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May 27, 2004

VIA ELECTRONIC MAIL

Mr. Daniel O. Hill
Director of the Office of Strategic Industries
and Economic Security
Copper Short-Supply Petition
Regulatory Policy Division
Bureau of Industry and Security
U.S. Department of Commerce
Washington, DC 20044

Re: Co-Petitioners' Response to Initial Comments Regarding the Receipt by the Department of Commerce of a Written Petition Requesting the Imposition of Short-Supply Export Controls and Monitoring on Recyclable Metallic Materials Containing Copper

Dear Mr. Hill:

Pursuant to the Bureau of Industry and Security's notice of April 22, 2004, published at 69 Fed. Reg. 21,815, we hereby provide response comments by the co-petitioners, the Copper & Brass Fabricators Council, Inc., and its member companies and the Non-Ferrous Founders' Society and its brass and bronze foundries, with respect to the above-referenced petition.

Please note that these response comments will be supplemented by co-petitioners in further written comments that will be filed by 5:00 p.m. on June 7, 2004, the deadline for the period to submit written comments, as contemplated by the aforementioned notice. Co-petitioners intend in those further written comments to address issues raised at the hearing on May 19, 2004, once the transcript of that hearing and the complete study by Mr. Damuth entitled "The Obsolete Copper Scrap Inventory – Accumulation and Availability, 1982-2003," have been posted on the Bureau of Industry and Security's website.

Please do not hesitate to contact the undersigned if you have any questions concerning these comments.

Respectfully submitted,

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JENNIFER E. McCADNEY
Counsel to the Co-Petitioners

Enclosure

BEFORE THE
BUREAU OF INDUSTRY AND SECURITY
U.S. DEPARTMENT OF COMMERCE

RESPONSE COMMENTS ON PETITION REQUESTING THE IMPOSITION OF SHORT-SUPPLY EXPORT CONTROLS AND MONITORING AS TO RECYCLABLE METALLIC MATERIALS CONTAINING COPPER

ON BEHALF OF
THE COPPER & BRASS FABRICATORS COUNCIL, INC.,
AND ITS MEMBER COMPANIES

AND

THE NON-FERROUS FOUNDERS' SOCIETY
AND ITS MEMBER COMPANIES

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May 27, 2004

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I. RESPONSE TO THE ARGUMENTS IN THE MAY 13, 2004 SUBMISSION BY THE INSTITUTE OF SCRAP RECYCLYING INDUSTRIES, INC.

A. The U.S. Market For Copper-Based Scrap Has Been Significantly Affected by Large and Growing Exports

1. Price Increases For Copper-Based Scrap in the United States Do Not Simply Reflect World Copper Prices

In its pre-hearing submission, ISRI states that "it is the price of refined copper as expressed on the London Metal Exchange ("LME") or the COMEX division of the New York Mercantile Exchange ("COMEX") that dictates the price of scrap." ISRI Comments at 7-8. Several pages later in that submission, ISRI contradicts itself by stating that "the average price of copper scrap has since declined over the last several weeks at a *faster* rate than the decline in the COMEX price for cathode." Id. at 12. These statements are mutually inconsistent. Apparently, what IRSI would like the Department to believe is that copper scrap prices must track Comex prices when increasing, but that scrap prices can move independently of Comex when declining.

The fact of the matter is that U.S. prices for copper-based scrap are affected by overall trends in the price of refined copper, as reflected in the Comex cathode price, whether prices are increasing or decreasing. Comex prices are reflective of general world prices for refined copper, which are set by global supply and demand conditions for copper cathode.

From this basic starting point, however, prices for copper-based scrap reflect the specific conditions of supply and demand in the United States, as reflected by the discount (or premium) in relation to Comex at which scrap sells.[1] Thus, as copper scrap supplies tighten in relation to demand, discounts in relation to Comex are reduced, and scrap may even sell at a premium in

[1] This is directly true in relation to copper scrap. In relation to copper-alloy scrap, prices reflect general trends in the price of the copper content of the product, but because of the products' relatively lower copper content, copper-alloy scrap does not sell at a specific discount in relation to Comex.

relation to Comex. As copper scrap supplies increase in relation to demand, discounts in relation to Comex will increase. While Comex is reflective of the "world price" for copper cathode, there is no "world price" for copper-based scrap.[2] Rather, all scrap markets are country-specific, based on the specific supply and demand conditions of that particular market. Indeed, within large markets like the United States, there are differences in regional scrap prices, reflecting local conditions of supply and demand. Simply put, prices for copper-based scrap are affected by changes in the Comex cathode price, but they are not dictated by Comex, as is asserted by ISRI.

In making its arguments, ISRI claims that "scrap metal markets are inherently cyclical. They are also global" and cites to the establishment of the London Metal Exchange in 1876 as evidence supporting this contention. ISRI Comments at 13. However, scrap metal markets are not global and the LME is not an exchange that deals in scrap copper, but rather in refined copper. ISRI should be well aware of the fact that there is no international commodity exchange for copper-based scrap and that prices for copper-based scrap, as reflected in discounts from Comex or LME prices, are based on local conditions of supply and demand.

Thus, U.S. prices for copper-based scrap, as reflected in the discounts from Comex at which the products sell, are reflective of the specific supply and demand conditions of the United States, not a "world price" for copper-based scrap. As exports of copper-based scrap have taken an ever-higher share of the overall supply of such scrap available in the U.S. market, prices for

[2] Indeed, while Comex prices are reflective of world supply and demand conditions for copper cathode, even cathode prices reflect market-specific supply and demand conditions via local premiums in relation to Comex and/or LME prices. As noted at the hearing, cathode premiums in the United States have also increased significantly, reflecting the fact that China is buying an increasing portion of the global cathode supply (mining and refining companies can realize a better price selling their product to China rather than to the United States), an increase in demand for cathode within the U.S. market (reflecting general manufacturing growth), and the significant movement of many brass mills toward purchases of copper cathode, in lieu of copper scrap, due to ongoing shortages of available scrap.

copper-based scrap have increased significantly, as reflected in narrowing or non-existent scrap discounts.

2. There Is No Indication That Currently High Prices "Will Soon Be Followed By a Price Trough"

In its pre-hearing submission, ISRI asserts that the average price of copper scrap has declined at a faster rate than the decline in the COMEX price for cathode in recent weeks and that differentials between the two have widened as a result. ISRI Comments at 12. Based on this assertion, ISRI concludes "thus, history has shown that conventional market forces of supply and demand will address whatever imbalance may exist in the short term with respect to pricing and availability." Id.

In point of fact, however, spreads between Comex and prices for No. 1 copper scrap remain at historical lows. Data published in the American Metal Market show that the average differential between Comex and the price for No. 1 copper scrap in the United States was just 1.09 cents for the month of April 2004 (0.87 percent of the Comex price) and just 0.81 cents in the month of May 2004 (0.67 percent of the Comex price). See Exhibit 1. These figures compare to an average discount for 2003 of 1.19 cents per pound (1.47 percent of the Comex price). Clearly, supplies of this product within the United States remain very tight. These data are supported by recent trade press articles, which indicate that supplies for No. 1 copper scrap remain tight, and the market has not seen any substantial decline in demand for the product from foreign buyers.

It is true that spreads for No. 2 copper scrap in relation to Comex cathode prices have increased since the filing of the petition in early April, as foreign purchasers of the product have reduced their profile in the U.S. market (the American Metal Market noted "China's striking

absence from the {No. 2 copper scrap} market over the past few weeks.").[3] See Exhibit 1. However, the trends of a few weeks, apparently in response to the pendency of this action, should not be read as a permanent pull-back from the U.S. market by buyers working on behalf of foreign producers. Indeed, the fact that U.S. prices for No. 2 copper scrap have fallen as foreign buyers have reduced their purchases in the U.S. market only serves to prove the point that it was those same foreign purchasers that were driving up U.S. prices over the previous year. As noted at the hearing and discussed in detail infra, China's demand for copper-based scrap will not be disappearing anytime soon, and excessive purchases of U.S. scrap by foreign parties will remain a problem unless and until export restrictions are imposed.

While ISRI urges that "conventional market forces of supply and demand will address whatever imbalance may exist in the short term," it provides no evidence as to how or when supply and demand for copper-based scrap may be expected to come back into balance. Nor does ISRI explain how all-time record exports of copper-based scrap through the first three months of 2004[4] will be reconciled with increasing demand for the product in the U.S. market as the output of U.S. copper and brass mills and brass and bronze foundries picks up in the face of domestic economic expansion.

The fact of the matter is that China's economic growth and rapid industrial expansion are unprecedented in recent world history. The effects of this growth on the global economy and on the consumption of the world's supplies of raw materials cannot be considered part of a

[3] "Copper scrap spreads widen as supply rises, prices slide," American Metal Market, May 17, 2004, at 6 (attached at Exhibit 2).

[4] "March copper exports set 13-year high," American Metal Market, May 18, 2004, at 5 (attached at Exhibit 2).

"normal" business cycle. As noted in a recent article summarizing the state of the global copper market,

> No round-up of copper demand trends would be complete without considering China. On average over the last five years, apparent consumption has grown by a staggering 17.5% per annum, and in the process China overtook the USA as the world's leading copper-consuming economy.....
>
> MBR calculates that China's apparent consumption of copper in 2003 was 14% greater than in 2002, and there is no reasons why similar strength cannot be maintained. We forecast average growth in copper demand of 9% over the next five years.[5]

It should be borne in mind that the 17.5 percent average annual growth rate in China's copper consumption from 1999 through 2003 was completely counter-cyclical, as it occurred during a period in which economies in the rest of the industrialized world, most notably the United States, were suffering from a deep recession and large declines in industrial output. Clearly, over the last five years, manufacturing and economic trends in China have been completely out of sync with the rest of the world and not part of the normal business cycle.

Nor is there any reason to believe that China's growing consumption of the world's resources, and in particular copper-based scrap and copper cathode, will come to an abrupt halt anytime soon.[6] Indeed, in relation to China's production of copper sheet and strip, one of the major output products of the brass mill industry, Metal Bulletin notes, "While China's

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[5] "Can momentum be maintained?," Metal Bulletin Monthly, Copper Supplement, March 2004 at 6 (attached at Exhibit 1).

[6] While the MBR estimations note that the rate of growth in China's copper consumption may slow somewhat, because China's overall consumption is so much larger, the annual growth in absolute volume terms will moderate only slightly.

consumption of copper sheet and strip will continue to grow, production capacity is expected to grow faster – from about 455,000 tpy at present to 600,000 tpy in 2005."[7]

In assessing ISRI's claims that "conventional market forces" will overcome current high prices of copper-based scrap in the United States, it is important to remember that China's recent consumption growth, and its effects in raising U.S. scrap prices, occurred during a period of economic slowdown for essentially all industrialized countries other than China:

> The spectacular recovery in the fortunes of the copper market in 2003 is especially remarkable considering that it was achieved in the absence of any real strength from Western demand. The latest data from the International Copper Study Group (ICSG) reveal that refined copper consumption in the West between January and October 2003 was a mere 0.3% higher than during the cyclical doldrums of the same ten-month period in 2002.
>
> Instead, the copper market's turnaround was driven by China's insatiable appetite for all things copper, and by the supply side; the latter coming by way of both planned production cutbacks, and more recently a wave of unexpected disruptions, such as strikes and accidents. These factors will continue to exert their influence on the market balance well into 2004.
>
> Add to the equation a belated recovery in Western world demand, not to mention the start of restocking by consumers, and the copper market could be set for fireworks this year. This is due to the tightness in concentrate supply that is capping refinery output, particularly in the Far East, and a shortage of freight capacity.
>
> The result is that while order books are beginning to fill up, supplies of refined copper are limited and becoming difficult to source, premiums are soaring, and consumers have been forced to call on LME warehouse stocks to ensure their supply. [8]

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[7] "China: Workshop of the world consumes more sheet and strip," Metal Bulletin Monthly, Copper Supplement, March 2004 at 14 (attached at Exhibit 2).

[8] "Can momentum be maintained?" at 6.

Because China's expansion in the previous several years took place during a period of global recession, many of the destructive effects of its growing appetite for copper were reduced. However, this will not be the case in coming years. It is clear now that the global economy is gaining strength and that manufacturing, particularly in the United States, is once again expanding. Metal Bulletin currently forecasts industrial production growth in the United States above 3 percent for both 2004 and 2005, and estimates that this growth will translate into expanded copper consumption of around 5 percent for both 2004 and 2005.[9]

The combined impact of the continued growth of China and the renewed growth of the rest of the industrialized world on supplies of copper-based scrap and refined copper has the potential to be staggering. Recent estimates indicate that global shortages in refined copper will worsen this year and that demand will continue to exceed supply in 2005. Reflecting "significant recovery in demand for refined copper in the United States and continued growth in Asia, the International Copper Study Group forecasts that the deficit in the global refined copper supply in 2004 will reach 750,000 metric tons and will stand at 521,000 MT in 2005."[10] These figures are well above the 2003 shortfall of 310,000 MT.[11] The shortages of refined copper in 2004-2005 will occur despite substantial increases in global production of refined copper (forecast to expand 3.7 percent in 2004 and 6.0 percent in 2005) and output from copper mines (which is forecast to increase by 5.8 percent in 2004).[12] Thus, despite expanding mine and cathode production,

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[9] Id. at 7.

[10] "International Copper Study Group projects 750,000T deficit for 2004," American Metal Market, May 21, 2004 at 2 (attached at Exhibit 2).

[11] International Copper Study Group data as cited in Copper in December 2003, Mineral Industry Surveys, USGS, March 2004 at 2.

[12] Id.

shortages in the global supply of refined copper over at least the next two years will be far more substantial than in 2003.

These shortages of supply will have predictable effects on the price of refined copper:

> Copper prices had jumped to a seven-and-a-half-year high as MBM went to press in mid-February, when the LME cash price reached over $2,700/tonne. With prices spurred on by rapidly diminishing LME stocks – dropping at a rate of around 4,000 tonnes/day – and every expectation of a growing supply deficit, fuelled by continuing high demand from China, some market observers see $3,000/tonne as an achievable target.[13]

Because China has preferred to import copper-based scrap as a cheaper alternative to copper cathode as much as possible (see Petitioners' May 13, 2004 Initial Comments at 11-12), and because the United States has been the source of the vast majority of China's copper-based scrap imports (id.), there is every reason to believe that unless controls on U.S. exports are put into place, continued high cathode prices will encourage the sourcing of copper-based scrap in the U.S. market by Chinese purchasers. Thus, contrary to the unsupported assertions by ISRI that current tight supplies and high prices in the U.S. market for copper-based scrap will quickly be corrected on their own, there is substantial evidence that conditions will remain bad or worsen through at least the next year and a half.

