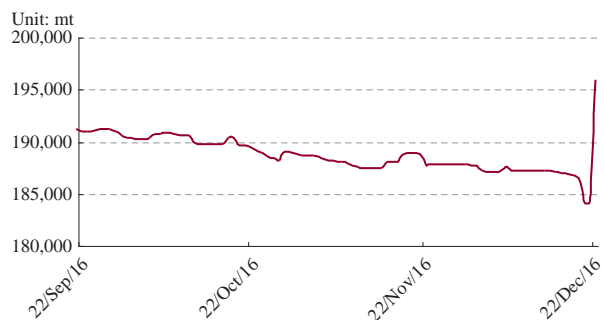
Source: LME

Total SHFE Zinc Stocks



Source: SHFE

Total LME Lead Stocks



Source: LME

Total SHFE Lead Stocks



Source: SHFE

Total LME Nickel Stocks



Source: LME

Appendix 2:

China's Copper Concentrate & Copper Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent)

	Production			Import			Export			Net Imp/(Exp)			App. Con.			
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	
Copper Concentrate	Jan 15	128.7	2%	-30%	927.9	-11%	-20%	10.3	N/A	N/A	918	-12%	-21%	1,046	-10%	-23%
	Feb 15	116.3	2%	-10%	757.7	-1%	-18%	0.0	N/A	N/A	758	-1%	-17%	874	0%	-16%
	Mar 15	141.9	-11%	22%	1322.6	41%	75%	0.0	N/A	N/A	1,323	41%	75%	1,464	34%	68%
	Apr 15	139.5	-10%	-2%	1039.3	4%	-21%	0.0	N/A	N/A	1,039	4%	-21%	1,179	2%	-20%
	May 15	156.9	-24%	12%	984.3	39%	-5%	3.6	N/A	N/A	981	38%	-6%	1,138	24%	-3%
	Jun 15	162.3	-10%	3%	988.3	0%	0%	0.0	N/A	N/A	988	0%	1%	1,151	-2%	1%
	Jul 15	153.5	-7%	-5%	970.0	8%	-2%	0.1	N/A	N/A	970	8%	-2%	1,123	5%	-2%
	Aug 15	161.4	-7%	5%	1151.9	20%	19%	0.0	N/A	N/A	1,152	20%	19%	1,313	16%	17%
	Sep 15	155.0	-15%	-4%	1210.0	-6%	5%	0.0	N/A	N/A	1,210	-6%	5%	1,365	-7%	4%
	Oct 15	155.0	-8%	0%	1052.7	10%	-13%	0.0	N/A	N/A	1,053	10%	-13%	1,208	7%	-12%
	Nov 15	153.2	-16%	-1%	1437.3	25%	37%	0.0	N/A	N/A	1,437	25%	37%	1,590	19%	32%
	Dec 15	151.2	-17%	-1%	1477.3	27%	3%	0.0	N/A	N/A	1,477	27%	3%	1,629	21%	2%
	Jan 16	122.0	-5%	-19%	1170.4	26%	-21%	0.0	N/A	N/A	1,170	28%	-21%	1,292	24%	-21%
	Feb 16	100.4	-14%	-18%	1458.2	92%	25%	0.9	N/A	N/A	1,457	92%	25%	1,558	78%	21%
	Mar 16	149.9	6%	49%	1370.0	4%	-6%	0.0	N/A	N/A	1,370	4%	-6%	1,520	4%	-2%
	Apr 16	137.6	-1%	-8%	1262.4	21%	-8%	0.0	N/A	N/A	1,262	21%	-8%	1,400	19%	-8%
	May 16	140.2	-11%	2%	1430.3	45%	13%	0.0	N/A	N/A	1,430	46%	13%	1,571	38%	12%
	Jun 16	158.5	-2%	13%	1351.1	37%	-6%	1.7	N/A	N/A	1,349	37%	-6%	1,508	31%	-4%
	Jul 16	153.7	0%	-3%	1381.0	42%	2%	0.0	N/A	N/A	1,381	42%	2%	1,535	37%	2%
	Aug 16	165.0	2%	7%	1450.5	26%	5%	0.0	N/A	N/A	1,451	26%	5%	1,616	23%	5%
Sep 16	174.0	12%	5%	1385.2	14%	-5%	1.5	N/A	N/A	1,384	14%	-5%	1,558	14%	-4%	
Oct 16	175.8	13%	1%	1363.6	30%	-2%	0.0	N/A	N/A	1,364	30%	-1%	1,539	27%	-1%	
2016 Annualized	1,477.1	0%	N/A	13622	31%	N/A	4.3	N/A	N/A	13,618	31%	N/A	15,095	27%	N/A	
Copper	Jan 15	623.4	23%	-25%	300.2	-24%	-5%	28.7	11%	N/A	272	-27%	-6%	895	2%	-20%
	Feb 15	573.9	5%	-8%	211.6	-24%	-30%	11.5	-26%	N/A	200	-24%	-26%	774	-5%	-14%
	Mar 15	636.4	7%	11%	306.7	-5%	45%	17.6	26%	N/A	289	-7%	44%	925	2%	20%
	Apr 15	603.5	3%	-5%	329.6	-3%	7%	23.5	9%	N/A	306	-4%	6%	910	1%	-2%
	May 15	652.4	6%	8%	275.4	-3%	-16%	23.9	-15%	N/A	252	-1%	-18%	904	4%	-1%
	Jun 15	695.1	11%	7%	255.1	0%	-7%	14.6	-63%	N/A	240	12%	-4%	936	12%	4%
	Jul 15	663.5	5%	-5%	259.7	6%	2%	14.9	-48%	N/A	245	13%	2%	908	7%	-3%
	Aug 15	665.0	-2%	0%	262.7	12%	1%	12.9	-35%	N/A	250	16%	2%	915	2%	1%
	Sep 15	680.2	-5%	2%	352.0	22%	34%	12.5	9%	N/A	339	22%	36%	1,020	3%	11%
	Oct 15	693.2	-5%	2%	343.5	12%	-2%	10.8	-27%	N/A	333	14%	-2%	1,026	0%	1%
	Nov 15	740.0	-2%	7%	358.7	12%	4%	19.7	0%	N/A	339	13%	2%	1,079	2%	5%
	Dec 15	771.5	-7%	4%	423.2	34%	18%	20.9	-21%	N/A	402	39%	19%	1,174	5%	9%
	Jan 16	581.1	-7%	-25%	323.9	8%	-23%	9.0	-69%	N/A	315	16%	-22%	896	0%	-24%
	Feb 16	702.9	22%	21%	328.6	55%	1%	10.8	-6%	N/A	318	59%	1%	1,021	32%	14%
	Mar 16	703.9	11%	0%	458.1	49%	39%	23.4	33%	N/A	435	50%	37%	1,139	23%	12%
	Apr 16	693.7	15%	-1%	341.7	4%	-25%	32.4	38%	N/A	309	1%	-29%	1,003	10%	-12%
	May 16	680.5	4%	-2%	319.3	16%	-7%	85.0	256%	N/A	234	-7%	-24%	915	1%	-9%
	Jun 16	685.9	-1%	1%	305.3	20%	-4%	42.6	192%	N/A	263	9%	12%	949	1%	4%
	Jul 16	721.5	9%	5%	251.2	-3%	-18%	75.0	402%	N/A	176	-28%	-33%	898	-1%	-5%
	Aug 16	743.2	12%	3%	232.1	-12%	-8%	57.3	344%	N/A	175	-30%	-1%	918	0%	2%
Sep 16	724.9	7%	-2%	242.8	-31%	5%	27.8	122%	N/A	215	-37%	23%	940	-8%	2%	
Oct 16	736.7	6%	2%	189.8	-45%	-22%	22.9	111%	N/A	167	-50%	-22%	904	-12%	-4%	
2016 Annualized	6,974.3	8%	N/A	2,993	3%	N/A	386.0	126%	N/A	2,607	-4%	N/A	9,581	4%	N/A	

