

NEWS



Issue 60 | January 2008



UPDATE

**RAW MATERIALS
PRICE TRENDS AND IMPACT ON
CABLE MARKETS
STATISTICS**

CONTENT

COVER STORY:

RAW MATERIALS

(pages 3-11)

STATISTICS

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ICF NEWS

ROME 2007

159 participants found their way to Rome to attend the 2007 Congress and our social events. Our records show that this was the best attendance since 1997 in San Francisco and an encouraging continuation of the increase in attendance in the last years. All Congress proceedings have been mailed to members and are of course available for download in the member section of our website.

Mr. Gregory Kenny, President & CEO of General Cable Corp. has taken over the Presidency of ICF. On behalf of all members he thanked his predecessor Mr. Norio Okayama, Chairman of the Board of Sumitomo Electric Industries Ltd. for the outstanding leadership and pro-active contributions to the development of the Federation during his term as President of ICF.

NEW MEMBERS

We are very pleased to welcome ENERGOCOMPLEKT LTD., Belarus and ITALIAN CABLE COMPANY S.p.A., Italy as new members of our Federation. More information about both companies can be found at www.vikab.by and www.icc.it.

ICF CONGRESS DUBAI 2008 IN A NEW FORMAT

The 2008 Congress will be held at the Hotel Hyatt Regency from 21 to 25 October.

The Congress in Dubai will be the first event in a new format. The first day will remain as it is, with meetings of the ICF Standing Commission and the ICF Council followed by the Welcome Reception. The second day will be an exclusive members-only day, featuring high-level political/economical presentations (a mix of customer & market presentations), specific regional presentations and macroeconomic & societal presentations concluding with the General Assembly. The third day will foresee the opening of the Congress to suppliers and analysts (both as attendees and presenters) on a strictly invitational basis concluding with an evening event.

ICF COUNCIL AND ICF STANDING COMMISSION

Information on the composition of the ICF Council and the ICF Standing Commission after the General Assembly in Rome is available on our website www.icf.at under "organisation".

Thomas Neesen
Secretary-General

RAW MATERIALS

PRICE TRENDS AND IMPACT ON CABLE MARKETS

Provided by CRU

INTRODUCTION



Continuing Price Volatility

A review in the December 2006 issue of the ICF Newsletter discussed

the impact of price trends of major raw materials on the cable industry and the industry's customers. During 2005 and 2006 prices of many key raw materials used in cable-making rose sharply. In some cases material prices became much more volatile, with substantial fluctuations in market prices on a short timescale. Over the last twelve months prices of most raw materials have generally remained at high levels, and price volatility has continued to be a key feature of base metal markets, including copper.

Impact of High Material Prices

In this article we update and extend the discussion of raw material price trends contained in the earlier article from December 2006. We look at developments in some key cable-making materials over the past twelve months and we also discuss the impact of high material prices on some sectors of the cable market that were not covered in the previous article in depth: **auto cable and building wire**. We highlight some potential issues relating to material substitution (especially substitution of copper by alternatives) in some types of cable, and review the possible impact of CCA (copper-clad aluminium) conductors. Another very real issue in many markets that has become a much bigger problem as a consequence of persistently high metal prices is **cable theft**.

RAW MATERIAL PRICE TRENDS

Recent Copper Price Trend

On three occasions in 2007 (early May, July and early October) the LME copper price has gone above US\$8,000 per tonne, before falling back to around US\$7,000/t. During 2007 the price didn't surpass the peak level of US\$8,500 per tonne that was touched in May 2006. The copper price tumbled to a 9-month low of US\$6,330/t in December 2007, but has been climbing again in January 2008, back to US\$7,280/t. The lowest level reached in the last 18 months was in early 2007, when the price dropped below US\$5,300/t. Even this "low" price is, of course, much higher than the price

level that prevailed before copper prices began to rise steeply in 2005.

Strong Copper Demand Outside US

Despite the downturn in the US during 2007, as the fall in house construction activity reduced demand for building wire and copper semis, the price of copper held up. In 2007 weaker demand for copper in the US and in North East Asia has been outweighed by continuing growth elsewhere. Strong demand from China is the main factor, but other developing countries are also reasonably strong. Even in Western Europe demand has not so far been much affected by the slowdown in North America.