3. Increasing Exports of Copper-Based Scrap From the United States Have Not Simply Been a Reflection of Reduced Capacity at Secondary Smelters

While it is true that consumption of U.S. copper-based scrap by smelters and refiners has been in decline in recent years, it is by no means true that such declines have been the primary "cause" of increasing exports of copper-based scrap, as implied by ISRI. See ISRI Comments at

[13] "A flying start," Metal Bulletin Monthly, Copper Supplement, March 2004 at 10 (attached at Exhibit 2).

14-19. As noted by one of the brass mill industry witnesses at the hearing, the initial focus of Chinese purchasers in the U.S. scrap market was on lower-quality copper-based scrap. See Testimony of Jeffery Burghardt at 4. While lower-quality copper-based scrap continues to be used in substantial quantities by ingot makers, foundries, and refineries (and to a lesser extent by brass mills), increasing exports of such scrap were actually a major cause contributing to the demise of the U.S. secondary smelting industry.

In the late 1990s, secondary smelters were faced with high prices for their copper-based scrap input materials, due to increasing exports of the product to purchasers in China, at the same time that prices for copper cathode and ingot, the output products of secondary smelters, were low. In combination with increased costs for environmental protection and worker safety, the secondary smelter industry was placed in a cost-price squeeze. The result was bankruptcy and closure of secondary smelters, with the last such U.S. facility closing in 2001. These developments were summarized by industry expert Janice L. Jolly:

> Exacerbating the decline in collection and processing of old and low-grade scrap in the United States has been the closure of all U.S. copper scrap smelting plants, most scrap refining plants and some ingot makers, owing to the higher costs associated with tight environmental regulations, increased worker safety standards, and pressures from increased exports of scrap.[14]

Thus, increased exports of copper-based scrap helped to contribute to the demise of the U.S. secondary smelting industry. ISRI's analysis in this area completely ignores this causal connection. ISRI would have the Department believe that increasing exports of copper-based scrap have been essentially a "favor" to the United States, acting to relieve the economy of

[14] Technical Report, The U.S. Copper-base Scrap Industry and Its By-products – 2003, Janice L. Jolly, Copper Development Association, Inc., Dec. 2003, (hereinafter "Jolly") at 8 (available online at www.copper.org/environment/homepage).

unwanted materials that would only enter U.S. landfills if not exported. It is the fate of the U.S. secondary smelter industry, rendered unprofitable in the face of increased scrap costs, that U.S. brass mills, ingot makers, and foundries would like to avoid by limiting exports of copper-based scrap.

ISRI's arguments as to the primary role played by the demise of the U.S. secondary smelter industry in the expansion of U.S. exports of copper-based scrap are also at odds with the available data on consumption and export volumes. As an initial matter, the data of the U.S. Geological Survey ("USGS") show that consumption of copper-based scrap by brass mills has long exceeded that of smelters and refiners, accounting for roughly two-thirds of all consumption of copper-based scrap in the United States. See Petition Exhibit 6.

Further, the decline of the U.S. secondary smelter industry predates much of the recent growth in exports of copper-based scrap. Of the five secondary smelter closures noted in ISRI's pre-hearing comments, three had taken place by 1998, and the final closure had taken place by 2001. ISRI Comments at 16. ISRI's data also show that U.S. secondary production declined by less that 200,000 MT from 1999 to 2003; over this same period, total U.S. exports of copper-based scrap expanded by 437,1999 MT. Thus, the declines in secondary smelter production cited by ISRI represented well less than half of the volume growth in U.S. exports from 1999 to 2003. ISRI's claims that the decline in the U.S. smelter industry accounts for essentially all growth in U.S. exports of copper-based scrap are not supported.

Further, because all of the effects of smelter closures on U.S. consumption of copper-based scrap occurred in the years leading up to 2001, these closures are not of relevance in analyzing the years following 2001. The fact of the matter is that the largest increase in the volume of exports of copper-based scrap (an increase of 186,703 MT) occurred in 2003, two

years after the last smelter closure. Thus, even if we accept ISRI's position in relation to the significance of smelter closures in the U.S. market, there is no way that this contention explains the growth in exports in 2003, the year showing the largest increase in scrap exports and a huge decline in consumption by brass mills (91,000 MT), as more and more of this key input material was taken from domestic consumers and sent overseas. Thus, on a number of levels, ISRI's assertions that the increase in exports of copper-based scrap can be attributed to the demise of the U.S. secondary smelter industry (whose own demise was caused to a significant degree by rising scrap exports) does not hold up to scrutiny.

4. Observations From Independent Industry Experts Support the Conclusion That Copper Scrap Supplies Are Tight and Prices Are High Due to Rising Exports

In its comments, ISRI states that "there is no shortage in the U.S. of copper scrap." ISRI Comments at 7. In point of fact, however, numerous independent experts on the U.S copper-based scrap market have noted that increasing exports have reduced supplies available to U.S. consumers dramatically, and thereby caused large increases in the prices of the product.

The first such source of information is ISRI itself. As cited by the USGS in its summary of monthly market conditions for November of 2003, "According to the Institute of Scrap Recycling Industries (2003), copper scrap remained difficult to source" in the U.S. market.[15]

The USGS also has reported on the clear relationship between increasing exports of copper-based scrap and reduced availability and increased prices in the U.S. market:

> Consumption of refined copper at brass mills rose slightly. Brass mill production and shipment declined, however, owing to a sharp drop in scrap consumption. The consumption of refined copper at the expense of copper scrap is indicative of the tight

[15] USGS Mineral Industry Surveys, Copper in November 2003 (Feb. 2004) at 1, citing to Institute of Scrap Recycling Industries, Inc., 2003, ISRI Friday Report, Nov. 14 at 6.

> scrap supply and narrow discounts reported by industry..... The consumer buying price for bare bright copper was reported to be level with the spot COMEX price for refined copper, and the price for burnt No. 1 scrap and No. 2 scrap were reportedly discounted by only 3 cents per pound and 9 to 10 cents per pound, respectively.[16]

The most recent technical report on the U.S. copper-based scrap industry by expert Janice L. Jolly on behalf of the Copper Development Association also notes the effects of increased exports on U.S. consumption patterns:

> Of all countries, China has had the most significant growth in scrap imports over the period 1996 through 2002, as shown in Table 4.... By early 2001, the availability of copper scrap was reported as especially tight in the United States, owing to the high exports to the Far East.....
>
> While the brass and wire mill sectors of the U.S. secondary-based industry has {sic} been expanding capacity, mill consumption of scrap copper relative to primary copper has been decreasing.....This decline has been particularly significant since 1999, coincident to a significant increase in scrap exports.....
>
> In recent years, however, foreign buyers have managed to outstrip local mills in competition for scarce purchased scrap, and exports have escalated since 1999..... Those mills that are highly dependent upon direct-melt alloy scrap have been highly affected by the increased U.S. exports of this material.[17]

Thus, in addition to the testimony of numerous members of the petitioning industries at the Commerce Department's hearing, independent experts on the U.S. market have clearly confirmed that increasing exports have resulted in shortages of supply and increased price for copper-based scrap in the United States.[18]

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[16] Id.

[17] Jolly at 5, 9-10.

[18] See also trade press articles attached to the petition at Attachment 1 and the presentation of the Minmetals official attached to co-petitioners' May 13, 2004 submission.

5. The Proper Definition of Exports in This Case is Total Exports, Not Domestic Exports

At the Department's hearing, a question was posed as to whether the relevant universe of exports of copper-based scrap for analysis and potential quota imposition was that of U.S. "total exports" or "domestic exports." For the reasons outlined below, the proper definition of exports in the context of this case should be that of "total exports."

As explained at the website of the U.S. International Trade Commission, "domestic exports" are "commodities which are grown, produced or manufactured in the United States, and commodities of foreign origin which have been changed in the United States, including U.S. Foreign Trade Zones, or which have been enhanced in value by further manufacture in the United States." In contrast, "total exports" are "domestic exports plus foreign exports," the latter of which is in turn defined as "commodities of foreign origin which have entered the United States for consumption or into Customs bonded warehouses or U.S. Foreign Trade Zones, and which are in substantially the same condition as when imported." Simply put, "total exports" include re-exports of imported product while "domestic exports" do not.

The definition of exports that should be employed in the current context is "total exports." The statute is silent as to the specific definition of "exports" to be considered in a short-supply investigation. However, the law does stipulate that the significance of increased exports should be assessed in relation to U.S. conditions of supply and demand. At root, the issue at hand is the sufficiency of U.S. supply of copper-based scrap. For that reason, the total supply of scrap within the United States must be inclusive of U.S. imports of the product. In

support of this conclusion, the copper-based scrap consumption figures reported by the USGS make no distinction between imported or domestically-generated scrap.[19]

If imports are included in the definition of the U.S. supply of scrap, the effects of exports on the sufficiency of supply must also take into account the extent to which any imported scrap is then re-exported to another country. Regardless of whether a ton of copper-based scrap originates in the United States or Canada, for example, once that product is exported from the United States, the supply of copper-based scrap available to domestic consumers has just declined by one ton.

Underscoring the need to incorporate re-exports of copper-based scrap in the current analysis is the fact that exports are claiming a rapidly growing share of U.S. imports of copper-based scrap, as summarized below:[20]

(in MT)	2000	2001	2002	2003
Total Exports	494,283	559,699	566,838	753,542
Domestic Exports	485,473	533,842	510,966	688,977
Difference	8,810	25,857	55,872	64,565
Scrap Imports	143,690	114,712	100,110	90,581
% of Imports Re-exported	6.1%	22.5%	55.8%	71.3%

Thus, while just 6.1 percent of total U.S. imports of copper-based scrap left the country in 2000, by 2003, that figure had reached an astonishing 71.3 percent. The 64,565 MT of imported scrap that was exported in 2003 represented 64,565 MT of supply that was no longer available to U.S. consumers of the product. For this reason, it is clear that the analysis that takes place in this case

[19] See Tables 9 and 10 of the USGS Copper Monthly Industry Surveys.

[20] Source, USITC Dataweb. All data are in relation to HTS 7404.00.

and any export limitations that may ultimately be put into place should be based on the broader definition of "total exports."

6. Users of Copper-Based Scrap Cannot Cover Their Exposure to Price Increases Through Hedging, Because All Scrap Is Sold on a Spot Basis

In its pre-hearing statement, ISRI asserts that "{w}hile price volatility is always present, both buyers of scrap and sellers of brass mill products have at their disposal the means to hedge their respective metal positions as a means of prudent risk management. Hedging metal exposure should be a routine exercise for the domestic brass mill industry as it has proven to be an effective way to mitigate the volatility of Comex prices describe above." ISRI Comments at 20-21.

ISRI is completely off-base in making this statement. As is well known, there are no international exchanges for copper-based scrap and there is no futures market for the product. Copper-based scrap is bought and sold almost exclusively on a spot basis, and there is no commodity exchange equivalent to the LME or Comex to allow purchasers to hedge their exposure to price volatility. For this reason, U.S. purchasers of copper-based scrap are utterly exposed to the whims of the marketplace and the day-to-day vagaries of supply and demand.

While a futures market does exist in relation to copper cathode, as noted in the petition, the vast majority of raw materials used by the brass mill industry, ingot makers, and foundries are copper-based scrap, not cathode. This means that the petitioning industries in this case are uniquely vulnerable to the types of price increases that have taken place in the U.S. market for copper-based scrap in recent years.

While many producers within the petitioning industries maintain selling prices that key off of the Comex cathode price as a means of reducing price volatility exposure on their finished products, as noted at the hearing, producers are typically unable to pass through declines in

discounts (or increasing premiums), the primary means by which supply tightness is reflected in the copper-based scrap marketplace. Thus, both in relation to input costs for copper-based scrap and in relation to finished product prices, brass mills and foundries are extremely vulnerable to market volatility in relation to U.S. prices for copper-based scrap.

7. The Supply of Copper-Based Scrap Is Relatively Unresponsive to Price

ISRI asserts that "the availability of copper scrap (as contrasted to primary copper) is also elastic. As the price of copper scrap rises, so also does the quantity of copper scrap that is delivered to scrap processors and, ultimately, to scrap consumers." This notion is counterintuitive, and ISRI provides no evidence, nor even logical support, for its assertion.

In truth, unlike a manufactured product, copper-based scrap is not produced to order, but is rather a by-product of downstream production processes, or simply the salvageable waste of products produced from copper and copper alloys. Because copper-based scrap is not produced to order, there is no "output" of the product to be increased in response to rising prices for the commodity. While price increases can act as a motivator for "old" scrap to be sold to scrap yards, rather than simply being disposed of in landfills, old scrap is a relatively minor element of the overall supply of copper-based scrap in the United States.[21] Further, even in the instance of old scrap, higher prices for scrap cannot act to "produce" greater supplies of the product. Contrary to what was implied by ISRI's witness Mr. Damuth at the hearing, it seems extremely

[21] According to USGS, old scrap accounted for 21.1 percent and new scrap accounted for 78.9 percent of total consumption of purchased copper-based scrap in the United States in 2003. Copper in December 2003, USGS Mineral Industry Surveys, March 2004 at Table 9.

unlikely that any Americans will tear down their homes in order to sell their copper plumbing tubing or junk their cars in order to realize a good scrap price for their car's radiator.[22]

B. The Copper-Based Scrap Being Exported from the United States Is By No Means Limited to Number 2 Copper Scrap

In its pre-hearing submission, ISRI asserts that the massive increase in U.S. exports of copper-based scrap in recent years has really had no impact on the U.S. market because the only product exported in any quantity has been Number 2 copper scrap, which is a product that has been essentially unused in the U.S. market since the demise of the secondary smelter industry. See ISRI Comments at 8. ISRI's claims fail on a number of levels and appear to reflect a fundamental misunderstanding of the scope of the current action.