Source: CNIA, China Customs, SMM Research & Consulting

The monthly output for January and February shown above is based on SMM estimates, because the NBS only released total output for the first two months. Of these, output of refined copper, copper semis, aluminum, alumina, refined lead, and refined zinc is estimated according to SMM operating rate surveys, and output of copper concentrate, aluminum semis, lead concentrate, zinc concentrate, refined nickel, refined tin and tin ore is calculated based on the number of days in the affected month.

Appendix 3:

China's Bauxite&Alumina&Aluminum Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent)

	Production			Import			Export			Net Imp/(Exp)			App. Con.			
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	
Bauxite	Jan 15	N/A	N/A	N/A	2,588	-68%	-20%	0.0	N/A	N/A	2,588	-68%	-20%	N/A	N/A	N/A
	Feb 15	N/A	N/A	N/A	3,025	-6%	17%	0.0	N/A	N/A	3,025	-6%	17%	N/A	N/A	N/A
	Mar 15	N/A	N/A	N/A	4,443	143%	47%	0.0	N/A	N/A	4,443	143%	47%	N/A	N/A	N/A
	Apr 15	N/A	N/A	N/A	4,719	199%	6%	0.0	N/A	N/A	4,719	199%	6%	N/A	N/A	N/A
	May 15	N/A	N/A	N/A	3,832	81%	-19%	0.0	N/A	N/A	3,832	81%	-19%	N/A	N/A	N/A
	Jun 15	N/A	N/A	N/A	4,041	38%	5%	0.0	N/A	N/A	4,041	38%	5%	N/A	N/A	N/A
	Jul 15	N/A	N/A	N/A	5,062	64%	25%	0.0	N/A	N/A	5,062	64%	25%	N/A	N/A	N/A
	Aug 15	N/A	N/A	N/A	4,577	83%	-10%	0.0	N/A	N/A	4,577	83%	-10%	N/A	N/A	N/A
	Sep 15	N/A	N/A	N/A	6,814	139%	49%	0.0	N/A	N/A	6,814	139%	49%	N/A	N/A	N/A
	Oct 15	N/A	N/A	N/A	4,476	75%	-34%	0.0	N/A	N/A	4,476	75%	-34%	N/A	N/A	N/A
	Nov 15	N/A	N/A	N/A	5,417	111%	21%	0.0	N/A	N/A	5,417	111%	21%	N/A	N/A	N/A
	Dec 15	N/A	N/A	N/A	7,107	119%	31%	0.0	N/A	N/A	7,107	119%	31%	N/A	N/A	N/A
	Jan 16	N/A	N/A	N/A	5,303	105%	-25%	0.0	N/A	N/A	5,303	105%	-25%	N/A	N/A	N/A
	Feb 16	N/A	N/A	N/A	3,222	7%	-39%	0.0	N/A	N/A	3,222	7%	-39%	N/A	N/A	N/A
	Mar 16	N/A	N/A	N/A	5,109	15%	59%	0.0	N/A	N/A	5,109	15%	59%	N/A	N/A	N/A
	Apr 16	N/A	N/A	N/A	4,407	-7%	-14%	0.0	N/A	N/A	4,407	-7%	-14%	N/A	N/A	N/A
	May 16	N/A	N/A	N/A	3,848	0%	-13%	0.0	N/A	N/A	3,848	0%	-13%	N/A	N/A	N/A
	Jun 16	N/A	N/A	N/A	3,506	-13%	-9%	0.0	N/A	N/A	3,506	-13%	-9%	N/A	N/A	N/A
	Jul 16	N/A	N/A	N/A	3,634	-28%	4%	0.0	N/A	N/A	3,634	-28%	4%	N/A	N/A	N/A
	Aug 16	N/A	N/A	N/A	4,458	-3%	23%	0.0	N/A	N/A	4,458	-3%	23%	N/A	N/A	N/A
Sep 16	N/A	N/A	N/A	4,467	-34%	0%	0.0	N/A	N/A	4,467	-34%	0%	N/A	N/A	N/A	
Oct 16	N/A	N/A	N/A	4,278	-4%	-4%	0.0	N/A	N/A	4,278	-4%	-4%	N/A	N/A	N/A	
2016 Annualized	N/A	N/A	N/A	42,231	-3%	N/A	0.0	N/A	N/A	42,231	-3%	N/A	N/A	N/A	N/A	
Alumina	Jan 15	4,470	16%	4%	385.2	-40%	-40%	4.4	-89%	95%	381	-37%	-40%	4,851	9%	-2%
	Feb 15	4,037	16%	-10%	329.7	-29%	-14%	4.1	326%	-9%	326	-30%	-14%	4,363	10%	-10%
	Mar 15	4,803	24%	19%	218.2	-42%	-34%	1.4	-79%	-66%	217	-41%	-33%	5,020	18%	15%
	Apr 15	4,780	29%	0%	315.9	-47%	45%	1.5	-62%	7%	314	-47%	45%	5,094	19%	1%
	May 15	4,654	18%	-3%	340.5	9%	8%	34.2	-4%	2172%	306	11%	-3%	4,961	18%	-3%
	Jun 15	4,809	24%	3%	223.3	-40%	-34%	21.2	406%	-38%	202	-45%	-34%	5,011	18%	1%
	Jul 15	4,651	18%	-3%	545.2	18%	144%	2.0	-67%	-91%	543	19%	169%	5,194	18%	4%
	Aug 15	4,877	25%	5%	405.8	16%	-26%	52.2	654%	2528%	354	3%	-35%	5,231	23%	1%
	Sep 15	4,740	22%	-3%	378.2	10%	-7%	67.3	1981%	29%	311	-9%	-12%	5,051	20%	-3%
	Oct 15	4,733	14%	0%	581.5	114%	54%	18.9	454%	-72%	563	110%	81%	5,296	19%	5%
	Nov 15	4,798	15%	1%	386.0	-13%	-34%	78.1	1803%	312%	308	-30%	-45%	5,106	10%	-4%
	Dec 15	5,002	16%	4%	544.1	-15%	41%	7.2	218%	-91%	537	-16%	74%	5,538	12%	8%
	Jan 16	4,941	11%	-1%	507.5	32%	-7%	14.2	219%	96%	493	30%	-8%	5,435	12%	-2%
	Feb 16	4,622	14%	-6%	372.4	13%	-27%	1.4	-66%	-90%	371	14%	-25%	4,993	14%	-8%
	Mar 16	4,787	0%	4%	359.8	65%	-3%	6.0	330%	339%	354	63%	-5%	5,141	2%	3%
	Apr 16	4,865	2%	2%	102.6	-68%	-71%	18.1	1104%	201%	85	-73%	-76%	4,950	-3%	-4%
	May 16	4,954	6%	2%	175.4	-49%	71%	3.9	-89%	-78%	171	-44%	103%	5,126	3%	4%
	Jun 16	5,057	5%	2%	160.8	-28%	-8%	3.1	-85%	-21%	158	-22%	-8%	5,215	4%	2%
	Jul 16	5,044	8%	0%	219.9	-60%	37%	4.6	133%	49%	215	-60%	37%	5,259	1%	1%
	Aug 16	5,061	4%	0%	128.7	-68%	-41%	4.3	-92%	-7%	124	-65%	-42%	5,186	-1%	-1%
Sep 16	5,183	9%	2%	142.5	-62%	11%	26.9	-60%	527%	116	-63%	-7%	5,298	5%	2%	
Oct 16	5,367	13%	4%	229.1	-61%	61%	19.3	2%	-28%	210	-63%	82%	5,577	5%	5%	
2016 Annualized	49,883	7%	N/A	2,399	-36%	N/A	101.8	-51%	N/A	2,297	-35%	N/A	52,180	4%	N/A	

Source: CNIA, China Customs, SMM Research & Consulting

The monthly output for January and February shown above is based on SMM estimates, because the NBS only released total output for the first two months. Of these, output of refined copper, copper semis, aluminum, alumina, refined lead, and refined zinc is estimated according to SMM operating rate surveys, and output of copper concentrate, aluminum semis, lead concentrate, zinc concentrate, refined nickel, refined tin and tin ore is calculated based on the number of days in the affected month.

China's Bauxite&Alumina&Aluminum Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent) (continue)