Q4 07 Looks Weaker

During late 2007 there were, however, some indications of weaker demand for

QUARTERLY AVERAGE COPPER PRICE

US\$/tonne (LME Cash)



Data: CRU, LME

copper in Europe. Even in China copper consumption in Q4 07 was significantly lower than in Q3 07, though some commentators suggest that the adverse trend will not continue in 2008. The main weak spots for refined copper demand have been in copper semis, rather than wire and cable markets. There has, for example, been a downturn in Chinese exports of air conditioners, due to the weaker housing market in the US, which has reduced Chinese demand for copper tube. These soft spots in demand account for the retreat of the copper price in late 2007.

Mining Industry Consolidates

On the supply side there are inevitable short-term swings in market sentiment, as a result of news from the copper mining industry relating to industrial disputes, production disruptions, etc. Overlying these day-to-day developments, during the last two years the consistently high level of metal prices has stimulated takeover activity in the global mining industry. The large metal mining groups typically have a wide portfolio of working mines and exploitable reserves. Although copper is an important element of these operations, other base metals (nickel, etc.) are also important, while the largest groups have very diverse interests that extend into mining of iron ore, bauxite, coal, etc. The most recent round of consolidation in the mining industry began in 2006, and since then there has been a series of deals that have involved many of the major players in the mining business.

Series of Deals in 2006 and 2007

In 2006 Xstrata bought Falconbridge, beating an offer from its rival Inco, a company that was itself at the time subject to a bid from Phelps Dodge. The Brazilian group CVRD subsequently bought Inco. Then, in November 2006, Freeport McMoRan reached agreement to buy Phelps Dodge, both these companies being major copper producers. Subsequently Freeport sold the wire & cable business, Phelps Dodge International, to General Cable. Phelps Dodge

would have been the last major mining group to be integrated downstream into cable-making, except that, as a result of Rio Tinto's takeover of Alcan in 2007, Rio Tinto now owns the Alcan cable business, as well as all its other aluminium interests. Most recently (November 2007) BHP Billiton has made a bid for

than the volatility in the copper price. As we noted in the December 2006 review, there are some fundamental differences between the economics of the copper and aluminium industries that explain why supply constraints are generally less critical for aluminium than they are for copper.

QUARTERLY AVERAGE ALUMINIUM PRICE

US\$/tonne (LME Cash)



Data: CRU, LME

Rio Tinto. The scale of this proposed merger is vast, with BHP Billiton identifying potential for US\$3.7 billion per year in "quantified synergies". There have also been reports that the Chinese steel-maker Baosteel is interested in bidding for Rio Tinto!

Aluminium Price Moves Up in Q4 07

The short-term spike in aluminium prices that occurred in June 2006 has not been repeated in 2007. During 2007 the trend in the aluminium price was generally downwards, though it moved up in November, at a time when the price of copper (and most other base metals) was falling quite sharply. But, as in most past periods, the volatility in the price of aluminium has been much lower

Aluminium Producers Seek Lower Cost Operations

Most of the added value generated in production of refined aluminium arises in smelting, rather than extraction of bauxite / alumina. The raw material is abundant, and the main element of cost is electricity used in refining. The recent modest rise in the price of aluminium has been supported by the decline in the value of the US dollar and the rise in the oil price. Since energy is a major component of the costs of producing refined aluminium, increases in spot power rates drives up the marginal cost of aluminium smelters. Aluminium companies are now looking to develop smelter projects in Africa (including ones in the Congo, Algeria and Angola), where operating costs are lower.