ISRI bases its usage arguments within the U.S. market on asserted distinctions between No. 1 and No. 2 copper scrap. In point of fact, however, the petition encompasses not just copper scrap (under which the No. 1 and No. 2 classifications fall), but all forms of copper-alloy scrap. Indeed, as noted in the petition, copper-alloy scrap accounts for the majority of copper-based scrap exported from the United States and the majority of copper-based scrap consumed in the United States.[23] Thus, ISRI's discussion contrasting the consumption of No. 1 and No. 2 scrap does not even address the forms of copper-based scrap that are most salient to the analysis.

This oversight on the part of ISRI is particularly perplexing, given that ISRI literally "wrote the book" that defines the various forms of non-ferrous scrap. As shown at the ISRI

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[22] Petitioners are currently awaiting the full explanation of the findings and methodology of the Nathan Associates analysis as promised by Mr. Damuth at the Department's hearing.

[23] Petition at 8, 12-13. As summarized by Jolly, USGS listed the major types of copper-based scrap consumed in the United States in 2002 as follows: No. 1 copper (38.5%); No. 2 copper (4.2%); leaded yellow brass (29%); yellow and low brass (8.9%); automobile radiators (3.5%); red brass (4.5%); cartridge brass (6%); low grade ash and residues (1.2%); and a wide variety of other alloy scraps (4.2%). Jolly at 19.

website, the ISRI Scrap Specifications Circular 2003 contains "Guidelines for Nonferrous Scrap: NF-2003.[24] These guidelines show that in addition to forms of No. 1 and No. 2 copper scrap, there are 29 different classifications of copper-alloy scrap, each with its own definition. Indeed, even within the No. 1 grade of copper scrap, there are separate definitions for four different types, and under the No. 2 grade, there are three different definitions (as well as three forms of copper scrap that are classified neither as No. 1 or No. 2 grade). In all, there are 39 different classifications of copper and copper-alloy scrap under the ISRI guidelines. This is a far cry from ISRI's limited discussion contrasting No. 1 and No. 2 copper scrap.

Even ISRI's discussion of No. 1 and No. 2 copper scrap mischaracterizes the nature of these products. While ISRI asserts in its brief that exports of No. 2 copper scrap fall under HTS 7407.00.0080 ("Other Copper Alloy Waste and Scrap"),[25] ISRI's own witness at the hearing, Mr. Tauben, stated (correctly) that this product actually falls under HTS 7404.00.0020 ("Waste and Scrap of Refined Copper"). Because it misunderstood that No. 1 and No. 2 copper scrap fall under the same HTS classification (7404.00.0020), ISRI's claims that contrasting export trends for these two HTS numbers demonstrate that export growth was attributable to declining U.S. consumption of No. 2 copper scrap (see ISRI Comments at 18) is completely wrong.

Further, ISRI's assumption that No. 2 copper scrap is no longer of interest to consumers in the U.S. market since the demise of the secondary smelter industry is not true. As noted by several witnesses at the hearing, No. 2 copper scrap is used by the brass mill industry, and some mills, such as producers of copper bar, consume large quantities of this input. In addition,

[24] ISRI's website prohibits the reproduction of this document, so petitioners are unable to provide the Department with a hard copy; clearly ISRI is capable of providing a copy, although it has not done so to date. The report is available online at www.isri.org/specs.

[25] In its brief, ISRI incorrectly lists this classification as "Other Copper and Alloy Waste and Scrap." ISRI Comments at 18 (emphasis added).

producers represented by the NFFS, most notably ingot makers, rely on No. 2 copper scrap as their major feed stock material.[26] Finally, while there are no more secondary smelters in the United States, primary smelters and refineries continue to consume significant quantities of No. 2 copper scrap.[27] Thus, ISRI's claims that No. 2 copper scrap "would end up in landfills if export controls were imposed" are baseless.[28]

Further, ISRI's assertion that "the vast majority of copper scrap exported is No. 2" is not supported by evidence on the record. As shown at Exhibit 9 of the petition, in each of the years between 1999 and 2003 (other than 2001), U.S. exports of copper-alloy scrap exceeded those of copper scrap (HTS 7404.00.0020). Given that No. 2 copper scrap is classified under the heading of copper scrap (along with No. 1 copper scrap and other types of copper scrap not classified as No. 1 or No. 2), it is simply not possible that No. 2 copper scrap could account for the majority of exports under investigation in this case.[29]

Finally, ISRI's assertions as to the pre-eminent role played by No. 2 copper scrap in the growth of U.S. exports of copper-based scrap downplay an important aspect of the problem.

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[26] Testimony of James L. Mallory at 2.

[27] See Copper in December 2003, USGS Mineral Industry Surveys, March 2004 at Table 10. See also Affidavits of Bernard Schilberg and Devin Denner at Exhibit 3.

[28] One type of copper-based scrap does appear to be used only in small quantities by smelters and refiners within the U.S. market. This extremely low quality product, which the ISRI Guidelines refer to as "Copper Bearing Scrap" (code word "Drove"), is defined as "miscellaneous copper-containing skimmings, grindings, ashes, irony brass and copper, residues and slags" (USGS refers to this as "Low grade and residues"). However, this product is also not classified under any of the four HTS classifications on which export restrictions have been requested. Rather, it is classified under HTS 2620.30.0000 (Ash and residues containing mainly copper).

[29] The precise volume of No. 2 copper scrap exported is impossible for petitioners to calculate, because the HTS classifications are not based on scrap grades. Clearly, however, if No. 2 copper scrap is only one element of the overall HTS category of copper scrap, and copper scrap accounted for a minority of the total copper-based scrap export volume, there is no way the No. 2 copper scrap could account for a majority of the total exports subject to this investigation.

Much No. 2 copper scrap can be converted to No. 1 copper scrap through the processing of the material by scrap processors. Indeed, many scrap processors in the United States have made substantial investments in machinery to allow them to quickly and efficiently convert No. 2 scrap into No. 1 scrap. However, much of this No. 2 material is being exported for processing in China, and U.S. processing equipment sits idle. Thus, even to the extent that No. 2 copper scrap is being exported, some part of that volume would have been converted for consumption in the United States as No. 1 copper scrap, had it not been purchased for export. The lines that ISRI asserts exist between No. 1 and No. 2 copper scrap are, in fact, not clearly drawn.

In summary, the analysis proffered by ISRI is incomplete and misleading. No. 2 copper scrap does not account for a majority of exports being examined under this investigation and continues to be consumed in large quantities in the United States. Further, the Harmonized Tariff Schedule distinguishes among types of copper-based scrap on the basis of alloy, not grade. Indeed, the single exception to this rule, the classification for low-quality ash and residues containing copper (HTS 2620.30.0000) is not even included within the scope of this investigation, and no export limitation has been requested by petitioners in relation to this classification. Given that there are nearly forty different classifications of copper-based scrap (as created and defined by ISRI itself), any attempt to impose a quota on the basis of scrap quality appears to be administratively problematic. As originally requested by petitioners, the only way that an export quota could be tracked and allocated would be on the basis of the four HTS numbers under which copper-based scrap is classified.

C. Imposition of Controls on Exports of Copper-Based Scrap from the United States Would Not Violate U.S. Obligations Under the International Trade Agreements of the World Trade Organization

ISRI erroneously has concluded that the imposition of short-supply relief as to exports of copper-based scrap would violate obligations of the United States under the General Agreement

on Tariffs and Trade of 1994 ("GATT"). It is true that Article XI:1 of the GATT broadly proscribes export controls. Article XI:2(a), however, explicitly authorizes an exception to that general rule and permits prohibitions or restrictions that are "temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party."

The relief sought by the co-petitioners under 50 U.S.C. App. § 2406(c) is consistent with the criteria contained in Article XI:2(a) of the GATT. The measures requested include: (a) the monitoring of exports and regular (hopefully weekly) reports of the information gathered, with non-confidential versions of the reports released; (b) imposition of a monthly, volume-based quota equal to 31,678 metric tons for U.S. exports of copper-based scrap over a period of one year; and (c) an extension of that period in the event of continued supply shortages. The proposed quota reflects exports of copper-based scrap during the reasonably normal, five-year timeframe of 1996-2000 and would be allocated among destination countries in a historically-based, non-discriminatory manner in accord with Article XIII:1 of the GATT.

This short-supply relief pursuant to 50 U.S.C. App. § 2406(c) would be justified under Article XI:2(a) of the GATT. First, the proposed monitoring and monthly quota would be for an initial period of a year and so would be "temporarily" applied measures. Second, as has been demonstrated, there is a "critical" shortage of copper-based scrap in the United States. Copper-based scrap is already dangerously scarce and will become more so if export controls are not instituted. Third, copper-based scrap is "essential" to the United States. This raw material is of central importance to the efficient production of a series of semi-fabricated copper and copper-alloy products and also for ingots used by brass and bronze foundries. The list of downstream products derived from these semi-fabricated copper and copper-alloy products and from the brass

and bronze foundries' castings is virtually endless and encompasses items that are vital to our computerized society, national defense, and economic prosperity generally. If copper-based scrap were not so indispensable, China particularly would not be making the extraordinary efforts it is to obtain for itself enormous quantities of this raw material as quickly as possible.

In raising the contention that short-supply relief would be at odds with the obligations of the United States under the GATT, ISRI has cited the dispute settlement proceeding at the World Trade Organization in Argentina – Measures Affecting the Export of Bovine Hides and the Import of Finished Leather, WT/DS155/R, adopted on 16 Feb. 2001. That case, however, is not on point. In that matter, the focus with respect to Article XI of the GATT was a provision in Argentine law that authorized Argentine tanners' representatives to be present when Argentine customs officials were inspecting hides intended for export. This procedure was found to be a de facto export restriction barred by Article XI:1. Argentina did not establish that its law qualified for the exception recognized by Article XI:2(a).

In summary, there are solid grounds to conclude that the short-supply relief requested in this investigation of copper-based scrap satisfies the prerequisites for export controls set forth in Articles XI:2(a) and XIII:1 of the GATT.[30]

D. The Statute Contemplates That Short-Supply Relief Shall Be Granted to a Domestic Industry When Necessary to Carry Out the Export Administration Act's Policy

The question was raised at the hearing on May 19th of whether the Department's short-supply analysis should focus on the domestic economy or a domestic industry. The relevant portions of the Export Administration Act at 50 U.S.C. §§ 2402(2)(C) and 2406(a), (b), and (c)

[30] As a result, there is no need to refer to any exception in Article XX of the GATT, which would come into play only if short-supply relief as to copper-based scrap were inconsistent with Articles XI:2(a) and XIII:1 of the GATT.

variously refer directly or indirectly to "the economy of the United States," "the domestic economy," "the economy or any sector thereof," "an industry or a substantial segment of an industry that processes metallic materials capable of being recycled," "the national economy or any sector thereof, including a domestic industry," and "the national economy or segment thereof, including a domestic industry." Neither in these sections nor in any others of the Export Administration Act of 1979 did Congress define any of these terms. The absence of explicit definitions for these terms in this context stands in sharp contrast to the decision by Congress, also in 1979, in the antidumping and countervailing duty laws to define "industry" with reference to "domestic like product" at 19 U.S.C. §§ 1677(4)(A) and (10).

It is submitted that the statute calls for short-supply relief for the adversely affected domestic copper and brass industry, including the domestic brass and bronze foundries. While Congress perhaps was not as precise in its drafting as might be wished, the legislative purpose expressed in the Export Administration Act's short-supply sections as a whole clearly was to protect a domestic industry that has been or may be significantly adversely affected by an excessive drain of scarce recyclable metallic materials and by a serious inflationary impact of foreign demand.

The first step, of course, in interpreting the statute is to ask if Congress has spoken to the issue at hand. See, e.g., Norfolk & Western v. Am. Train Dispatchers, 499 U.S. 117, 128 (1991). In 50 U.S.C. App. § 2402(2)(C), Congress declared the policy of the United States to be " . . .to use export controls only after full consideration of the impact on the economy of the United States and only to the extent necessary -- . . . (C) to restrict the export of goods where necessary to protect the domestic economy from the excessive drain of scarce materials and to reduce the serious inflationary impact of foreign demand." At the same time, Congress also directed the

Department in 50 U.S.C. App. § 2406(c)(3)(A)(iv) to determine whether "the national economy or any sector thereof, including a domestic industry" has been or may be adversely affected by a domestic price increase or shortage relative to demand and in 50 U.S.C. App. § 2406(c)(3)(A)(v) to determine whether monitoring or controls or both are necessary to effectuate the policy articulated in 50 U.S.C. App. § 2402(2)(C).

It is clear from the language in 50 U.S.C. App. § 2406(c)(3)(A)(iv) that Congress intended the Department to determine in the alternative whether "a domestic industry" is being adversely affected by a shortage and/or increased prices of recyclable metallic materials. The policy of protecting "the domestic economy" in 50 U.S.C. App. § 2402(2)(C) should not be read to deny short-supply relief to "a domestic industry" found to be adversely affected under 50 U.S.C. App. § 2406(c)(3)(A)(iv).

In the first place, while the statute's references to "a domestic industry" and "the domestic economy" are different terms, it is not necessarily the case that these terms are at odds or inconsistent with each other. As noted earlier, Congress did not define these terms. As a result, it is reasonable to conclude that Congress intended that an adversely affected domestic industry be afforded relief in order to effectuate the policy of protecting the domestic economy.

Second and alternatively, in instances in which different parts of a statute appear to conflict with each other, the canons of statutory construction call for a harmonious and comprehensive reading of those parts wherever possible. See, e.g., United States v. Stauffer Chem. Co., 684 F.2d 1174, 1184 (6th Cir. 1982), aff'd, 464 U.S. 165 (1984). Again, if a domestic industry is adversely affected by a shortage of a recyclable metallic material such as copper-based scrap, relief to that domestic industry should advance the policy of protecting the domestic economy.

Third, absent a statutory text or structure that requires otherwise, a statute should not be construed in a manner that is strained and would render a statutory term superfluous. See, e.g., Dole Food Co. v. Patrickson, 123 S. Ct. 1655, 1661 (2003). By requiring the Department under 50 U.S.C. App. § 2406(c)(3)(A)(iv) to determine whether a domestic industry is adversely affected, Congress must be presumed not to have made that exercise futile and to no purpose. It makes no sense for Congress to have included this provision if such an affirmative finding as to a domestic industry consequently were to be negated and no relief were to be extended under the policy of protecting the domestic economy. This view is reinforced by the fact that nowhere in the short-supply sections of the Export Administration Act did Congress identify, or authorize any balancing by the Department of, factors that could be taken into account by the Department for the purpose of deciding whether relief should be withheld from an adversely affected domestic industry due to other concerns for the domestic economy.