	Production			Import			Export			Net Imp/(Exp)			App. Con.		
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM
Jan 15	2,439	23%	12%	5.2	-90%	181%	0.6	-94%	-37%	5	-90%	397%	2,444	21%	12%
Feb 15	2,203	23%	-10%	6.6	-88%	27%	1.1	-78%	89%	5.5	-89%	19%	2,209	20%	-10%
Mar 15	2,563	29%	16%	10.6	-74%	61%	15.6	75%	1323%	-5.0	-115%	-191%	2,558	27%	16%
Apr 15	2,587	37%	1%	17.5	-50%	65%	1.6	-85%	-90%	15.9	-34%	-419%	2,603	36%	2%
May 15	2,668	41%	3%	6.7	-72%	-62%	0.6	-97%	-62%	6.1	60%	-62%	2,674	41%	3%
Jun 15	2,756	41%	3%	7.1	-52%	5%	0.9	-84%	43%	6.2	-31%	2%	2,762	41%	3%
Jul 15	2,720	38%	-1%	15.5	10%	119%	1.6	-80%	83%	13.9	125%	124%	2,734	38%	-1%
Aug 15	2,749	36%	1%	21.8	157%	41%	0.7	-94%	-54%	21.1	-550%	52%	2,770	37%	1%
Sep 15	2,716	33%	-1%	10.6	98%	-51%	0.2	-97%	-70%	10.4	-512%	-51%	2,726	34%	-2%
Oct 15	2,675	28%	-1%	34.9	507%	228%	1.2	-66%	433%	33.8	1354%	224%	2,709	30%	-1%
Nov 15	2,683	26%	0%	11.7	138%	-67%	2.6	-4%	125%	9.0	319%	-73%	2,692	26%	-1%
Dec 15	2,531	16%	-6%	4.5	141%	-62%	3.5	281%	33%	1.0	3%	-89%	2,532	16%	-6%
Aluminum															
Jan 16	2,437	0%	-4%	6.5	25%	46%	5.2	787%	47%	1	-71%	42%	2,438	0%	-4%
Feb 16	2,280	3%	-6%	4.3	-35%	-34%	3.0	172%	-42%	1	-76%	-2%	2,281	3%	-6%
Mar 16	2,618	2%	15%	3.3	-69%	-23%	5.2	-67%	74%	(2)	-63%	-239%	2,616	2%	15%
Apr 16	2,569	-1%	-2%	4.9	-72%	47%	0.2	-91%	-97%	5	-70%	-355%	2,573	-1%	-2%
May 16	2,675	0%	4%	2.0	-71%	-60%	0.0	-95%	-81%	2	-68%	-59%	2,677	0%	4%
Jun 16	2,686	-3%	0%	13.9	96%	604%	1.1	21%	3583%	13	107%	559%	2,699	-2%	1%
Jul 16	2,659	-2%	-1%	18.8	21%	35%	1.1	-31%	4%	18	27%	38%	2,676	-2%	-1%
Aug 16	2,713	-1%	2%	10.0	-54%	-47%	0.8	6%	-29%	9	-56%	-48%	2,722	-2%	2%
Sep 16	2,751	1%	1%	13.0	22%	30%	0.2	-21%	-78%	13	23%	39%	2,764	1%	2%
Oct 16	2,727	2%	-1%	10.6	-70%	-18%	0.0	-98%	-84%	11	-69%	-17%	2,738	1%	-1%
2016 Annualized	26,115	0%	N/A	87.4	-36%	N/A	16.7	-31%	N/A	70.7	-37%	N/A	26,186	0%	N/A

Source: CNIA, China Customs, SMM Research & Consulting

The monthly output for January and February shown above is based on SMM estimates, because the NBS only released total output for the first two months. Of these, output of refined copper, copper semis, aluminum, alumina, refined lead, and refined zinc is estimated according to SMM operating rate surveys, and output of copper concentrate, aluminum semis, lead concentrate, zinc concentrate, refined nickel, refined tin and tin ore is calculated based on the number of days in the affected month.

Appendix 4:

China's Zinc Concentrate&Zinc Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent)

	Production			Import			Export			Net Imp/(Exp)			App. Con.		
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM
Zinc Concentrate															