China Discourages Metal Exports

Increased demand from the developing world, but China in particular, is the main fundamental factor that has underpinned high commodity prices over the last two years. As a result of its growing industrial production, China is a major importer of many scrap metals, including copper. Recent increases in theft of cables and other metallic items in various parts of the world are often attributed to the demand created by high levels of scrap purchases, especially by China. The authorities in China have played an active part in encouraging imports of key metals and discouraging exports from China. In an effort to ease potential shortages, the Chinese government imposed a 10% tariff on exports of copper products in 2006 and removed import tariffs on copper scrap. The Chinese authorities have been also discouraging exports of

Other Metals: Zinc

Apart from being used for galvanising steel wire armour, the other main use for zinc in wire & cable is for galvanising steel wires used in overhead conductors. Though the price of zinc (averaging about US\$3,500 per tonne in 2007) is lower than that of copper, it is high compared to the price of steel wire, so suppliers of steel wire may try to pass on price increases due to strong movements in the zinc price to their customers, including cable-makers. China is much the largest producer country of zinc, as well as being by far the largest consumer. While China in some recent months has been a net importer of zinc, it does not have the dominant effect that it has at times in the copper market, through drawing in imports of refined copper and copper scrap from many parts of the world.

and the country is not far from switching from being a net exporter of tin to a net importer. The other main countries producing refined tin are Indonesia, Peru, Malaysia and Thailand. The price of tin during 2007 has at times gone above US\$15,000 per tonne, and during H2 07 the price has continued to climb, in contrast to most other base metals. From the cable-maker's point-of-view tin is one of those materials for which cost increases may have to be absorbed in slimmer margins if they cannot be recovered in higher cable selling prices.

Oil Price at Record Levels

After the cost of the conductor, the other main element of cost in most cables is the cost of the polymeric material used for insulation and sheathing. The price of oil is a key driver of the price of polymeric materials, nearly all of which are derived from petrochemicals. Moving on a broadly parallel course to many of the base metals, the price of crude oil reached a peak in mid-2006, and then fell back. During 2007 the price of oil has increased once again, passing the previous peak price attained in 2006, and during December 2007 the price of Brent Crude oil came very close to US\$100 per barrel. Polymer prices, especially polyethylene, also moved up in Q3 07, though the surge in polymer prices was not as marked as the sharp upwards rise in the oil price. The main reason for the high level of prices has been high demand, with the main growth areas being developing economies, though worries over possible supply shortages have also pushed oil prices higher.

QUARTERLY AVERAGE ZINC AND TIN PRICES



aluminium by imposing export tariffs. A 5% tariff on exports of aluminium ingots was applied in January 2006, and then raised to 15% in November 2006. As aluminium producers reacted by switching their exports into semis, a 15% tariff was applied to exports of aluminium rods, bars and sections in August 2007, while the 5% tariff on primary aluminium imports was suspended.

Other Metals: Tin

Tin is only a minor element of metal consumption for cable production. Though tin is widely used for electroplating wires in some types of communication and LV energy cables, the amounts of tin deposited are small compared to the weight of copper used in the conductor. As with other metals, activity in China is a key driver of global demand for tin,

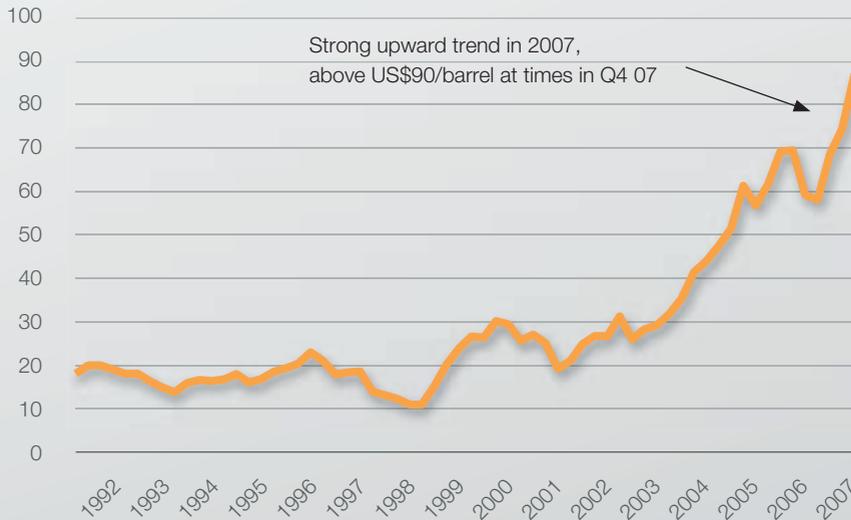
WIREROD SUPPLY

European Copper Wirerod Capacity Cutbacks in 2006

In the last review of raw material trends we noted that there could be some tightness of copper wirerod supply in Europe. This was the likely result of Prysmian closing its UK wirerod mill in December 2006, and Nexans deciding to reduce