Fourth, and lastly, a commonplace axiom of statutory construction is that the specific governs the more general. See, e.g., Morales v. Trans World Airlines, Inc., 504 U.S. 374, 384 (1992). To the extent that the reference in the alternative to "a domestic industry" in 50 U.S.C. App. § 2406(c)(3)(A)(iv) is more specific than the references to "the economy of the United States" and "the domestic economy" in 50 U.S.C. App. § 2402(2)(C), the statute should be construed to mean that the former provision supersedes the latter and mandates relief for a domestic industry adversely affected by a shortage of recyclable metallic materials. This conclusion is reinforced by the legislative history of the Export Administration Act. Thus, in the debate in the House of Representatives, the proponents of the short-supply language for recyclable metallic materials were emphatic that the procedural measures to be added were designed to ensure an orderly, open, and prompt consideration of those instances involving

shortages and high prices of recyclable metallic materials. At no point was there mention made that a domestic industry adversely affected by such a shortage and high prices would only be entitled to relief if the domestic economy as a whole were adversely affected. See 125 Cong. Rec. H8,068-H8,075 (Sept. 18, 1979).

II. CONCLUSION

As expressed in these comments and elsewhere by the co-petitioners in this investigation, the severe shortage and inflated prices of copper-based scrap that are occurring due to burgeoning exports are a debilitating influence on the U.S. economy as a whole. All the more is there an adverse effect on the domestic industry that consists of U.S. copper and brass mills and U.S. brass and bronze foundries. The co-petitioners are in serious straits due to the shortage and inflated prices of copper-based scrap that are being caused by excessive volumes of exports of this vital raw material. As discussed above, the statute is so worded at 50 U.S.C. App. § 2406(c)(3)(A)(iv) that short-supply relief is to be awarded if "a domestic industry" is adversely

affected. That section is simple and direct and effectively refines and extends the statute's policy of protecting "the domestic economy" in those instances in which "a domestic industry" is adversely affected. Short-supply relief is warranted in this instance to protect and preserve the copper and brass mills and brass and bronze foundries of the United States.

Respectfully submitted,

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Dated: May 27, 2004

EXHIBIT 1

Exhibit 1

Copper Scrap and Comex Cathode Prices and Differentials, Annual Averages 1998-2003, Monthly Averages 2002-2004, and Weekly Samples February - May 2004 (in cents per pound)

	Comex Cathode	No. 1 Scrap	Differential	Diff. as % of Comex Price	No. 2 Scrap	Differential	Diff. as % of Comex Price
1998	75.08	73.55	1.53	2.04%	60.19	14.89	19.83%
1999	72.11	70.88	1.23	1.71%	57.53	14.58	20.22%
2000	83.97	80.67	3.30	3.93%	64.99	18.98	22.60%
2001	72.57	69.62	2.95	4.07%	58.96	13.61	18.75%
2002	71.67	70.23	1.44	2.01%	59.45	12.22	17.05%
2003	81.05	79.86	1.19	1.47%	70.15	10.90	13.45%
2002 Jan.	69.79	67.12	2.67		55.62	14.17	
Feb.	72.23	69.45	2.78		57.29	14.94	
Mar.	74.52	72.19	2.33		59.76	14.76	
Apr.	73.11	71.82	1.29		54.00	19.11	
May	73.22	71.98	1.24		60.39	12.83	
Jun.	76.23	74.78	1.45		71.28	4.95	
Jul.	72.33	71.91	0.42		61.04	11.29	
Aug.	67.82	66.89	0.93		55.64	12.18	
Sep.	67.71	66.80	0.91		55.68	12.03	
Oct.	68.16	66.83	1.33		56.70	11.46	
Nov.	72.57	71.38	1.19		60.50	12.07	
Dec.	72.38	71.60	0.78		61.31	11.07	
2003 Jan.	75.37	73.67	1.70	2.26%	62.38	12.99	17.23%
Feb.	76.96	75.55	1.41	1.83%	63.95	13.01	16.90%
Mar.	75.72	74.69	1.03	1.36%	64.26	11.46	15.13%
Apr.	72.18	70.82	1.36	1.88%	61.80	10.38	14.38%
May	75.05	73.95	1.10	1.47%	64.53	10.52	14.02%
Jun.	76.93	76.29	0.64	0.83%	67.36	9.57	12.44%
Jul.	78.06	73.86	4.20	5.38%	65.00	13.06	16.73%
Aug.	80.00	79.48	0.52	0.65%	69.43	10.57	13.21%
Sep.	81.84	81.96	(0.12)	-0.15%	72.75	9.09	11.11%
Oct.	88.10	87.09	1.01	1.15%	77.89	10.21	11.59%
Nov.	92.68	92.22	0.46	0.50%	82.81	9.87	10.65%
Dec.	99.73	98.76	0.97	0.97%	89.69	10.04	10.07%
2004 Jan.	110.15	108.80	1.35	1.23%	98.38	11.77	10.69%
Feb. 5	117.25	116.50	0.75		106.00	11.25	
Feb. 12	124.25	123.00	1.25		111.00	13.25	
Feb. 19	132.80	130.00	2.80		118.00	14.80	
Feb. 26	134.80	132.50	2.30		121.00	13.80	
Monthly Ave.	127.28	125.50	1.78	1.39%	114.00	13.28	10.43%
Mar. 4	131.75	129.00	2.75		118.00	13.75	
Mar. 11	133.55	132.00	1.55		118.00	15.55	
Mar. 18	136.95	136.00	0.95		121.50	15.45	
Mar. 25	134.55	133.00	1.55		114.00	20.55	
Monthly Ave.	134.20	132.50	1.70	1.27%	117.88	16.33	12.16%
Apr. 1	137.10	136.00	1.10		117.00	20.10	
Apr. 8	131.25	129.00	2.25		110.00	21.25	
Apr. 15	129.45	129.00	0.45		109.50	19.95	
Apr. 22	122.95	122.50	0.45		117.5	5.45	
Apr. 29	119.20	118.00	1.20		97.00	22.20	
Monthly Ave.	125.71	124.63	1.09	0.87%	108.50	17.21	13.69%
May 6	123.85	123.50	0.35		103.00	20.85	
May 13	117.75	116.00	1.75		95.00	22.75	
May 20	118.90	118.00	0.90		90.50	28.40	
May 26	123.25	123.00	0.25		96.00	27.25	
Monthly Ave.	120.94	120.13	0.81	0.67%	96.13	24.81	20.52%

Source: US Geological Survey Copper Annual Table 13 (scrap) and Table 12 (Comex high grade first position cathode price); USGS Monthly Mineral Industry Surveys Tables 12 and 13; and American Metal Market (daily Nonferrous Scrap Prices and Market Guide, Comex Spot Price). No. 1 copper scrap prices are estimated buying prices for carload lots for brass mill scrap. No. 2 scrap prices are estimated buying prices for carload lots for refiners' copper scrap.

EXHIBIT 2

Copper scrap spreads widen as supply rises, prices slide

PHILADELPHIA — With the summer months right around the corner, the copper scrap market has endured some fundamental changes lately, including wider spreads, larger supplies and renewed interest from overseas buyers.

A lack of competition from overseas buyers and a strong flow of secondary material over the past month deflated copper and brass scrap prices and widened price spreads between primary metals and scrap. As a result, many scrap dealers and brokers said copper scrap pricing had reverted to a domestic basis. They also reported widening regional spreads for the first time in months.

Several sources said Bare Bright (No. 1 copper wire) was still on par with July Comex prices, but Refiners No. 1 copper had started to open slightly, selling at 4 to 5 cents under the July Comex price.

On the other hand, China's striking absence from the market over the past few weeks has opened the floodgates on No. 2 copper scrap, a commodity highly coveted by Chinese buyers in earlier months. According to several brokers and dealers, No. 2 copper was selling at 15 to 17 cents under the July Comex price and many said they believed it wouldn't be long before it was 20 cents below Comex.

Several scrap sources reported that Chinese buyers had returned to the market over the past week, shopping for small amounts of low-grade, labor-intensive scrap. "It's not a significant amount of tonnage right now," a Midwest scrap buyer said. "We hear they're buying, but it's not enough to move the price of material like a few months ago."

Another large Midwest scrap recycler said that Chinese buyers already had scheduled appointments for this week and were looking to secure June delivery dates. "They're definitely creeping back, but it isn't the feeding frenzy that it was a few months ago," an ingot maker said. "We're seeing established and reputable buyers consuming low-grade materials."

The Chinese government has been attempting to cool down the country's overheated economy by limiting credit.

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Fax facts . . .

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US Exports of Nonferrous Scrap
(In short tons)

	March	Feb.	Jan.	Year to date 2004	Year to date 2003	Percent change
Aluminum	55,340	50,049	49,255	154,644	144,329	+7.1
UBCs	286	263	388	937	1,627	-36.6
Copper	79,547	60,422	52,861	192,830	171,396	+12.5
Lead	8,169	6,357	4,842	19,368	25,723	-24.7
Nickel	2,209	1,190	1,450	4,849	5,670	-14.5
Zinc	4,404	3,977	3,845	12,226	5,619	+117.6
Totals	**149,955**	**122,258**	**112,641**	**384,854**	**354,264**	**+8.6**

Source: Compiled by *AMM* from data released by the U.S. Commerce Department.

Nonferrous scrap exports soar in March

NEW YORK — China's recent retreat from the U.S. nonferrous scrap market is barely hinted at in the Commerce Department export data for March.

Measured in both physical quantity and dollar value, nonferrous scrap shipments to China (including Hong Kong) exceeded month-earlier and year-earlier levels, accounting for more than half the grand totals.

The March total to all destinations—149,955 short tons—set a record, surpassing the 148,076 tons shipped in October 2003. Canada and South Korea helped achieve the record, and so did China, although it didn't match its purchases in October and November. Mexico, meanwhile, faded sharply in the March data.

The copper and brass category set a monthly record of 79,547 tons vs. the previous high of 71,852 tons in November.

China's January and February purchases are nearly always below trend line due to the Lunar New Year holiday. China's March rebound, though predictable, was a bit flat this year compared with other destinations. China's share of total quantity slipped to 56 percent from 58 percent a month earlier, while its share of total value slipped to 51 percent from 54 percent.

To judge by the impressions of shippers and brokers, the April data could disclose a real slowdown for China, but that won't be known until June.

Shipments of zinc scrap have been quite strong so far this year. Although none of the first three months of this year reached the 4,994 tons of November 2003, the year-to-date total of 12,226 tons was more than double the 5,619 tons shipped overseas in the same period last year and the 6,019 tons in the first quarter of 2002.

Exports of nickel scrap were down 14.5 percent year to date, despite a strong rebound in March.

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AMM WEEKLY SCRAP COMPOSITES

Averages calculated each Friday, based on data effective from the previous Friday - Thursday. Prices are in US$/gross ton.

NO. 1 HEAVY MELT — calculation date —	05/14/04	Prior Wk	Year Ago
Chicago	$180.00	$196.00	$103.50
Philadelphia	163.00	173.60	109.50
Pittsburgh	164.00	184.00	122.50
Composite	**$169.00**	**$184.53**	**$111.83**

SHREDDED SCRAP — calculation date —	05/14/04	Prior Wk	Year Ago
Birmingham	$180.00	$195.00	$133.60
Chicago	185.00	199.00	127.20
Houston	162.00	202.00	124.00
Philadelphia	184.00	189.20	118.10
Pittsburgh	185.00	192.00	130.00
Composite	**$179.20**	**$195.44**	**$126.58**

Wise Metals Group secures $225 million in new financing

NEW YORK — Wise Metals Group LLC said Monday it had obtained $225 million in new financing, including $150 million from institutional investors who took senior secured notes that expire in 2012 and can't be terminated during the first four years.

Wise is parent of a scrap-consuming aluminum mill in Muscle Shoals, Ala. The facility produced 15 percent of U.S. can stock last year, the company told prospective investors.

The notes were supplemented by a new $75-million credit line from banks, secured by inventory and receivables, according to the Linthicum, Md., company. Associated with Wise Metals in issuing the notes was an entity called Wise Alloy Finance Corp.

David F. D'Addario, Wise Metals' chairman and chief executive officer, welcomed the "long-term, stable financing, which we secured at a time when many believe interest rates soon will be on the rise."

A company statement said some of the money would be used to repurchase minority owners' stakes, which would boost D'Addario's shareholding beyond the current 70 percent.

Wise Metals Group will remain privately held, but the scope of the new debt securities will require it to begin providing the U.S. Securities and Exchange Commission with quarterly financial data, it was confirmed by Danny Mendelson, executive vice president and chief financial officer, in response to an *AMM* query relayed through a spokesman.

The Wise spokesman said the new funds wouldn't be used to finance acquisitions. The listed purposes include expansion of working capital, repayment of term loans and repurchase of subordinated notes.

The Alabama rolling mill dates back to 1941 and scrap reclamation began at the site in 1969; for most of its history it was part of the former Reynolds Metals Co. A recent estimate put capacity at 950 million pounds per year. Reynolds sold the plant in 1999 as it was being absorbed by Alcoa Inc. Connecticut-based D'Addario, a participant in the purchase, became majority shareholder in 2001.

To improve its marketing clout with customers outside the packaging industry, the Alabama mill last year arranged a five-year alliance with Commonwealth Industries Inc., Louisville, Ky., another sheet producer. The Commonwealth sales force will handle such Wise items as alloy 3003 truck trailer roof coil, 5052 boat sheet and 3003 bright tread sheet.

D'Addario also is president and chief executive officer of D'Addario Industries, Bridgeport, Conn., a family owned company that dates back two generations. Its activities include manufacturing, broadcasting and trucking.

Paul Schaffer *pschaffer@amm.com*

SECONDARY INDUSTRY MEETINGS

MAY 24-26 — Bureau of International Recycling, Maritim proArte Hotel, Berlin; spring convention.