Jan 15	338.5	8%	-26%	286.9	29%	-11%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Feb 15	178.1	-35%	-47%	203.5	17%	-29%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 15	428.9	-12%	141%	237.3	54%	17%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Apr 15	427.0	-8%	0%	233.3	85%	-2%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 15	463.9	-11%	9%	224.9	110%	-4%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jun 15	489.4	-14%	5%	239.8	51%	7%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jul 15	437.0	-9%	-11%	302.3	83%	26%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aug 15	444.3	-9%	2%	291.5	102%	-4%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sep 15	438.3	-15%	-1%	347.4	59%	19%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oct 15	388.2	-19%	-11%	320.5	44%	-8%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nov 15	380.4	-21%	-2%	326.4	73%	2%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dec 15	400.3	-13%	5%	231.2	-28%	-29%	#N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2016 Annualized	3,850	-5%	N/A	1,552.1	-42%	N/A	#N/A	N/A	N/A	#N/A	#N/A	N/A	#N/A	#N/A	N/A
Zinc															
Jan 15	511.2	19%	-5%	23.7	-74%	36%	16.2	3723%	7%	7.5	-92%	221%	519	0%	-4%
Feb 15	455.9	61%	-11%	17.3	-55%	-27%	10.4	520000%	-36%	6.9	-82%	-8%	463	44%	-11%
Mar 15	491.0	12%	8%	40.9	-40%	136%	12.9	#DIV/0!	24%	28.0	-59%	306%	519	2%	12%
Apr 15	521.7	15%	6%	51.2	-21%	25%	12.7	5591%	-1%	38.5	-40%	37%	560	8%	8%
May 15	531.5	15%	2%	44.6	-8%	-13%	7.5	1961%	-41%	37.1	-23%	-4%	569	12%	2%
Jun 15	559.5	14%	5%	19.8	-71%	-55%	11.2	212%	50%	8.6	-87%	-77%	568	3%	0%
Jul 15	506.7	-2%	-9%	34.4	-17%	73%	9.8	-2%	-13%	24.6	-22%	185%	531	-3%	-6%
Aug 15	531.0	9%	5%	33.7	-42%	-2%	5.9	-72%	-40%	27.8	-26%	13%	559	7%	5%
Sep 15	536.7	6%	1%	41.4	44%	23%	4.6	-82%	-22%	36.7	977%	32%	573	12%	3%
Oct 15	528.9	2%	-1%	72.3	189%	75%	2.3	-91%	-50%	70.0	-9495%	91%	599	16%	4%
Nov 15	536.5	-2%	1%	69.6	268%	-4%	1.9	-94%	-20%	67.8	-758%	-3%	604	12%	1%
Dec 15	485.7	-10%	-9%	94.4	441%	36%	0.4	-97%	-77%	94.0	3936%	39%	580	7%	-4%
2016 Annualized	5,153	0%	N/A	375.5	-1%	N/A	17.2	-82%	N/A	358.4	25%	N/A	5,511	1%	N/A
Jan 16	476.5	-7%	-2%	59.3	150%	-37%	1.0	-94%	133%	58.3	679%	-38%	535	3%	-8%
Feb 16	467.3	2%	-2%	44.7	158%	-25%	0.1	-99%	-93%	44.6	548%	-23%	512	11%	-4%
Mar 16	501.6	2%	7%	77.0	88%	72%	3.6	-72%	4781%	73.4	162%	65%	575	11%	12%
Apr 16	503.9	-3%	0%	39.1	-24%	-49%	2.1	-84%	-41%	37.0	-4%	-50%	541	-3%	-6%
May 16	533.4	0%	6%	39.2	-12%	0%	2.0	-74%	-6%	37.2	0%	0%	571	0%	5%
Jun 16	541.1	-3%	1%	32.6	65%	-17%	2.4	-79%	22%	30.2	251%	-19%	571	1%	0%
Jul 16	506.4	0%	-6%	16.8	-51%	-48%	2.1	-78%	-10%	14.7	-40%	-51%	521	-2%	-9%
Aug 16	516.7	-3%	2%	25.3	-25%	50%	1.3	-78%	-39%	24.0	-14%	64%	541	-3%	4%
Sep 16	551.0	3%	7%	16.5	-60%	-35%	1.5	-69%	12%	15.0	-59%	-37%	566	-1%	5%
Oct 16	554.9	5%	1%	25.0	-65%	52%	1.2	-49%	-18%	23.8	-66%	59%	579	-3%	2%
2016 Annualized	5,153	0%	N/A	375.5	-1%	N/A	17.2	-82%	N/A	358.4	25%	N/A	5,511	1%	N/A

