

With nickel prices in a multimonth bull trend, buyers are looking for ways to switch to lower-cost alternatives. By Tom Stundza

stainless steel

Nickel buyers investigate material substitutes

The status quo of stainless steel purchasing is about to change as prices for traditional sheet mill products have risen 90% over the past 18 months. “Stainless steel prices are ridiculous,” says Mike Napoli, purchasing manager at Kenall in Gurnee, Ill., “so we’re searching to find other material to replace Type 304 2b sheets.” He is just one of many buyers investigating the suitability of sourcing cheaper grades or alternative metals or composite materials.

Typically, about half of the stainless steel sourcing annually goes through distribution with the other half bought directly from domestic and foreign mills. This probably won’t change, according to industry insiders, but what mills and service centers are using may undergo major revisions. Some traditional service center sources already have been jettisoned by buyers upset with the rate of cost inflation for processed mill products.

Most importantly, since record-high prices for nickel, molybdenum, chrome and cobalt have driven standard 300-series of austenitic stainless steels to heights never before seen, there have been accelerated conferences between design engineers and purchasing managers to gauge the utility of alternative ferritic grades in the 400 series; manganese-bearing and lower-nickel 200 series or silicon-containing 600 series austenitic alloys or such other materials as composites and coated carbon steels.

“Clearly, there is some material substitution going on due to the high nickel prices,” says Aditya Mittal, CFO of Arcelor Mittal, the world’s largest steelmaker. “Buyers are opting for alternative, less-expensive materials whenever possible,” he says in a recent news report. According to the International Stainless Steel Forum in Brussels, the fastest growing type of stainless are those grades absent the nickel content, or with less nickel in the composition. So, while the world bull market in stainless steel should continue past 2010, nickel could be left behind.

“We remain sensitive to our customers’ concern with the dramatic increase in the cost of nickel,” says L. Patrick Hassey, CEO of Allegheny Technologies in Pittsburgh. “As a result, we continue to assist customers in switching to lower nickel-bearing alloys, a process that has changed our product mix and continues to gain momentum.”

Specifically, ATI’s Allegheny Ludlum unit has begun marketing stainless steel products with expanded manganese content.

Soaring prices have forced ThyssenKrupp of Germany, the world’s largest stainless steel manufacturer, to reduce the company’s use of nickel. Further cuts are being contemplated. Finnish austenitic provider Outokumpu plans to increase production of nickel-free ferritic stainless steels. Outokumpu recently released a low-alloyed duplex stainless steel, trademarked LDX2101, with low nickel content, but balanced with manganese, nitrogen and molybdenum.

Buyers also report they are switching to brass, bronze, aluminum and even galvanized steel for some parts and

products—ranging from high-end door lever locksets for residential and commercial applications to breadboards used in optics labs and integrated circuit fabs—that used to be stamped from stainless sheets.

Nickel is the culprit

Analyst Peter Fish at MEPS (International) in Sheffield, England, says that buyer surveys worldwide show that “specifiers are no longer slavishly following past design and purchasing practices which kept the austenitic grades in such a strong market position.” He points out that “when users modify production methods and materials, they do not readily return to past practices. Reason: The costs are too high.”

“Up to 2001, spikes in nickel on the London Metal Exchange were quite short lived—with average annual prices increasing for two years before slipping back again,” writes Fish to MEPS clients. “This was insufficient time for the specifiers to undertake tests and change manufacturing procedures, etc. Since 2001, we have noted five consecutive annual rises in nickel. We predict 2007 will be the sixth. Average nickel prices this year will show a sevenfold rise over the past six years.”

And that has triggered all kinds of purchasing-revision activity within metalworking industries worldwide. “Stainless steel surcharges are a major concern,” says a purchasing manager in Wisconsin. “And, since stainless prices will keep steadily increasing, we have to find ways to reduce costs.” One method being employed is the reduction of the amounts of stainless mill products purchased and delivered at any one time by increasing the frequency of deliveries by service centers. The problem with that method is that while it cuts into inventory carrying costs, it doesn’t reduce the costs of the primary metal.

Interestingly, the global upswing in metal-intensive investment in processing plant, oil and gas drilling and pipelines, and booming aircraft orders, have kept stainless steel demand elevated despite the cost surges, says vice president and chief economist Patricia Mohr at Scotia Economics in Toronto. She forecasts that the international supply/demand balance for nickel will remain in deficit through the first half of 2008—keeping nickel prices elevated, even if not at existing levels of \$20/lb or more.

Mohr says that “while prices will eventually unwind from today’s spectacular levels, prices should remain quite elevated over the balance of the decade, given only a handful of planned major mining developments and strong trend growth in stainless and specialty steel demand.” However, Fish sees a wrinkle in that reasoning: “The stainless industry has reached a watershed. Strong growth is assured but will be mainly through the promotion of the 200 and 400 series grades if nickel stays at recent elevated levels.”

The base prices for stainless steels—which exclude the cost of nickel, chrome and other alloying elements—have risen by 25% in recent months but have been flat-to-down lately.

Some analysts say that may indicate an oversupplied market while others suggest it could be due to reduced demand for traditional 300-series grades because of high costs.

"You can argue base prices all day long with your suppliers," says the corporate procurement manager for steel products at a large metalworking firm in the Midwest. "But, at the end of the day, it's the escalation and volatility in nickel and other alloys that have made the sales prices of types 304 and 316 totally insane." And few buyers are happy with the new Goldman Sachs nickel price forecast of \$18/lb for 2007.