JUNE 2-4 — International Congress and Marketing, Teatro Sociale di Como, Como, Italy; international congress for battery recycling.

JUNE 4 — Institute of Scrap Recycling Industries, Pacific Northwest Chapter, Delta Victoria Hotel, Victoria, British Columbia; chapter meeting.

JUNE 5-7 — Canadian Association of Recycling Industries, Fairmont Empress Hotel, Victoria, British Columbia; 63rd annual general meeting, convention and exposition.

JUNE 6 — Institute of Scrap Recycling Industries, Mid-America Chapter, Busch Stadium, St. Louis; chapter meeting.

JUNE 8 — Institute of Scrap Recycling Industries, Wisconsin Chapter, Mequon Country Club, Mequon, Wis.; golf outing.

JUNE 9 — Institute of Scrap Recycling Industries, New Jersey Chapter and New York Chapter, Royce Brook Golf Club, Hillsborough, N.J.; joint summer meeting and golf outing.

JUNE 9-11 — Recycling Council of British Columbia, Delta Whistler Resort, Whistler, British Columbia; 30th annual waste reduction conference.

JUNE 16-19 — Institute of Scrap Recycling Industries, Gulf Coast Chapter, Sheraton Hotel, New Orleans; chapter convention.

JUNE 21-24 — Colorado School of Mines, Recycling Metals from Industrial Waste workshop, Green Center, Golden, Colo.

US Exports of Copper Scrap

(in short tons)

	March	Feb.	Jan.	Year to date 2004	2003	Percent change
Belgium	1,128	712	869	2,709	1,719	+57.6
Canada	4,816	2,842	2,692	10,350	11,353	-8.8
China	50,938	40,364	35,945	127,247	107,386	+18.5
Germany	1,453	1,466	1,141	4,060	5,706	-28.8
Hong Kong	3,509	2,072	972	6,553	1,950	+236.1
India	4,312	3,431	2,523	10,266	12,097	-15.1
Japan	1,744	922	1,027	3,693	5,990	-38.3
Mexico	514	587	495	1,596	815	+95.8
S. Korea	5,801	4,514	4,206	14,521	13,091	+10.9
Taiwan	3,821	2,570	1,812	8,203	5,629	+45.7
Others	1,511	942	1,179	3,632	5,660	-35.8
Totals	**79,547**	**60,422**	**52,861**	**192,830**	**171,396**	**+12.5**

Source: Compiled by *AMM* from data released by the U.S. Commerce Department

March copper exports set 13-year high

PHILADELPHIA — A firestorm of copper scrap activity earlier this year finally revealed itself in the U.S. Commerce Department's monthly export figures, which saw March exports reach their highest level in 13 years.

U.S. exports of copper and brass scrap totaled 79,547 short tons in March, up 31.7 percent from the previous month, pushing the year-to-date total to 192,830 tons, 12.5 percent ahead of 171,396 tons a year earlier.

One broker said U.S.-generated copper scrap in March still represented a tremendous bargain for international consumers and overseas smelters. Even though copper scrap prices jumped considerably during the fourth quarter of 2003, the international community was already forecasting higher prices and increased demand from U.S. manufacturers. As a result, the broker said, many operations overseas—most in China—were stockpiling materials.

Chinese buyers led the way in March, purchasing 50,938 tons of mainly refined copper scrap and copper alloy scrap, up 26.2 percent from 40,364 tons in February and accounting for 64 percent of U.S. exports. Chinese purchases were well within recent price ranges, averaging 44 cents per pound for both the copper and brass scrap, but overall pricing climbed for the fourth consecutive month and closed out March at 55 cents per pound.

China wasn't the only major outlet for U.S. copper and brass scrap in March. The Commerce figures showed higher exports of the scrap to all but one of the major metal-importing nations, including record shipments of copper and brass scrap to Hong Kong, South Korea and Taiwan.

Joseph McCann
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Japan scrap auction packs pleasant surprise for traders

TOKYO — An auction of Japanese ferrous scrap by Kanto-based scrap dealers for export during June drew few bidders, but the winning tenders were higher than expected.

"I was surprised by the comparatively good number," one Tokyo-based trader acknowledged. "I had expected around 17,500 yen ($152.84) or lower."

The three winning bids for 15,000 tonnes of H2 grade material on offer by the Kanto Tetsugen group of scrap dealers serving the Tokyo-Chiba-Yokohama region ranged from 18,050 to 18,150 yen ($157.64 to $158.51) a tonne, f.a.s.

Although traders expressed surprise that the winning tenders weren't lower, given weakening Asian scrap prices, the average price still represented a reduction of some 1,800 yen ($15.72) a tonne from last month's auction.

A trader suggested that one of the bids had been submitted by a large trading house, which had made a short sale to Taiwan "so they could afford to offer such a price. But for the others, it will not be easy to sell because most buyers expect lower prices."

Only five trading companies took part in Thursday's auction, about a third of the number on the Kanto Tetsugen's list of invitees to its monthly sales. One offer was believed to have been as low as 16,000 yen ($139.92) a tonne, f.a.s.

AMM WEEKLY SCRAP COMPOSITES

Averages calculated each Friday, based on data effective from the previous Friday - Thursday. Prices are in US$/gross ton.

NO. 1 HEAVY MELT

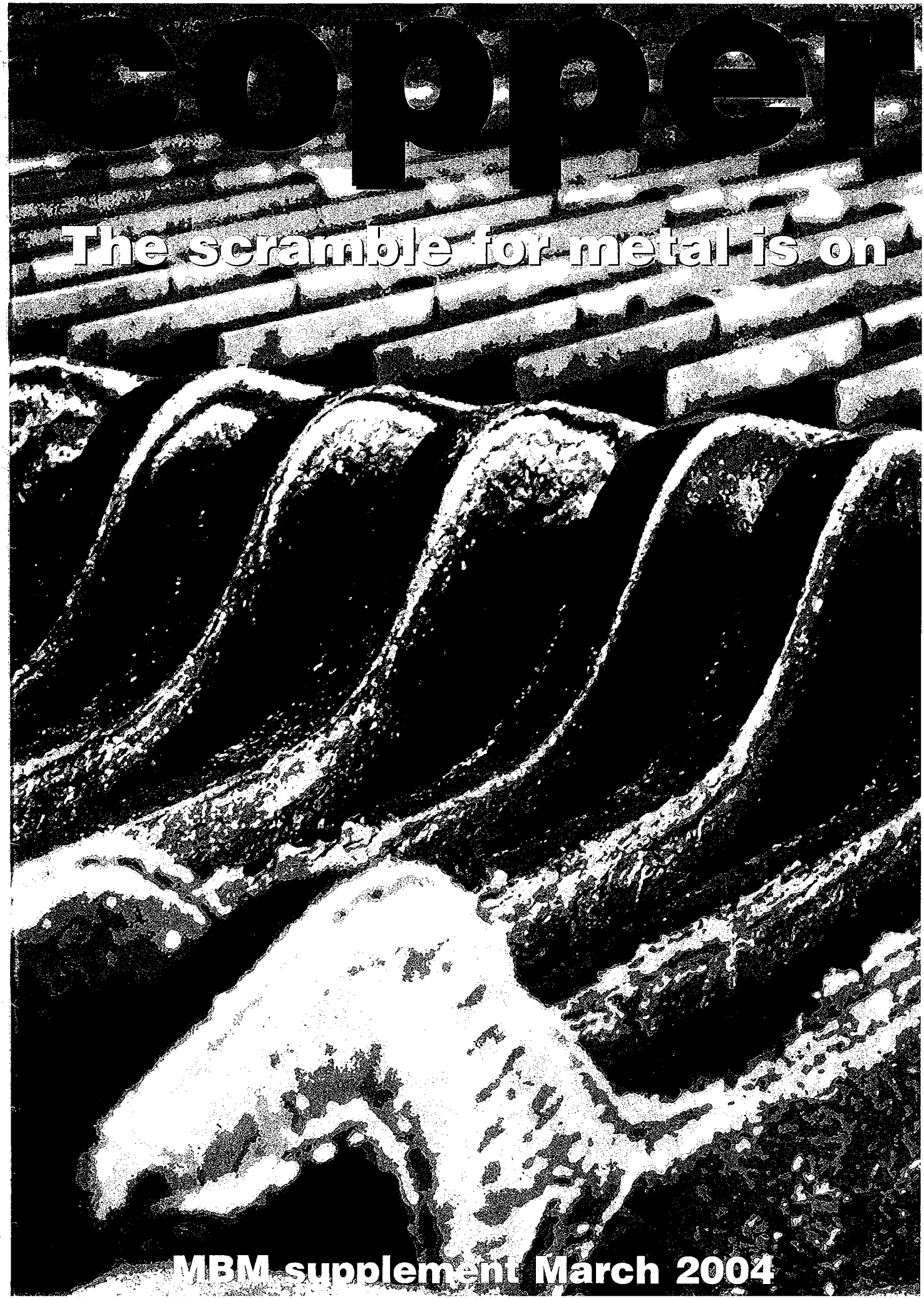
— calculation date —	05/14/04	Prior Wk	Year Ago
Chicago	$180.00	$196.00	$96.50
Philadelphia	163.00	173.60	109.50
Pittsburgh	164.00	184.00	114.50
Composite	**$169.00**	**$184.53**	**$106.83**

SHREDDED SCRAP

— calculation date —	05/14/04	Prior Wk	Year Ago
Birmingham	$180.00	$195.00	$129.00
Chicago	185.00	199.00	121.00
Houston	162.00	202.00	112.00
Philadelphia	184.00	189.20	118.50
Pittsburgh	185.00	192.00	127.00
Composite	**$179.20**	**$195.44**	**$121.50**

copper

The scramble for metal is on



MBM supplement March 2004

Can momentum be maintained?

China's insatiable appetite for copper combined with international supply disruptions tightened the copper market balance dramatically last year. **Andy Cole** assesses the prospects for nascent recovery in Western world economies continuing and the likely effect on demand.

Of the six major base metals traded on the LME, copper was one of the star performers in 2003. By the end of the year, prices had risen by over 50% to score a series of near seven-year highs above the magic $1/lb level, while LME stocks had virtually halved. Indeed, MBR estimates that the Western world refined copper market was running at a deficit in excess of 400,000 tonnes last year. This all compares markedly with 2001 and 2002, when prices slumped to historical lows and the market was burdened by a surplus of metal as stocks ballooned.

The spectacular recovery in the fortunes of the copper market in 2003 is especially remarkable considering that it was achieved in the absence of any real strength in Western demand. The latest data from the International Copper Study Group (ICSG) reveal that refined copper consumption in the West between January and October 2003 was a mere 0.3% higher than during the cyclical doldrums of the same ten-month period in 2002.

Instead, the copper market's turnaround was driven by China's insatiable appetite for all things copper, and by the supply side; the latter coming by way of both planned production cutbacks, and more recently a wave of unexpected disruptions, such as strikes and accidents. These factors will continue to exert their influence on the market balance well into 2004.

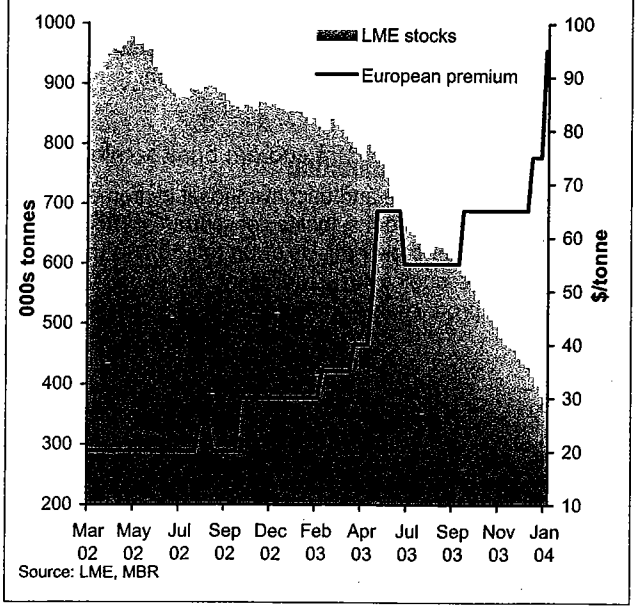
The copper market could be set for fireworks this year

Add to the equation a belated recovery in Western world demand, not to mention the start of restocking by consumers, and the copper market could be set for fireworks this year.

Indeed, the beginnings of a desperate scramble for metal are already evident as the effects of the US-led global economic recovery filters through to the copper industry, where semis manufacturers are getting increasingly concerned over cathode availability this year. This is due to the tightness in concentrate supply that is capping refinery output, particularly in the Far East, and a shortage of freight capacity.

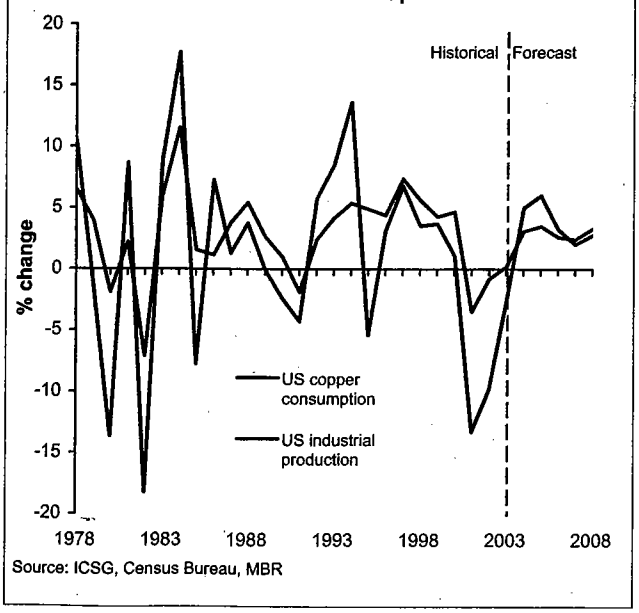
The result is that while order books are beginning to fill up, supplies of refined copper are limited and becoming difficult to source, premiums are soaring, and consumers have been forced to call on LME warehouse stocks to ensure their supply.

Sharply falling stocks & soaring premiums signal that the physical copper market has emerged from its doldrums



Source: LME, MBR

Copper consumption trends mirror industrial production, which is now on the up



Source: ICSG, Census Bureau, MBR

While metal has been exiting warehouses at a rate of 15,000-20,000 tonnes per week in 2004 to date, around one third of the remaining LME stock is currently on cancelled warrant status, meaning that it too is slated for removal in the coming weeks.