Source: CNIA, China Customs, SMM Research & Consulting

The monthly output for January and February shown above is based on SMM estimates, because the NBS only released total output for the first two months. Of these, output of refined copper, copper semis, aluminum, alumina, refined lead, and refined zinc is estimated according to SMM operating rate surveys, and output of copper concentrate, aluminum semis, lead concentrate, zinc concentrate, refined nickel, refined tin and tin ore is calculated based on the number of days in the affected month.

Appendix 5:

China's Lead Concentrate&Lead Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent)

	Production			Import			Export			Net Imp/(Exp)			App. Con.			
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	
Lead Concentrate	Jan 15	165.8	10%	-42%	130.9	-12%	-23%	0.0	N/A	N/A	130.9	-12%	-20%	297	-1%	-34%
	Feb 15	66.3	-51%	-60%	121.5	39%	-7%	0.0	N/A	N/A	121.5	39%	-7%	188	-16%	-37%
	Mar 15	191.0	-18%	188%	151.6	-3%	25%	1.0	N/A	N/A	150.6	-4%	24%	342	-13%	82%
	Apr 15	211.9	-6%	11%	126.9	31%	-16%	2.0	N/A	N/A	124.9	29%	-17%	337	5%	-1%
	May 15	265.8	3%	25%	132.9	-5%	5%	3.0	N/A	N/A	129.9	-7%	4%	396	-1%	17%
	Jun 15	250.2	-21%	-6%	103.7	-34%	-22%	4.0	N/A	N/A	99.7	-36%	-23%	350	-26%	-12%
	Jul 15	224.5	-18%	-10%	130.5	-21%	26%	5.0	N/A	N/A	125.5	-23%	26%	350	-20%	0%
	Aug 15	221.3	-21%	-1%	132.3	-14%	1%	6.0	N/A	N/A	126.3	-16%	1%	348	-19%	-1%
	Sep 15	229.3	-22%	4%	231.6	14%	75%	7.0	N/A	N/A	224.6	13%	78%	454	-8%	31%
	Oct 15	177.6	-33%	-23%	205.0	16%	-11%	8.0	N/A	N/A	197.0	15%	-12%	375	-14%	-17%
	Nov 15	181.4	-35%	2%	246.2	53%	20%	9.0	N/A	N/A	237.2	53%	20%	419	-4%	12%
	Dec 15	181.7	-36%	0%	188.9	11%	-23%	10.0	N/A	N/A	178.9	10%	-25%	361	-19%	-14%
	Jan 16	124.6	-25%	-31%	94.9	-27%	-50%	0.0	N/A	N/A	94.9	-27%	-50%	219	-26%	-41%
	Feb 16	90.2	36%	-28%	130.3	7%	37%	0.0	N/A	N/A	130.3	7%	37%	221	17%	1%
	Mar 16	217.2	14%	141%	110.5	-27%	-15%	0.0	N/A	N/A	110.5	-27%	-15%	328	-4%	49%
	Apr 16	185.4	-13%	-15%	93.1	-27%	-16%	0.0	N/A	N/A	93.1	-27%	-16%	279	-18%	-15%
	May 16	195.1	-27%	5%	104.3	-21%	12%	0.0	N/A	N/A	104.3	-21%	12%	299	-25%	7%
	Jun 16	214.7	-14%	10%	144.1	39%	38%	0.0	N/A	N/A	144.1	39%	38%	359	1%	20%
	Jul 16	190.8	-15%	-11%	102.9	-21%	-29%	0.0	N/A	N/A	102.9	-21%	-29%	294	-17%	-18%
	Aug 16	198.7	-10%	4%	152.5	15%	48%	0.0	N/A	N/A	152.5	15%	48%	351	-1%	20%
Sep 16	221.2	-4%	11%	108.5	-53%	-29%	0.0	N/A	N/A	108.5	-53%	-29%	330	-28%	-6%	
Oct 16	220.3	24%	0%	106.5	-48%	-2%	1.0	N/A	N/A	105.5	-49%	-3%	326	-15%	-1%	
2016 Annualized	1,858.4	-7%	N/A	1,147.7	-22%	N/A	1.0	N/A	N/A	1,146.7	-22%	N/A	3,005	-13%	N/A	
Lead	Jan 15	353.7	-8%	9%	0.0	-54%	300%	2.2	50%	-44%	-2.1	52%	-44%	352	-8%	10%
	Feb 15	301.3	4%	-15%	0.0	1025%	275%	3.0	-12%	40%	-3.0	-13%	38%	298	4%	-15%
	Mar 15	340.2	-10%	13%	0.0	-94%	-93%	5.6	125%	87%	-5.6	129%	90%	335	-11%	12%
	Apr 15	332.0	2%	-2%	0.0	-63%	0%	6.4	86%	15%	-6.4	87%	15%	326	1%	-3%
	May 15	357.4	-5%	8%	0.0	117%	333%	4.9	114%	-25%	-4.8	114%	-25%	353	-6%	8%
	Jun 15	382.2	-6%	7%	0.0	-58%	38%	4.4	69%	-9%	-4.4	71%	-9%	378	-6%	7%
	Jul 15	319.7	-9%	-16%	0.0	8%	-22%	4.1	3%	-7%	-4.1	3%	-7%	316	-9%	-16%
	Aug 15	318.6	-8%	0%	0.1	1213%	650%	3.9	28%	-5%	-3.8	25%	-7%	315	-9%	0%
	Sep 15	313.6	-11%	-2%	0.2	4240%	107%	5.3	116%	36%	-5.1	108%	34%	309	-12%	-2%
	Oct 15	322.1	-10%	3%	0.1	178%	-71%	2.3	91%	-56%	-2.2	89%	-56%	320	-11%	4%
	Nov 15	340.8	-11%	6%	0.2	920%	219%	2.4	-49%	2%	-2.2	-54%	-4%	339	-10%	6%
	Dec 15	313.8	-3%	-8%	0.3	9800%	46%	5.3	36%	122%	-5.0	29%	129%	309	-4%	-9%
	Jan 16	387.6	10%	23%	0.0	-100%	-100%	3.2	49%	-39%	-3.2	50%	-35%	384	9%	24%
	Feb 16	193.8	-36%	-50%	0.0	-93%	#DIV/0!	3.2	6%	0%	-3.2	8%	-1%	191	-36%	-50%
	Mar 16	348.5	2%	80%	0.0	100%	100%	4.9	-14%	52%	-4.8	-14%	52%	344	3%	80%
	Apr 16	340.8	3%	-2%	0.1	3333%	1617%	0.8	-88%	-84%	-0.7	-90%	-86%	340	4%	-1%
	May 16	347.0	-3%	2%	0.0	0%	-87%	2.3	-53%	198%	-2.3	-53%	242%	345	-2%	1%
	Jun 16	369.0	-3%	6%	0.0	-50%	-31%	0.6	-86%	-73%	-0.6	-86%	-73%	368	-2%	7%
	Jul 16	369.0	15%	0%	0.0	-64%	-44%	0.1	-98%	-85%	-0.1	-98%	-86%	369	17%	0%
	Aug 16	350.9	10%	-5%	0.0	-72%	480%	0.0	-100%	-97%	0.0	-101%	-129%	351	11%	-5%
Sep 16	358.2	14%	2%	0.1	-76%	83%	0.1	-98%	3367%	-0.1	-99%	-296%	358	16%	2%	
Oct 16	389.5	21%	9%	0.0	-69%	-62%	0.0	-100%	-92%	0.0	-101%	-124%	390	22%	9%	
2016 Annualized	3,454	3%	N/A	0.2	-51%	N/A	15.1	-64%	N/A	-14.9	-64%	N/A	3,439	4%	N/A	