QUARTERLY AVERAGE PRICE BRENT CRUDE OIL

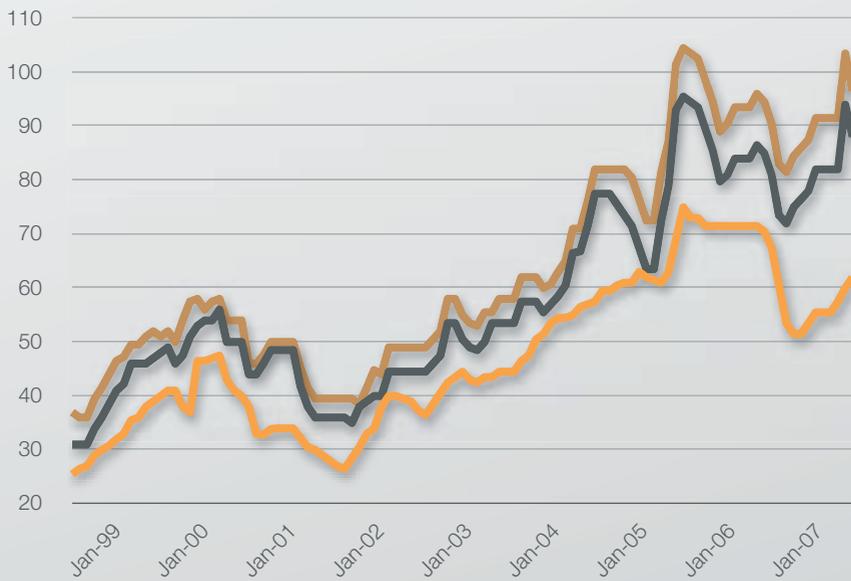
US\$ / barrel



Data: EIA, CRU

POLYMER PRICES PEAK AGAIN?

US ¢/lb



■ PVC ■ LDPE ■ HDPE

Data: Chemical Week, CRU

its exposure to external wirerod and wire customers. Both these decisions were influenced by the high price of copper. The value of the working capital tied up

in copper wirerod operations increased substantially as the copper price rose, making it difficult for producers to achieve a worthwhile return on capital

without both reducing the credit terms extended to customers and an increase in the wirerod premium.

Additional Copper Wirerod Plants in Europe

More recently, there has been a move to increase European production of copper wirerod. In Spain La Farga Group is installing a new wirerod mill with annual capacity of 180,000 tonnes. Production is due to start in January 2008. Unlike some other markets of Western Europe, there has been reasonably strong growth in Spanish cable production in recent years, and Spain currently imports a substantial volume of copper wirerod. Furthermore, the new plant's location near Barcelona also allows it to serve the growing market in North Africa more readily than plants located in Northern Europe. Further east, in Turkey Oznur Kablo is also building a new copper wirerod plant with production capacity of 70,000 tonnes/year.

Aluminium Wirerod Production Grows

During 2007, according to CRU's initial estimates, global production of aluminium wirerod has been growing faster than production of copper wirerod. Much of this growth in aluminium wirerod production is likely to be associated with strong demand for bare aluminium overhead conductors, as a result of investment by power utilities in transmission networks, but it also indicates robust global demand for insulated cables using aluminium conductors (predominantly power cables). In the Middle East, where demand is particularly strong, Midal Cables has expanded its wirerod production capacity and Oman Cables Industry has recently announced that it will build a new plant for production of aluminium wirerod and conductor.