Therefore, while official ICSG demand statistics do not yet tell the whole story, it is clear that consumers are now very active and are facing a busy year.

But, where is this rejuvenated demand coming from and how long will it last? A look at the current situation and the outlook in the four major copper-consuming economies – the USA, Western Europe, Japan and China – provides answers to these questions.

USA

US manufacturing, business spending and industrial output embarked on a recovery in the second half of 2003, and this will accelerate in 2004. MBR is forecasting industrial production (IP) growth of over 3% this year and next.

However, we expect that the upward trend in growth will be short-lived, with the first half of 2006 likely to be when the technical factors of economic cycles take hold, slowing growth to closer to 2% for the subsequent few years. This pattern will be mirrored in the broader global economy over this period.

Historical trends in copper consumption show a clear correlation with the IP cycle, which is unsurprising given that copper's demand is underpinned by many industrial applications. It is sufficient to say here that, typically for every 1% increase in IP, copper consumption will rise by close to 0.9%. This indicator suggests that over the next five years US copper demand growth will average 2.7% per annum, with the fastest growth coming in 2005 at 3.2%.

However, given the latest data on the strength of the manufacturing pick-up in the USA, these estimates would appear to be on the conservative side. Even accounting for a shift in a proportion of manufacturing activity to China, MBR would forecast growth rates of around 5% in 2004 and 2005.

Evidence to support this more bullish view is abundant. The Institute for Supply Management's manufacturing activity index, the key indicator of the health of the broad manufacturing sector which correlates closely with copper demand conditions, is at a 20-year high. More significantly, new orders – a crucial indicator of future activity – has exploded to a 50-year high in recent months, with export orders aided by the weaker dollar.

Other copper-specific indicators such as the USGS copper industry index and data on copper and brass shipments have also taken off encouragingly, with even the beleaguered electrical products sector joining the party.

Western Europe

The economic recovery in Europe has lagged that of the USA so far, and this is likely to remain the case going forward due to weaker consumer spending and the burden of the stronger euro. MBR is forecasting IP growth of 2.5% and 2.9% in 2004 and 2005 respectively, falling to 1.8% by 2008.

Collectively, the economies of Western Europe account for nearly one quarter of total world copper demand, with Germany alone, the region's largest consumer, accounting for approximately 7%. German industrial and manufacturing activity is slowly recovering from two years of recession and stagnation, and it is encouraging to see that domestic copper product shipments bottomed out in the third quarter of 2003 and are on a rising trend again.

MBR has allowed for copper demand growth of up to 3% in 2004 and 2005, dropping to an annual average of 2% from 2006 to 2008.

Japan

The lingering need for restructuring in the Japanese economy is likely to continue to hamper growth, while the shift abroad of the domestic manufacturing base is also taking its toll on output. Accordingly, MBR forecasts IP growth in Japan at less than 0.5% in 2004, rising to 1.4% in 2005 before declining back to 1% in 2008.

However, of the major Western world economies, Japan was the only one for which consumption of copper increased in 2003 compared with 2002. Despite relatively poor domestic demand, Japanese consumption actually rose by around 3% thanks to export demand from China. Indeed, China's ongoing hunger for copper will continue to underpin the Japanese copper semi-fabricating industry and we duly expect to see consumption of refined copper grow by between 3% and 6% from 2004 to 2008.

China

No round-up of copper demand trends would be complete without considering China. On average over the last five

Copper by end use

Construction

In terms of copper consumption by end use, the construction sector is dominant as demand for air conditioning units, plumbing, wiring and cabling in renovated or new buildings increases. The construction sector is copper's largest end-use market, accounting for 35-45% of all copper consumed in mature economies, while in developing countries the figure is estimated to be as high as 60%. Within this sector, building wire (wiring within buildings connecting power points to public distribution networks) is copper's single most important market.

Electrical products

The electrical products sector has managed to hold its own against the impact of substitution, and in developed economies today continues to account for anywhere between 25% and 30% of total copper demand. Markets within this sector include telecommunications, power and general home electronics, with almost all benefiting from the IT boom of the mid-1980s. More stable growth rates are now more likely to be associated with this sector as the market reaches its saturation level and replacement demand becomes the main driver. The impact of fibre optic cable will be more acutely felt as it increasingly takes a toll on copper consumption in this sector.

Industrial machinery and equipment

The industrial machinery and equipment sector accounts for between 10 and 15% of copper demand in the mature economies. The main portion of consumption comes from heavy industry, ie, machinery used to manufacture goods, but also includes generators and transformers needed to power industrial equipment. The consumer and general products market predominantly consumes copper in the form of wire and cable, which is used in appliance and extension cords and in small motors in white goods.

Transport

Finally, the transport sector clearly exhibits signs of benefiting from rising consumption of copper wiring in each vehicle, outweighing its loss to aluminium in the radiator market. Rapid growth in electrical and electronic components has continued to drive the amount of wire and cable consumed for powering these units.

years, apparent consumption has grown by a staggering 17.5% per annum, and in the process China overtook the USA as the world's leading copper-consuming economy.

The growth has been driven by copper-intensive manufacturing activity being relocated into China – a trend that is still accelerating – and by massive infrastructure projects, which are also continuing, such as the Three Gorges Dam project, the 2008 Olympics and the 2010 World Expo. The growing prosperity of domestic consumers is a third major contributing factor.

MBR calculates that China's apparent consumption of copper in 2003 was 14% greater than in 2002, and there is no reason why similar strength cannot be maintained. We forecast average growth in copper demand of 9% over the next five years.

This bullish outlook for global copper demand should be tempered, however, with mention of the downside risks. These include: economic imbalances, such as the US current account deficit; terrorist activity; an accelerated decline of the US dollar, which could have serious implications for growth in Europe and Japan; and a resurgence of SARS. At present, however, these risks do not feature in MBR's base case forecasts and we expect global copper consumption growth be 5.5% this year and to be close to this figure again in 2005. ■

The growing prosperity of Chinese consumers – not least in booming Shanghai – is a major contributor to putting the country at the top of the global list of copper-consuming economies

The author is the base metals analyst at Metal Bulletin Research. MBR is currently preparing a major 10-year forecast report on the global copper market – contact marketing@metalbulletinresearch.com for details.

A flying start

The surge in copper price shows little sign of abating. **Richard Barrett** reviews the latest statistics and outlines developments in what is already proving to be a hectic year.

Copper prices had jumped to a seven-and-a-half-year high as *MBM* went to press in mid-February, when the LME cash price reached over $2,700/tonne. With prices spurred on by rapidly diminishing LME stocks – dropping at a rate of around 4,000 tonnes/day – and every expectation of a growing supply deficit, fuelled by continuing high demand from China, some market observers see $3,000/tonne as an achievable target.

Latest International Copper Study Group (ICSG) data released in February show the trend. World refined copper production was already in deficit by 421,000 tonnes for the first 11 months of 2003, compared with a production surplus of 75,000 tonnes for the corresponding period in the previous year (*see table*).

The refined market balance for last November alone showed a deficit of 63,000 tonnes. Total world stocks of refined copper showed only a little movement that month as the draw-down of exchange stocks was balanced by an increase in producer stocks – mainly in Chile.

World refined copper consumption increased 6.5% in November compared with the previous month, primarily caused by higher apparent usage in China, Taiwan and Japan. US and EU consumption for the month was up by 4.3% and 3.6%, respectively, on the same month in 2002. World refined usage for the first 11 months of 2003 grew by 2.4% compared with January-November 2002.

To look at supply, refined copper production, including secondary metal, actually decreased by 1.1% in the first eleven months of last year compared with the equivalent period in 2002. Output from the use of scrap fell by 11% but primary refined production remained stable (+0.2%). Production from mines was up by 1.2% over the 11 months to November 2003 compared with the same term a year earlier, but fell behind primary refined output in November.

By the end of January this year, copper stocks held at the major metal exchanges (LME, Comex, SHFE) totalled 710,922 tonnes, a decrease of 95,096 tonnes from the levels held at the end of December, reflecting falling inventories at the warehouses of all the exchanges.

Supply problems

The run on stocks and rise in price has been further fuelled in recent months by disruptions to supply caused by strikes and other production problems.

After protracted negotiations, workers at the Highland Valley Copper mine near Kamloops, British Columbia, approved a new three-year labour contract in late January. The USW had held a strike mandate and only needed to give 72 hours' notice before walking out. A separate seven-day strike action over pay at BHP Billiton's Cerro Colorado copper mine in Chile ended in early February. Production was reduced to 25% of the mine's 130,000 tpy capacity over that period. Another strike in northern Chile, involving 300 workers at the Codelco-owned Chuquicamata copper mine, caused further nervousness on the markets.

Following the mechanical failure of a grinding mill that temporarily cut production by half, the Ok Tedi copper mine in Papua New Guinea planned a return to full-scale operations by early March. Toronto-based Inmet Mining Corp, which has an 18% stake in the operation, said that the expected production loss at the mine would represent about 3% of its total planned 2004 copper concentrates output – or 18,000 tonnes.

But most serious of all, two landslides at Freeport-McMoRan Copper & Gold's Grasberg mine in Indonesia in October and December forced it to declare *force majeure* and to switch to mining low-grade ore. It does not expect to resume mining high-grade material until the second quarter of this year. Freeport has revised its 2004 production estimates to 1bn lb (454,000 tonnes) of copper from an original projection of 1.4bn lb.

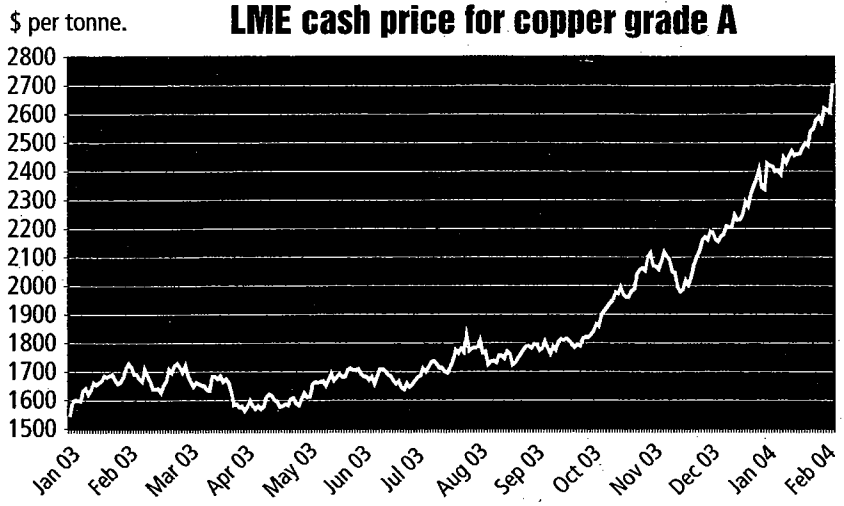
Tight supply prompted Phelps Dodge to plan restarts of several idled operations, restoring 108,000 tonnes of production capacity this year. It has already restarted idled capacity at its Sierrita and Bagdad mines in Arizona and is bringing operations back on stream in New Mexico and Chile.

Sierrita is expected to return to its full capacity of 120,000 tpy in the second half of this year after previously operating at a rate of around 50,000 tpy. Bagdad, which was operating at a rate of 75,000 tpy, will reach full capacity of 128,000 tpy by the second quarter. And the idled Cobre Mine in New Mexico should reach full capacity of 22,700 tpy by the third quarter.

In Chile, Phelps Dodge plans to resume underground mining and also milling operations at Ojos del Salado, which will increase production by 20,400 tpy. The firm's Miami, Arizona, smelter is expected to ramp up to 100% of capacity by the third quarter, while a mill at Chino in New Mexico would be restarted, bringing the operation up to 50% of capacity. Overall, Phelps anticipates producing nearly 1.07m tonnes of copper in 2004, an 11% increase on production in 2003, and 1.13m tonnes in 2005.

Smelters suffer

These plans, and a decision by Codelco to sell its 200,000 tonne stockpile of cathode, have provided little comfort to copper smelters elsewhere in the world. In January, European smelters saw initial settlements point to a 20-year low for contract treatment and refining charges (TC/RCs) at around $37-45/tonne and 3.3-4.4 cents/lb. Concentrate suppliers also had the upper hand in negotiations with Japanese smelters, which cut their treatment and refining charges by almost $20/tonne for one-year contracts. It was reported that some smelters in Japan set-



			2003	2004
World mine production	13,574	12,885	13,173	
World mine capacity	16,177	15,785	16,244	
Mine capacity utilization (%)	83.9	81.6	81.1	
Primary (mine) production	13,519	12,353	12,380	
World refinery capacity	18,277	16,703	17,210	
Refineries capacity utilization (%)	74.0	74	71.9	
World refined usage	15,138	13,976	14,317	
Refined balance	214	75	42	

2000 tonnes of copper. Source: ICSG

tled for a TC/RC of $39/tonne and 3.9 cents/lb, compared with $58 and 5.8 cents for 2003.

Regional round-up

While developments in demand will ultimately determine the health of the copper market (*see page 6*), the current rise in copper price has refreshed the viability of many mining projects globally.

DRC. South Africa's Kumba Resources is due to hold talks with the Democratic Republic of Congo (DRC) state miner Gecamines in March in an attempt to push the Kamoto copper-cobalt project forward. It was delayed because of the instability and war that gripped the country until 2002.

The DRC government announced last year that it intended to increase the country's falling copper production by refurbishing the mine with assistance from Canada's Kinross Gold Corp, but Kumba now appears to be in the running following an official visit to the DRC by South African president Thabo Mbeki in January.

Gecamines aims to lift 2004 copper output to 25,000 tpy from 8,200 tonnes last year and the firm is said to have even more ambitious plans to push copper production to 100,000 tpy, excluding production from its joint venture partners, by 2007.

In another development, South Africa's Mvelaphanda Holdings signed up to the Ruashi copper-cobalt mine on behalf of a South African business consortium during Mbeki's visit. Around $100m will be invested in the mine, which will initially process stockpiled ore.