Source: CNIA, China Customs, SMM Research & Consulting

The monthly output for January and February shown above is based on SMM estimates, because the NBS only released total output for the first two months. Of these, output of refined copper, copper semis, aluminum, alumina, refined lead, and refined zinc is estimated according to SMM operating rate surveys, and output of copper concentrate, aluminum semis, lead concentrate, zinc concentrate, refined nickel, refined tin and tin ore is calculated based on the number of days in the affected month.

Appendix 6:

China's Nickel Concentrate& Nickel Apparent Consumption, Jan. 2015 - Oct. 2016 (Tons in Thousands, Percent)

	Production			Import			Export			Net Imp/(Exp)			App. Con.		
	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM	kt	% YoY	% MoM
Nickel Ore															
Jan 15	-	-	-	1,153	-84%	-53%	-	-	-	1,153	-84%	-53%	1,153	-84%	-53%
Feb 15	-	-	-	949	-73%	-18%	-	-	-	949	-73%	-18%	949	-73%	-18%
Mar 15	-	-	-	1,733	-24%	83%	-	-	-	1,733	-24%	83%	1,733	-24%	83%
Apr 15	-	-	-	3,081	38%	78%	-	-	-	3,081	38%	78%	3,081	38%	78%
May 15	-	-	-	3,247	-20%	5%	-	-	-	3,247	-20%	5%	3,247	-20%	5%
Jun 15	-	-	-	4,323	18%	33%	-	-	-	4,323	18%	33%	4,323	18%	33%
Jul 15	-	-	-	4,980	-2%	15%	-	-	-	4,980	-2%	15%	4,980	-2%	15%
Aug 15	-	-	-	3,901	-28%	-22%	-	-	-	3,901	-28%	-22%	3,901	-28%	-22%
Sep 15	-	-	-	3,987	-14%	2%	-	-	-	3,987	-14%	2%	3,987	-14%	2%
Oct 15	-	-	-	3,304	-20%	-17%	-	-	-	3,304	-20%	-17%	3,304	-20%	-17%
Nov 15	-	-	-	2,775	-3%	-16%	-	-	-	2,775	-3%	-16%	2,775	-3%	-16%
Dec 15	-	-	-	1,735	-30%	-37%	-	-	-	1,735	-30%	-37%	1,735	-30%	-37%
Jan 16	-	-	-	1,042	-10%	-40%	-	-	-	1,042	-10%	-40%	1,042	-10%	-40%
Feb 16	-	-	-	629	-34%	-40%	-	-	-	629	-34%	-40%	629	-34%	-40%
Mar 16	-	-	-	1,493	-14%	137%	-	-	-	1,493	-14%	137%	1,493	-14%	137%
Apr 16	-	-	-	1,369	-56%	-8%	-	-	-	1,369	-56%	-8%	1,369	-56%	-8%
May 16	-	-	-	3,081	-5%	125%	-	-	-	3,081	-5%	125%	3,081	-5%	125%
Jun 16	-	-	-	3,523	-19%	14%	-	-	-	3,523	-19%	14%	3,523	-19%	14%
Jul 16	-	-	-	3,285	-34%	-7%	-	-	-	3,285	-34%	-7%	3,285	-34%	-7%
Aug 16	-	-	-	4,279	10%	30%	-	-	-	4,279	10%	30%	4,279	10%	30%
Sep 16	-	-	-	4,956	24%	16%	-	-	-	4,956	24%	16%	4,956	24%	16%
Oct 16	-	-	-	3,488	6%	-30%	-	-	-	3,488	6%	-30%	3,488	6%	-30%
2016 Annualized	-	-	-	27,145	-11%	N/A	0.0	N/A	N/A	27,145	-11%	N/A	27,145	-11%	N/A
Nickel															
Jan 15	26.2	8%	-25%	8.0	-56%	43%	5.7	185%	-12%	2.3	-86%	-344%	28	-30%	-16%
Feb 15	27.5	25%	5%	10.5	33%	31%	3.6	36%	-38%	6.9	32%	202%	34	26%	21%
Mar 15	28.3	-1%	3%	5.8	-52%	-45%	3.4	-49%	-5%	2.4	-56%	-65%	31	-10%	-11%
Apr 15	29.0	1%	2%	18.2	12%	216%	6.7	-22%	99%	11.5	49%	382%	41	11%	32%