OPTICAL FIBRE

Fibre Demand Up in 2006 and 2007

In contrast to the continuing buoyant market for metals, the price of opti-

cal fibre has remained obstinately flat, despite healthy growth in demand. Global demand for fibre grew strongly during both 2005 and 2006. Demand growth has continued in 2007, though the growth rate has slackened. CRU estimates that global demand for fibre was 27% higher in 2006 than in 2005, and is likely to be a further 11% ahead in 2007. Not all regional markets for fibre optic cable have been showing consistent strong growth, but the general trend in global demand has been upwards. Demand in North America, for example, grew strongly in 2005 and 2006, mainly

of optical fibre in some markets, but prevailing prices have been very slow to react. It is too early to talk in terms of clear price rises, but fibre producers may now have greater freedom to increase the volume of fibre supplied to customers that pay higher prices. Another factor that is important in the optical fibre market is the impact of exchange rates. With the US dollar falling against most currencies, fibre suppliers quoting in euros or yen have effectively had price increases in US dollar terms, even if in local currency terms prices have been flat.

additional capacity while prices remain at current subdued levels?

Some Capacity Expansion Underway

After the market collapse that followed the last boom in fibre demand in 2000 and 2001, some fibre production capacity was “put into mothballs”, rather than being totally closed. Now that demand is recovering, the most obvious potential bottleneck is limited capacity for production of preforms, especially as some fibre-drawers rely on externally sourced preforms. Some of the mothballed fibre production capacity has been brought back on-stream as demand has grown. Thus in the US, for example, Draka Comteq has restarted production at its Claremont plant and Corning is re-opening its plant at Concord. In the developing world some major fibre producers, such as YOFC in China and Sterlite in India, are expanding capacity in response to strong demand in their home markets. Unless optical fibre demand increases very quickly, the potential for fibre supply to fall well behind demand, with a resulting major rise in prices, seems limited. This situation contrasts with what has been happening in base metal markets, where supply constraints are much more severe and difficult to overcome.

EXCHANGE RATE TRENDS AGAINST US\$

Jan 2006 = 100



driven by fibre to the home (FTTH) installation, but demand in 2007 is likely to be a little lower than in 2006, as the level of Verizon’s purchases of fibre optic cable has fallen. In China and India there has been very strong growth in fibre optic cable demand over 2006 and 2007.

But Optical Fibre Prices Remain Flat

As a result of the strong demand for fibre optic cable there have at times been reports of short term shortages

No Acute Capacity Shortage Yet

This situation of generally flat prices is likely to continue, so long as there is some spare competitive capacity that fibre producers can use to gain incremental revenue at current apparently low price levels without having to make additional major investment. There has been much debate within the industry as to when existing fibre production capacity will be full, at which point there should be scope for fibre prices to rise. But will fibre producers be willing to invest in

MATERIAL SUBSTITUTION

Equivalent Performance at Lower Cost

When the cost of a material rises, basic economics suggest that end-users will look for alternative materials that can deliver equivalent performance at a lower total cost. In practice the pressure for substitution of a material like copper due to its higher price may be inhibited by several factors. For example, determining if an alternative material, such as aluminium for cable conductors, really can offer “equivalent performance” may not be straightforward. Established custom and practice also carries a lot of weight, as speci-

fiers are likely to be reluctant to switch from a tried-and-tested solution to an alternative whose performance may be less well understood.

Copper v. Aluminium

For cable applications it is the ratio of the price of copper and the price of aluminium (“Cu/Al price ratio”) that is the most important parameter in considering potential for substitution of copper by aluminium. In order to get a fairer comparison between the metals in terms of conductance per buck, the aluminium price per tonne should be divided by 2.0: aluminium has lower conductivity than copper, but much lower density. Hence the cost advantage in favour of aluminium is even larger than the simple price comparison (per tonne) implies, though in practice some of this cost advantage would be lost in the greater volume

Material Substitution

Despite the continuing high level of copper prices, there has not been a major shift away from copper to aluminium for conductors in wires and cables, though there has been a continuing slow drift away from copper in some applications. This general reluctance to switch away from copper to alternative materials contrasts with some other, non-cable applications for copper, where substitution has been quite rapid. For example, in many markets where copper tube has traditionally been used for plumbing in water supply and heating systems, cross-linked polyethylene (known in this application as PEX, not XLPE) tube has grabbed market share from copper. Installation methods are simpler for PEX tube than for copper, so, once the initial reluctance to switch was overcome, substitution has been rapid, given a major difference in the costs of

usage of aluminium. In other cable applications where copper very much dominates usage, there has been no rapid switch to aluminium, despite the high copper price, though the alternatives to copper are being considered more seriously. We will look in more detail at two of these cable applications, building wire and auto cable.