January also saw KGHM's decision to resume its copper-cobalt mining project in the country. The Polish copper producer has plans for a 100,000 tpy copper-cobalt ore processing plant at its Kimpe concession in DRC's Katanga province. The month also saw DRC give its conditional approval to America Mineral Fields' (AMF) Kolwezi copper-cobalt tailings project, which aims to produce 42,000 tpy of copper and should have a mine life of 38 years.

Zambia. Zambia wants to sell the Konkola Deep Mining Project (KDMP) to India's Sterlite Industries as well as the main assets of Konkola Copper Mines (KCM), Zambian finance minister Peter Magande is reported to have said in early February.

KDMP development costs were estimated at $1bn by previous KCM owners Anglo American, which exited from KCM and KDMP in 2002. KDMP was to have raised copper production at the underground mine complex to 231,000 tpy from 50,000 tpy in 2007.

As *MBM* went to press, the Lusaka government and Sterlite, the main subsidiary of London-listed base metals group Vedanta Resources, were still discussing the sale of KCM, which accounts for around two-thirds of Zambia's copper output in operating the Konkola and Nchanga copper and cobalt mines.

Swiss-based J&W Holding purchased the Zambian Buluba and Luanshya copper-cobalt mines in December, paying $7.5m for them and pledging a further $30m for development.

India. Vedanta Resources (Sterlite) increased its production of copper cathode in the first nine months of last year compared with the corresponding period in 2002. Production of copper cathode rose 20% to 137,000 tonnes during the period following a de-bottlenecking programme at the 180,000 tpy Silvassa refinery in western India. Vedanta is in the final stages of commissioning a 300,000 tpy smelter and 127,000 tpy refinery at its Tuticorin complex in southern India.

Peru. Bidding for Peru's Las Bambas, a copper deposit that has attracted some of the world's top mining companies, depends on congressional approval of a bill that would modify the General Mining Law to give the government authority to consolidate properties around the deposit. Located in southern Peru, the deposit could require investment of up to $2bn, and an auction date early this year has been projected. It is claimed that the project has at least 40m tonnes of high-grade copper. Peru's copper output dipped 0.5% year-on-year in 2003 to 839,223 tonnes, according to energy & mines ministry data.

Brazil. Companhia Vale do Rio Doce (CVRD) will begin copper production at two new sites in Brazil. The Brazilian miner has earmarked $61.3m to begin copper production, which will start when its 140,000 tpy Sossego copper concentrate mine comes on stream in the first quarter of 2004, with production to be ramped in in the second quarter. Commercial production will start in July.

CVRD will also invest a further $44.8m in its 118 copper project this year. Due to come on stream in December, the mine will produce 45,000 tpy of copper cathode using SX-EW.

Philippines. Japan's Pan Pacific Copper (PPC) signed a letter of intent in mid-January to extend a US$15m loan to Philex Mining Corp of the Philippines to ▷

further develop the Padcal copper-gold mine in Benguet province, southern Luzon. PPC hopes the first draw-down from the loan will be made within first quarter of this year, with the formal agreement with Philex signed at around the same time.

The money will extend the Padcal mine's life until 2011, and allow the Japanese to increase their annual uptake of Padcal concentrates to between 50,000 tpy and 70,000 tpy. Padcal is currently generating between 70,000 and 80,000 tpy of copper concentrates.

Australia. WMC Resources is predicting that its copper production will be down by 4,000 tonnes this year compared with original forecasts. The commissioning of the SX-EW plant at its Olympic Dam copper operations, where construction was completed at the end of last year, will continue through most of this quarter. Copper production is forecast to be around 231,000 tonnes this year, compared with 160,000 tonnes last year.

Xstrata has merged its Australian and American copper assets into a single business entity, Xstrata Copper, based in Brisbane, Australia. It replaces the interim structure of Xstrata Copper Australia and Xstrata Copper Americas, established following Xstrata's acquistion last June of Australian miner MIM Holdings, which included the Mount Isa copper mine.

Perth-based mining contractor Barminco has signed a heads of agreement to acquire the Eloise copper mine in Queensland, Australia, from Breakaway Resources for around A$13m (US$10m).

Eloise has a rated capacity to mine 500,000 tpy of ore to produce 70,000 tpy of 29% copper concentrate, but produced just 12,500 tonnes of concentrate in the September quarter.

Oxiana Resources, the Melbourne-based miner, has bought Rio Tinto's 20% stake in the Sepon gold-copper project in Laos for US$85m to become the sole owner. A plant upgrade will be commissioned in January next year and Oxiana anticipates producing 60,000 tpy of copper via the SX-EW route from March 2005.

Europe. EuroZinc Mining, a Canadian mining company, has submitted a bid to acquire the Neves Corvo copper mine in Portugal currently owned by Somincor and Rio Tinto. The company already owns the Aljustrel zinc mine, located 40 km from Neves Corvo, and hopes to achieve costs savings by owning the two operations. A final decision on whether its bid would be accepted was expected by the end of February, and the sale to be completed by May.

Its bid is supported by agreements with Outokumpu and Boliden for the provision of technical services. Boliden will also enter into an agreement with EuroZinc for the off-take of copper concentrates. Neves Corvo produced 320,000 tonnes of copper concentrates in 2002.

Boliden completed a €849m deal to acquire the upstream zinc and copper smelting and mining assets of Outokumpu to create a new entity – New Boliden – which began operating on January 1. New Boliden acquired the copper smelter in Harjavalta, Finland, and its copper refinery in Pori, Finland. These assets make New Boliden a copper smelter with a total capacity of 400,000 tpy.

New Boliden's Harjavalta smelter at present buys its concentrates on the open market and from Portugal's Somincor. The smelter is undergoing expansion to 250,000 tpy next year from its current capacity of 170,000 tpy. ■

Workshop of the world consumes more sheet and strip

China is the world's largest consumer of copper sheet and strip, but by 2005 it expects to be the largest producer too, with its demand and supply in balance. **Li Honglei** outlines the country's present pattern of supply and demand.

Over the last ten years, China's demand for copper sheet and strip has been growing at over 10% a year. In 2002, the country accounted for 20% of world consumption of 3.1m tonnes of copper sheet and strip. Although China's production ranked fourth in the world with output of 433,000 tonnes, the gap with the USA – the world's biggest copper sheet and strip producer – was less than 10% in terms of the total.

While production and sales have been growing, imports have been growing faster – from supplying 28% of consumption in 1997 to one third of China's copper sheet and strip market in 2002 (*see table*).

China's imports of copper sheet and strip are consumed in two main ways – processing of material supplied by customers and processing direct imports – which account for 90% of all imports. Importing companies include joint ventures and export-oriented processing companies.

Owing to technical shortcomings in domestic production, imports are largely at the high technology end, including lead frames, RF cable strip, transformer strip, high-precision phosphorus bronze sheet, and oxygen-free copper sheet. Although imported brass sheet and strip have taken a good market share, they play a less important role in the Chinese copper market due to fierce competition from local products.

China's copper sheet and strip consumption is centred in the southeast and south of China. The region that imports the greatest amount of copper sheet and strip is Guangdong, which imported 150,000 tonnes in 2002 – 70% of the total. Meanwhile, output in these two regions accounts for two-thirds of domestic production.

International copper companies have swarmed into the Chinese copper sheet and strip market by setting up local offices and joint ventures or by making agreements with distributors.

Copper coils at Luoyang Copper Group, China's largest producer

The entry of major companies such as Germany's KME, Finland's Outokumpu and South Korean copper fabricator Poongsan into the Chinese market, and such projects as the service centre established in Shanghai by Wieland, and the joint venture set up by Luoyang Copper and the USA's Olin Brass Industries, have increased the pressure to raise output, reduce delivery times and production costs, and improve customer service.

Competition is raising the standard of products – examples are the phosphorus bronze sheet made by Ningbo Shine Copper and the radiator sheet made by Heze Guangyuan – and cutting costs: the processing fee for H65 brass sheet has fallen by 30%. Backed by advanced equipment, and in response to growing demand, Luoyang Copper has increased production, raising its average market share of lead frames, cable strip and transformer strip to well over 30%.

Consumption will continue to grow, but production capacity is expected to grow faster

Markets

The main industries consuming copper sheet and strip in China are power and energy, home appliances, electronics, communications, automobiles, metallurgy and construction.

During the period 1998-2001, the government invested about US$45bn to renovate the national power grids, increasing electricity generation from 1,368.4bn kWh in 2000 to 1,654.0bn kWh in 2002. Electricity generation from January to September 2003 was 1,542.7bn kWh – up 15.4% over the same period in 2002. There is still potential for growth, with power transmission and transformers likely to grow faster than the power generation industry.

Demand for copper bus bars has increased from about 35,000 tonnes in 2000 to about 90,000 tonnes in 2002, while demand for copper strip for making transformers reached 15,000 tonnes in 2002. Consumption of copper sheet and

strip products by the entire power industry is between 120,000 and 140,000 tpy.

Over the last ten years, the electronics industry has been growing at a rate of over 20% a year. In the period January to September 2003, production of personal computers was over 21m, up 91.4% over the same period in 2002, while the number of integrated circuits reached 9.59bn – up 36.2% over the same period in 2002.

In 2002, demand for phosphorus bronze sheet and strip products used for making electronic plug-in and spring parts was 60,000 tonnes, demand for copper strip used for making integrated circuit (IC) lead frames and other individual electronic components reached 25,000 tonnes, and demand for cable strip used for making RF cables reached 20,000 tonnes.

Since 2002, China's automotive industry has also been growing rapidly. January to September 2003 saw output of 3.26m automobiles, exceeding that of the same period in 2002 by 43%. Demand for sheet and strip for making automotive radiators increased to 20,000 tonnes, and further growth is anticipated at 20-30% a year, with demand for more than 40,000 tpy expected in the next few years. As the level of automation in cars increases, demand for strip for plug-in parts – electrical circuit control and transmission systems – is expected to reach 5,000 tonnes in 2005.

China's IC industry is experiencing a new round of investment. The foundations for an industry chain have already been laid: chip design, manufacture, testing and packaging. International companies such as Intel, IBM and Motorola have set up packaging factories in China.

Based on the data furnished by the Computer and Microelectronics Development Research Institute of the Ministry of Information, the volume of IC packaging in China will grow from 7.7bn pieces in 2002 to 18.8bn units in 2005 – an annual growth rate of 35%. The number of individual electronic parts packaging will increase from 37bn pieces in 2002 to 65bn pieces in 2005, with an annual growth rate of 21%. Calculated on this basis, demand for copper strip for IC lead frames will be 18,800 tonnes, and for individual electronic parts 26,000 tonnes, in 2005.

The market for transformers used in residential buildings has seen fast growth over the last few years. It is expected that demand for the transformer strip used will maintain growth of about 20% in the coming 3-5 years, reaching some 25,000 tonnes of strip in 2005.

China's communications industry, and the mobile communications industry in particular, has continued to grow at a rapid pace. In 2002, production of mobile phones rose by 44% on 2001, and in January to October 2003 by 38% on the same period in 2002. It is estimated that growth will drop slightly in the coming three years, but will still be over 20% a year.

Demand for RF cable strip for co-axial RF cables used in this industry will grow at over 20%, consuming about 24,000 tonnes of domestic production of RF cable strip by 2005.

Common brass sheet and strip find many uses in hardware, machinery, electronics, electrical appliances, kitchens and bathrooms. Brass strip is in vogue for the traditional hardware and decoration industries, and demand for plug-in parts using brass strip as the base material has also seen rapid growth.

As real estate investment increases – by 26% in 2001 and 2002, and in January to September 2003 by 33% compared with the same period in 2002 – demand from the construction industry for copper for fittings, lighting, locks, interior and exterior decorations and door panels has significantly increased. Copper doors and roofs are fashionable in government buildings, high-profile residential apartments and temples.

Main producers

China has over 400 producers of copper sheet and strip. Each of the top 15 producers has a capacity of over 5,000 tpy, according to the China Non-ferrous Metals Industry Assn (CNIA) (*see table of the top ten*).

Generally speaking, China's copper sheet and strip industry is characterised by the co-existence of advanced and out-of-date production equipment. Except ▷

Sources of imports, 2002

Countries	Cumulative quantities
Taiwan	76,847
Germany	26,634
Korea	26,369
Japan	21,249
China (entrepot trade)	21,051
Hong Kong	10,280
Singapore	4,532
Poland	2,508
Holland	1,705
France	1,569
Other	9,189
Total (tonnes)	201,923

Demand from main sectors*

	2002	Jan-Sept 2003
ENERGY		
Bus bars	90,000	117,000
Strip for transformers	15,000	18,000
ELECTRONICS		
Phosphorus bronze sheet and strip for plug-in & spring parts	60,000	78,000
Strip for IC lead frames & other electronic parts	25,000	30,000
Strip for RF cables	25,000	30,000
AUTOMOTIVE		
Radiators	20,000	22,000

**tonnes*

Output of top ten domestic sheet and strip producers

	2002	2001	change
Luoyang Copper Group	40,152	34,139	18%
Shanghai Jintai Copper Industry	29,880	29,020	3%
Ningbo Shine Group	18,666	15,000	24%
Wuhu Jingtong Copper	17,755	11,772	51%
Ningbo Jintian Copper Group	16,536	11,857	39%
Anhui Xinke New Materials Stock	16,008	15,233	5%
Guangzhou Non-ferrous Metals	14,460	12,581	15%
Yongkang City Rolling Factory	13,020	8,566	52%
Yongkang Zhiying Copper Strip	9,038	7,321	24%
Shanghai Longtai Copper	9,000	7,578	19%
Total (tonnes)	184,560	153,067	17%

Demand/supply*

	2000	2001	2002	Jan-Sept 2003
Production	338,000	378,000	433,000	378,000
Consumption	474,900	526,300	607,100	577,000
Imports	168,600	168,000	202,000	167,000
Exports	31,700	19,700	26,900	22,300

**tonnes*

for a few firms, most domestic producers have relatively backward technology.

The few large-scale companies that have introduced completely new plant from abroad need time to master the advanced technology. However, production standards have risen over recent years, and the quality of horizontal continuous casting machines, rough rolling machines and covered annealing furnaces is approaching international levels.

However, there is still a technology lag in surface milling machines, some kinds of flotation annealing equipment, sheet shape control, stress elimination and cutting and packaging equipment for finishing products.

Investment

The rapid growth of China's copper sheet and strip market and the potential for imported products have made this sector a new hotspot for investment.