May 15	30.1	8%	4%	23.5	130%	29%	6.3	-14%	-7%	17.2	483%	50%	47	54%	17%
Jun 15	33.9	2%	12%	38.8	244%	65%	1.0	-95%	-85%	37.8	-656%	119%	72	171%	51%
Jul 15	30.7	-3%	-9%	47.5	168%	22%	2.4	-86%	149%	45.1	63377%	19%	76	140%	6%
Aug 15	31.9	-6%	4%	20.6	115%	-57%	2.6	-85%	8%	18.0	-317%	-60%	50	95%	-34%
Sep 15	28.4	-16%	-11%	32.8	278%	59%	2.5	-75%	-4%	30.3	-2466%	68%	59	81%	18%
Oct 15	31.0	-10%	9%	33.7	651%	3%	3.9	-59%	57%	29.8	-691%	-2%	61	106%	4%
Nov 15	28.0	-15%	-9%	27.6	222%	-18%	1.6	-80%	-59%	26.0	3942%	-13%	54	61%	-11%
Dec 15	18.0	-48%	-36%	36.5	554%	32%	1.3	-79%	-15%	35.2	-3849%	35%	53	56%	-2%
Jan 16	17.3	-34%	-4%	35.1	338%	-4%	1.2	-80%	-14%	33.9	1384%	-4%	51	80%	-4%
Feb 16	17.0	-38%	-2%	30.3	189%	-14%	0.6	-83%	-47%	29.7	330%	-13%	47	36%	-9%
Mar 16	21.6	-24%	27%	43.2	649%	43%	0.7	-78%	20%	42.5	1679%	43%	64	109%	37%
Apr 16	22.1	-24%	3%	49.0	169%	13%	0.3	-95%	-58%	48.7	323%	15%	71	75%	11%
May 16	20.3	-32%	-8%	37.6	60%	-23%	2.3	-62%	657%	35.2	104%	-28%	56	17%	-22%
Jun 16	20.1	-41%	-1%	37.1	-4%	-1%	1.1	10%	-55%	36.1	-5%	2%	56	-22%	1%
Jul 16	18.6	-39%	-7%	28.2	-41%	-24%	1.4	-41%	34%	26.8	-41%	-26%	45	-40%	-19%
Aug 16	17.6	-45%	-5%	29.8	45%	6%	2.0	-24%	40%	27.8	54%	4%	45	-9%	0%
Sep 16	17.0	-40%	-3%	29.4	-10%	-2%	1.9	-23%	-3%	27.4	-9%	-1%	44	-24%	-2%
Oct 16	16.2	-48%	-5%	15.0	-55%	-49%	1.1	-72%	-43%	13.9	-53%	-49%	30	-50%	-32%
2016 Annualized	188.0	-37%	N/A	334.7	40%	N/A	12.6	-67%	N/A	322.0	60%	N/A	510	2%	N/A

Source: CNIA, China Customs, SMM Research & Consulting

Appendix 7:

Figures

	kt	Oct/16	Sep/16	MoM
Copper	Production			
	Copper Concentrate	175.8	174.0	1.0%
	Refined Copper	736.7	724.9	1.6%
	Imports			
	Copper Concentrate	1363.6	1385.2	-1.6%
	Refined Copper	189.8	242.8	-21.8%
	Scrap Copper	235.6	301.1	-21.7%
	Exports			
	Refined Copper	22.9	27.8	-17.7%
Aluminum	Production			
	Alumina	5,367	5,183	3.6%
	Aluminum	2,727	2,751	-0.9%
	Imports			
	Bauxite	4,278	4,467	-4.2%
	Alumina	142.5	128.7	10.7%
	Aluminum	10.6	13.0	-18.4%
	Scrap Aluminum	146.5	171.6	-14.6%
	Exports			
Aluminum	0.0	0.2	-83.9%	
Aluminum Semi-Finished	306.1	330.4	-7.3%	
Zinc	Production			
	Zinc Concentrate	403.4	444.5	-9.3%
	Zinc	554.9	551.0	0.7%
	Imports			
	Zinc Concentrate	138.5	152.5	-9.2%
	Zinc	25.0	16.5	51.8%
	Exports			
Zinc	1.2	1.5	-18.5%	
Lead	Production			
	Lead Concentrate	220.3	221.2	-0.4%
	Lead	389.5	358.2	8.7%
	Imports			
	Lead Concentrate	106.5	108.5	-1.8%
Exports				
Lead	0.0	0.1	-92.3%	
Nickel	Production			
	Nickel	16.2	17.0	-4.7%
	Imports			
	Nickel Ore	3,488	4,956	-29.6%
	Nickel	15.0	29.4	-48.8%
Exports				
Nickel	1.1	1.9	-43.0%	