BUILDING WIRE

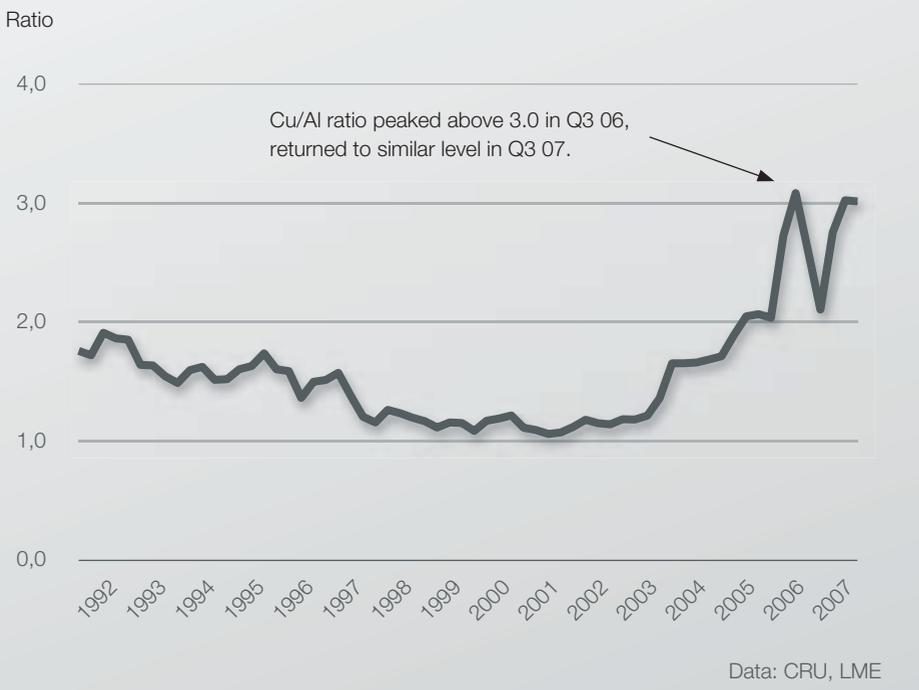
Limited Use of Aluminium Building Wire

From a global perspective, the use of aluminium conductors in building wire is very limited. Aluminium is not accepted at all in many markets and in others it is only used a little, even though its use may in some localities be permitted in building codes and wiring regulations. Even in some markets where aluminium building wire was widely used at one time (e.g. India), copper building wire is now generally preferred. Despite the major increase in the cost of copper over the last two years, there are few signs that aluminium is making a definite comeback in building wire.

Bad Experience in 1960s

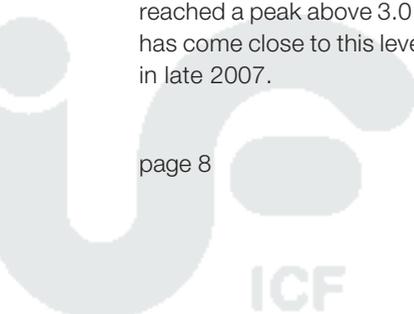
The lack of acceptance of aluminium in building wire is usually attributed to bad experiences with aluminium wires that were reported in the 1960s and 1970s. In North America poor quality joints in aluminium wiring were identified as a possible cause of some house fires. The type of aluminium originally used in building wire (EC grade, the same as power cables) had a higher rate of creep than copper. Aluminium was also incompatible with steel screws used in jointing accessories. Poor contact at joints allows an oxide layer to form, and the temperature rises due to the higher resistance. Even though alternative aluminium alloys and improved accessories for building wire were developed after these potential problems were understood, there has been no major swing back to aluminium building wire, despite the apparent cost advantage of aluminium over copper.