While international companies have strengthened their investments in the Chinese market, most of them have set up only service centres at this stage. These include KME and Wieland of Germany, Tonghe Dowa of Japan and Olin Brass of the USA.

Domestic companies are making efforts to renovate their production technology and expand production or launch new copper projects. Luoyang Copper is implementing the third phase of its copper sheet and strip technical renovation project with an investment of 200m yuan (US$24m), and further investment is planned at Nanchang of Jiangxi and Tongling of Anhui.

Even steelmakers are interested in copper production. The copper sheet and strip project of Da Hongren Tubing Industry, a subsidiary of Jiangxi Hongdu Steel Plant, is inviting business partners, and a steel plant in Tianjin has carried out a feasibility study for a copper sheet and strip project.

Areas for planned copper processing have been set up at the steel groups Daye of Hubei, Kunming of Yunnan and Wuxi of Jiangsu. Tonglong Non-ferrous Metals Group has invested some US$100m in a copper sheet and strip project, expecting to go into production in 2005.

Prospects

According to the relevant agencies, it is possible that China's economy will maintain a growth rate of over 7% over the next two or three years, and manufacturing industry will still be the main driving force. Domestic demand for copper sheet and strip is estimated to grow at 10% a year, reaching 800,000 tonnes by 2005 and 1m tonnes by 2010 – or a quarter of world demand.

While China's consumption of copper sheet and strip will continue to grow, production capacity is expected to grow faster – from about 455,000 tpy at present to 600,000 tpy in 2005. Accordingly, the rate of increase in imports is expected to slow by 10% a year over the next three years.

Restricted by a variety of factors, China's copper sheet and strip exports have increased at a rather slow pace. The target markets include Hong Kong and South Asia, of which Luoyang Copper claims the largest domestic share, with 77% in the best year to date.

In the end, foreign and domestic competition will force China's copper sheet and strip producers to eliminate the backward part of the industry and to consolidate so that the industry will eventually mature and China will become a great producer as well as a major consumer of copper sheet and strip products. ■

Li Honglei is vice-president of Luoyang Copper Group

Mueller trims work force by 120, many on 'shared-work' program

PITTSBURGH — A decline in orders forced Paul Mueller Co., Springfield, Mo., to lay off 120 people Wednesday. The company said that most of the impacted workers were part of a "shared-work" program through the Missouri Department of Economic Development.

According to sources close to the company, the layoffs began last month and were focused in the manufacturing area of the operation.

Many of those laid off were working four days a week at Mueller and the state was picking up the tab for their unemployment benefits for one day a week. The shared-work program had been utilized since the beginning of the year because the plant didn't have enough orders to keep all employees busy.

Mueller employed about 800 people at its Springfield plant prior to the layoffs.

According to a filing with the Securities and Exchange Commission, Mueller recorded a first-quarter net loss of $2.5 million in contrast to net income of $718,000 a year earlier on revenue that fell 33.5 percent to $18.3 million from $27.5 million in the same comparison.

Mueller, one of the leading makers of steel containers in the United States, said its lower sales volume was related to the bio-pharmaceutical industry, which accounted for 87 percent of the first-quarter sales decline.

John E. Sacco *jsacco@amm.com*

International Copper Study Group projects 750,000T deficit for 2004

NEW YORK — The global refined copper deficit is expected to reach 750,000 tonnes in 2004 before shrinking to 521,000 tonnes in 2005, according to data released late Wednesday by the International Copper Study Group (ICSG), Lisbon, Portugal.

Global production of refined copper should total 15.76 million tonnes this year, a 3.7-percent increase from 2003, and climb another 6 percent to 16.7 million tonnes next year. Total output from copper mines is expected to increase to 14.47 million tonnes in 2004, up 5.8 percent from last year.

"With the growth of refined output in 2004 lagging that of mines, the tightness of concentrates is expected to ease," ICSG said.

The group also forecast a significant recovery in demand for refined copper in the United States and continued growth in Asia.

Julie Bresnick *jbresnick@amm.com*

AISI seeks studies for design seminar

CHICAGO — The Automotive Applications Committee of the American Iron and Steel Institute (AISI), Washington, has issued a call for abstracts of technical presentations focused on "success case studies" for the 2005 Great Designs in Steel seminar.

The annual seminar is slated to be held March 16 in the Detroit area. The 2004 seminar, held earlier this year in Livonia, Mich., attracted 1,210 automotive engineers.

Automotive designers, automotive engineers, Tier 1 and Tier 2 automotive suppliers and academia should send abstracts of papers illustrating the latest trends in steel usage for vehicles to Deanna Lorincz at **lorinczd@autosteel.org**.

Fax facts . . .

Fax numbers for *AMM* editorial offices are as follows:

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Plate mills plan $50/T price boost for July

(Continued from page 1)

plate by $50 per ton effective with July shipments.

The increase would bring ISG, the only steel producer to publish base prices, to $29 per hundredweight, or $580 per ton, on cut plate. ISG's plate also would carry a $100-per-ton raw materials surcharge.

CitiSteel and Corus Tuscaloosa would see their prices rise to $31 cwt, or $620 per ton, absent a raw materials surcharge. Nucor, likewise, would be in the higher range of those figures.

Ipsco Inc., Lisle, Ill., could not be reached for comment Thursday, but one service center source who buys from the company said he had been told that Ipsco would follow the move.

Producers said demand was strong and scrap prices were falling, lessening the impact of scrap surcharges.

"Our surcharge is for raw materials rather than just scrap," said John Campo, executive vice president of marketing with Corus Tuscaloosa. "We use more DRI (direct-reduced iron) and HBI (hot-briquetted iron) (than scrap). Scrap (prices are) coming down, but HBI and DRI are not."

Corus Tuscaloosa said its raw materials surcharge for June would be $58 per ton. The quoted price for July shipments does not include surcharges, which have not yet been determined for that month.

CitiSteel said it expected the scrap surcharge to go down to zero by July. "Demand is going crazy," said Steve Lundmark, vice president of sales and marketing for CitiSteel. "Demand is very strong and there is not enough supply out there right now. There are no imports on the horizon."

The July price increase comes after the declining scrap price resulted in plate prices slipping slightly in June.

"There was a $20-per-ton price increase for June, but the scrap surcharges went down, like, $25, so the net effect was a little price slippage," a service center source in the South said. "It will be fully back and then some in July."

Demand seems to be strong across almost all sectors of the plate market, including original equipment manufacturers, rail car builders, agriculture companies and others. John Deere Corp. and Caterpillar Inc., two major manufacturers of agricultural equipment, released strong financial results this week—a further indicator to plate producers of strength in their markets.

"We're seeing it in all sectors," said Pat McFadden, sales manager for Nucor's plate mill in Hertford County, N.C. "Demand is up all over the place."

The service center source echoed that sentiment. "Our OEM (original equipment manufacturer) base is busy," he said. "Their schedules are increasing. They need material. All of the markets—rail car, heavy equipment, agricultural—they're all strong right now."

Scott Robertson
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Court tells Ispat Inland to honor Whirlpool steel supply contract

(Continued from page 1)

Louis Schorsch, president and chief executive officer of Ispat Inland, told *AMM* in an interview at the American Iron and Steel Institute's annual meeting in San Francisco that the surcharge issue was one that needed to be addressed by both companies and customers. He said at that time that Ispat Inland was in the midst of discussions with several contract customers about how best to address the issue, adding that the changing times in the steel market merited consideration from both sides (*AMM*, May 17).

Scott Robertson *srobertson@amm.com*

Cobalt tightness expected to linger

TORONTO — Tightness in the cobalt market will remain for another two to three years until new production comes on-stream, according to CRU International Ltd. analyst Peter Searle.

Future cobalt supply depended on copper projects in Africa and nickel projects in Australia, he told delegates at the Cobalt Development Institute's annual conference in Toronto, and no new production was likely until 2007.

Demand for cobalt was likely to grow about 6 percent in 2004, he said, but current high prices could lead to customers in the battery industry developing replacement products.

Searle said that although prices would remain high for the rest of this year, investors who bought cobalt for financial rather than industrial reasons might cash out, which could prompt a price correction.

Chris Evans *newsroom@amm.com*

EXHIBIT 3

City of East Hartford)
)
State of Connecticut)

AFFIDAVIT OF BERNARD SCHILBERG

I, Bernard Schilberg, being duly sworn, do hereby state:

1. I am currently the Chief Executive Officer of Prime Materials Recovery Inc. and have been in the non-ferrous scrap processing business for 27 years. Prior to joining Prime Materials Recovery, I was the C.E.O. of Schilberg Integrated Metals of Willamantic, Connecticut, employed by the company for 25 years. Prime Materials Recovery purchased the assets of Schilberg Integrated Metals in 2002 and is one of the five largest non-ferrous scrap processors in the United States.

2. I would categorize the principal grades or types of copper-based scrap as follows: (a) bare bright copper; (b) insulated copper wire; (c) No. 1 copper tubing and burnt copper; (d) No. 2 copper chops and pucks; (e) No. 2 Birchcliff; (f) copper bearing; and (g) copper-based alloys (including C.D.A. 200-series brass, C.D.A. 300-series leaded brass, C.D.A. 400-series tinned brass, and so on).

3. Bare bright copper, as its name suggests, consists of 99.99 percent copper with no real processing involved other than accumulating, packaging, and shipping the metal. Copper and brass mills are the main consumers of bare bright copper.

4. No. 1 and No. 2 insulated copper wire, including most prominently telecommunications cable, building wire, automotive cable, and power utility cable, requires processing primarily by chopping lines to granulate and separate the jacket from the metal or by stripping operations to remove the insulation from the wire. At that point, the metal recovered from No. 1 insulated copper wire is bare bright copper that is 99.99 percent pure, while the metal recovered from No.

2 insulated copper wire is plated and at least 98.7 percent copper. Once separated from the insulation, the metal is ready for use by copper and brass mills. Most of the copper-based scrap that my company processes is No. 1 and No. 2 insulated copper wire.

5. No. 1 copper tubing is 99.7 percent copper, and burnt copper is 99.9 percent copper. Very little processing is entailed with these grades of scrap. Copper tube mills and specialty markets (such as copper alloying manufacturers or copper chemical companies) consume this copper-based scrap.

6. No. 2 copper chops and pucks are generated from No. 2 insulated wire and, as such, are at least 98.7 percent copper. The pucks are chops that have been hydraulically pressed. Consumers of this copper-based scrap include brass mills, copper smelters and refineries.

7. No. 2 Birchcliff is copper-based scrap that has a minimum of 94 percent copper. Copper and brass ingot makers use No. 2 Birchcliff to produce ingots for brass and bronze foundries. Copper smelters and refineries also use No. 2 Birchcliff to manufacture refined copper such as electrolytic copper cathodes.

8. Copper bearing is low-grade copper-based scrap containing 20 percent or more copper. Copper bearing is processed by smelters and refineries.

9. Copper-based alloys are scrap that needs little processing and is used directly by copper and brass ingot makers and by brass mills.

10. Although it is difficult to pinpoint the timing exactly, exports to China of copper-based scrap initially were of No. 2 Birchcliff, copper bearing, and low-grade insulated wire. The processing of these grades is labor-intensive, requires considerable electrical power, and raises environmental concerns. Beginning by 2000 and perhaps even earlier, exports to China began also to include some volumes of the other grades mentioned above. By the start of 2003, the

quantities of the higher grades being exported to China grew rapidly, especially of No. 1 insulated copper wire, No. 2 Birchcliff, No. 2 copper chops and pucks, and mixed brass, but also some bare bright, No. 1 copper tubing and burnt copper, and copper-alloy scrap.

11. From my perspective and based on my experience, it is my opinion that Chinese buyers have purchased large quantities of copper-based scrap through inconceivable practices, including but not limited to unfair and unrealistic pricing. These practices have led to a major shortage of scrap copper and copper-based alloys, resulting in a significant burden to U.S. copper consumers. I do not anticipate this behavior by Chinese buyers to change significantly, assuming the unexplained, incredible Chinese economic growth is sustained, because China does not have nearly enough indigenous supplies of copper to satisfy that demand. China must look elsewhere in the world to make up this shortfall, and the United States has been and remains the largest, most open national market for copper-based scrap in the world. In making this statement, I realize that another school of thought is that China's economy is overheating and cannot continue its present pace. In my opinion, if this slowing occurs later than sooner, domestic consumers and processors of copper-based scrap will be put out of business. This has happened to domestic copper smelting and refining operations. A similar outcome to the remaining U.S. copper and brass manufacturers would be fatal to this industry and extremely detrimental to the U.S. economy.

BERNARD SCHILBERG

Subscribed and sworn to before me this 26th day of May 2004, in my jurisdiction aforesaid.

Notary Public

My commission expires:

My Commission Exp. Aug. 31, 2008

AFFIDAVIT OF DEVIN K. DENNER

STATE OF OHIO)
) **SS:**
COUNTY OF WILLIAMS)

I, DEVIN K. DENNER, being first duly sworn according to law, depose and state that, to the best of my knowledge, information and belief:

1. I hold the position of Vice President and General Manager of Chase Brass & Copper Co., Inc.

2. Chase Brass & Copper Co., Inc. is the largest producer of leaded brass rod in the United States.

3. Recyclable brass scrap is an integral component used in producing our finished product.

4. Historically, leaded brass scrap has been the primary grade of recyclable scrap consumed in the melting process. We are also able to use higher value added input materials including #2 copper scrap, #1 copper scrap, copper alloy scrap and copper cathode.

5. The definition of #2 copper scrap used in our facility includes material with a minimum of 98% copper in a form usually represented by either copper chops or bricks.

6. During the last twelve-month period, our operation has experienced a shortage in the availability of leaded brass scrap. This has forced us to move higher up the food chain and to use material with an increased value, including #2 and #1 copper alloy scrap. I believe, the availability of both leaded and non-leaded scrap materials has been influenced by the exporting of product to China. The cost premiums for each grade of scrap have also increased during this period because of the limited availability of each specific form.

Further affiant sayeth naught.

Devin K Denner
DEVIN K. DENNER

Sworn to before me this 26th of May, 2004.

Cheryl K. Hofziger
Notary

(Seal)

CHERYL K. HOFZIGER
Notary Public, State of Ohio
My Commission Expires August 6, 2006