Source: SMM, China Customs, CNIA, NBS

Appendix 8:

China Steel Production, Export and Import (million mt)

	Crude Steel	Iron Ore		Finished Steel Quantity				Finished Steel Growth Rate (YoY)			
	Production	Production	Import	Production	Import	Export	Net Imp/(Exp)	Production	Import	Export	Net Imp/(Exp)
2001	148.93	217.54	-	157.45	17.22	4.74	12.48	20%	8%	-24%	28%
2002	181.55	230.09	111.49	192.18	24.49	5.45	19.03	22%	42%	15%	53%
2003	220.12	257.50	148.20	235.82	37.17	6.96	30.21	23%	52%	28%	59%
2004	272.46	289.77	208.08	297.39	29.30	14.23	15.07	26%	-21%	105%	-50%
2005	349.36	396.75	275.24	371.17	25.82	20.52	5.29	25%	-12%	44%	-65%
2006	418.78	573.97	326.33	466.85	18.51	43.01	(24.50)	26%	-28%	110%	n.a
2007	487.83	698.03	384.16	560.09	16.88	62.61	(45.73)	20%	-9%	46%	-87%
2008	497.88	798.19	442.79	579.05	15.43	59.26	(43.83)	3%	-9%	-5%	4%
2009	566.40	874.65	628.35	689.40	17.40	24.19	(6.79)	19%	13%	-59%	85%
2010	626.49	1,064.74	619.08	797.22	16.45	42.56	(26.11)	16%	-5%	76%	-285%
2011	684.28	1,314.98	686.99	878.46	15.58	48.91	(33.33)	10%	-5%	15%	-28%
2012	708.78	1,328.52	745.49	958.72	13.65	55.80	(42.15)	9%	-12%	14%	-26%
2013	774.58	1,436.35	820.30	1067.30	14.07	62.34	(48.27)	11%	3%	12%	-15%
2014	813.29	1,497.75	933.11	1121.98	14.43	93.80	(79.36)	5%	3%	50%	-64%
2015	800.53	1,375.00	953.32	1123.94	12.78	112.42	(99.64)	0%	-11%	20%	-26%
Jan 15	68.59	87.76	78.57	88.31	1.15	10.29	(9.14)	1%	-15%	52%	-69%
Feb 15	61.95	87.76	67.94	79.76	0.87	7.80	(6.93)	-2%	-11%	63%	-81%
Mar 15	69.48	105.10	80.51	97.56	1.21	7.70	(6.49)	3%	-3%	14%	-18%
Apr 15	68.91	104.10	80.21	96.41	1.20	8.54	(7.34)	4%	-8%	13%	-18%
May 15	69.95	117.66	70.87	98.48	1.05	9.20	(8.15)	2%	-14%	14%	-19%
Jun 15	68.95	128.48	74.96	98.43	1.17	8.89	(7.72)	0%	4%	26%	-30%
Jul 15	65.84	126.19	86.10	92.30	1.05	9.73	(8.68)	-3%	-14%	21%	-27%
Aug 15	66.94	123.81	74.12	94.49	1.02	9.73	(8.71)	-1%	-14%	25%	-32%
Sep 15	66.12	131.56	86.12	94.69	1.01	11.25	(10.24)	-1%	-26%	32%	-43%
Oct 15	66.12	125.35	75.52	94.27	0.95	9.02	(8.07)	-1%	-13%	5%	-8%
Nov 15	63.32	117.53	82.13	93.96	0.92	9.61	(8.69)	2%	-19%	-1%	-1%
Dec 15	64.37	119.67	96.27	95.28	1.18	10.66	(9.48)	-3%	-2%	5%	-6%
Jan 16	62.55	83.64	82.19	83.84	0.93	9.74	(8.81)	-5%	-19%	-5%	4%
Feb 16	58.52	78.24	73.61	78.44	0.93	8.11	(7.18)	-2%	7%	4%	-4%
Mar 16	70.65	98.16	85.77	99.23	1.27	9.98	(8.71)	2%	5%	30%	-34%
Apr 16	69.42	102.57	83.92	96.68	1.10	9.08	(7.98)	0%	-8%	6%	-9%
May 16	70.50	107.54	86.75	99.46	1.09	9.42	(8.33)	1%	4%	2%	-2%
Jun 16	69.47	121.06	81.63	100.72	1.14	10.94	(9.80)	2%	-3%	23%	-27%
Jul 16	66.81	115.74	88.40	95.94	1.13	10.30	(9.17)	4%	8%	6%	-6%
Aug 16	68.57	115.07	87.72	97.91	1.11	9.01	(7.90)	4%	9%	-7%	9%
Sep 16	68.17	118.93	92.99	98.09	1.13	8.80	(7.67)	4%	12%	-22%	25%
Oct 16	68.51	119.29	80.80	97.68	1.08	7.70	(6.62)	4%	14%	-15%	18%
Nov 16	66.29	116.68	91.98	95.40	1.11	8.12	(7.01)	2%	21%	-16%	19%
2016 Annualized	806.68	1283.90	1020.83	1138.24	13.11	110.40	-97.29	1%	3%	-2%	2%

Source: SMM

Note: Iron ore production means output of ROM, while Iron ore import means import volume of concentrate.

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