In fact, buyers polled by Purchasing say they are investigating the availability of low-nickel or non-nickel stainless steels, switching or reducing their stainless steel suppliers and/or adjusting pricing indexes. "Maybe we can't make some changes until next year but we have to investigate all the possible ways we might be able to reduce the costs of buying stainless," according to the senior metals buyer at a pumping equipment manufacturer in Minnesota.

"The vast majority of those buying stainless will play with the cards they are dealt this year," says UBS Securities analyst Daniel Brebner in London. But he agrees there already is some substitution underway since the price of nickel—and its immediate effect on the price of stainless steel—is giving manufacturers just cause to start examining those non-nickel and low-nickel options."

And it isn't just in North America that stainless steel pricing has become a problem. The record-high nickel prices may hurt demand for products made from the metal, especially stainless steel, worries Ian Christmas, secretary general of the International Iron and Steel Institute in Brussels speaking to the Bloomberg News Service. "Appliance manufacturers aren't going to include a stainless drum in a washing machine if the price rises so much that consumers won't be able to afford the major appliance next year."

Non-nickel products expanded

Japanese, Chinese, Taiwanese, Korean and Scandinavian stainless steel mills are making anti-corrosive metal with higher chromium and manganese content, or stainless without any nickel. They are boosting non-nickel or low-nickel steel by an average 10% annually well into the next decade.

Taiwan's top stainless steel producer, Yieh United Steel Corp. (Yusco), has boosted its output of products that do not use nickel by 20% and plans further increases. The firm's low-nickel 200-series products contain 1–4% nickel, down from 8% while its non-nickel 400 series has increased chrome content to 18% to make up for the lack of the anti-corrosive ingredient. South Korea's Posco, the world's third-largest steelmaker, is also focusing on non-nickel stainless steel, producing about a quarter of its stainless steel without using nickel and developing a new type of stainless steel that contains no nickel.

Thyssen Krupp of Germany recently announced it may lift output of nickel-free steel from the existing figure of 30% of total output up to 35%. And there are news reports that an Arcelor Mittal senior executive sees the potential to push up production of non-nickel grades to 70% in the long term.

In an interview with the Shanghai Daily newspaper, analyst Xu Aidon at Beijing Antaika Information Development says that "if nickel prices stay at high levels for a longer time, more stainless steel consumers will be forced to try using non-nickel stainless steel, or use plastic or other materials." And this will

change the dynamic that had global supplies of 300-series material accounting for 75% of total world stainless deliveries.

London-based investment bank Barclays Capital and Beijing's Antaika are forecasting the world nickel price just under \$19/lb for the year, as compared with the London Metal Exchange (LME) spot price around \$11 in 2006. National Australia Bank is even more bullish, forecasting the metal just above \$20, while Down Under brokerage rivals Macquarie Bank and Metalytics have updated forecasts around \$18.

Most analysts do expect nickel prices to correct from their current record levels around \$23 because of delays and disruptions in bringing new supply to the market—and the switchover to cheaper stainless steel grades with less nickel content. "Nickel producers and speculators may not have killed, but certainly could lame, the goose that laid the golden egg," writes Fish.

And at a stainless steel conference recently, Christmas of the IISI grumbles to reporters that "the fridge I have in my kitchen is heavily detailed with stainless steel. The same model I bought last year is now selling in stores using plastic details rather than stainless steel." And that's got buyers attempting to renegotiate supply arrangements.

"I now am able to lock in prices on stainless steels that are continually increasing in cost," says procurement specialist Jennifer Baker at Stulz Air Technology Systems, a manufacturer of environmental control systems in Frederick, Md. Similarly, another buyer who requested anonymity says he uses contracts for stainless steel "by locking in surcharges for a period of three months and having the steel delivered as required." He adds that this system has avoided some of the monthly surcharge increases.

Ian Monroy Galindo, senior buyer planner for metal says Ensambles Hyson, a plastic injection molding firm in Tijuana, Mexico, buys stainless steel for its equipment through a six-month purchase order that secures the transaction price about five months before the start of the next semester. "The savings keep adding up with every monthly surcharge increase announced by the mills," he says.

In the same vein, the purchasing director of an original equipment manufacturer in California that makes beverage dispensers used the private buying group Prime Advantage as a go-between to switch its prime supplier of \$3 million in processed stainless steels to Macsteel Service Centers USA of Newport Beach, Calif. "The vice president of operations had asked the purchasing director to investigate the way the company was buying stainless steel," explains Sheila McDonald, vice president of marketing at the Chicago-based buying group for industrial manufacturers. "He also was asked to investigate whether a change in material was necessary."

As it turned out, both Macsteel and the manufacturing firm were Prime Advantage members so McDonald basically acted as a matchmaker. Then, the service center's sales team and the OEM's purchasing group were able to work with the mills to lock in pricing for six months, which eliminated the monthly surcharge-escalation problem.

Then, the service center helped design engineers rewrite specifications to switch 25–30% of the OEM's stainless usage from Type 304 stainless to Type 201—which has saved buyers some 30–40% in material surcharges. Now, the supply partners are working out a vendor managed inventory program to eliminate some logistics costs and guarantee deliveries to meet the OEM's shop-floor manufacturing schedules.