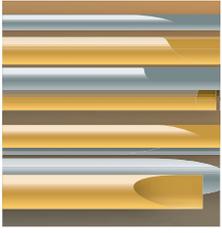
COPPER / ALUMINIUM PRICE RATIO



of insulation and sheathing needed for aluminium cables. The Cu/Al ratio reached a peak above 3.0 in 2006, and has come close to this level once again in late 2007.

the alternatives. In some cable markets, for example utility power cables, where aluminium conductors have long been accepted in some markets, the high copper price has encouraged a greater





Aluminium Promoted by Some Companies

In North America some cable companies have been actively

promoting the virtues of aluminium conductors in building wire. It can be useful to offer customers an alternative to copper wire when prices are high, though there are other reasons why a cable supplier might want to promote aluminium conductors over copper. Firstly, groups that have upstream interests in production of refined aluminium and wire rod would want to encourage greater consumption of aluminium. Secondly, there may be some competitive advantage in supplying building wire using aluminium, rather than copper. Not all companies can offer a full range of building wires, both copper and aluminium, so those with the full range of both may prefer to promote aluminium products where the competition may be less intense and margins potentially higher than in the established product, copper building wire.

AUTO CABLES

Main Materials: Copper, PVC, etc.

For many years automotive wiring harnesses have been gradually increasing in complexity as the number of electrical circuits required in vehicles has been increasing. The main materials used in the cable elements of an auto harness are copper for the conductors and PVC or XLPE (cross-linked polyethylene) for the insulation. In many markets there is an increasing interest in zero halogen insulation materials.

Copper Key Material

Within an auto copper is also used extensively in the winding wire of electric motors. Modern vehicles with features such as electric windows use many additional small electric motors, in addition to the traditional starter motor, generator, wiper motors, fuel

pump, etc. Copper is also widely used in the connectors within the wiring harness, normally in the form of brass alloy, and in other electrical components (e.g. motor commutators). As a result, copper is one of the key materials used by the auto industry, with a typical content of 20 kg or more of copper per vehicle. Copper was at one time also used for other vehicle components, but in some applications it has lost ground to alternative materials. Thus most cars now use aluminium radiators, rather than copper/brass.

Pressure for Cost Reduction

As with all other suppliers to the automotive industry, there has been increasing pressure on auto harness producers to achieve cost reductions, year after year. This has resulted in a shift in regional harness production to lower cost labour areas, so that for example, locations like the Philippines have developed a major industry in auto harness assembly for export. The rise in raw material prices, impacting especially on the cost of the copper conductor, but also on the cost of insulation materials, has disrupted the well-established trend of ongoing cost reductions in the auto industry. Of course, over the last two years other major cost elements within a vehicle, for example the steel used in bodywork and many mechanical components, have also risen substantially in price. Auto manufacturers have been very reluctant to accept any price increases from their suppliers to reflect material cost increases.

Aluminium for Battery Cables

Though most automotive cables use copper conductors, some companies have introduced battery cables with aluminium conductors. This has been driven mainly by a need to achieve lower weight, rather than cost reduction. The weight distribution of a high performance car is improved by placing the battery at the rear of the vehicle, requiring a battery cable several metres long, which would be very heavy if made of copper. Because of their physical size, battery cables with aluminium conductors

may need to be made flat rather than circular and mounted underneath the vehicle. As a result of the more sophisticated connectors that are required to achieve highly reliable connections, aluminium cable systems are not necessarily cheaper than copper equivalents, even though the conductor cost is much lower than with copper.

Aluminium Auto Primary Wire

In principle, aluminium conductors could be used more widely in vehicles within the primary wiring, with potential for a weight saving of several kilograms. Achieving weight reduction is a key design consideration in modern vehicles, as this can lead to lower fuel consumption. One of the main technical problems limiting greater use of aluminium conductors is the need to achieve high reliability in connectors. Furthermore, the greater bulk of aluminium conductors can be a problem where several cables have to occupy a small space.

Alternatives to Copper

Lower weight, not so much lower cost, has been the main driver in looking to alternatives to traditional copper conductors for auto cables. Even when copper continues to be used, cable designs can be refined, for example through the use of true concentric strands rather than bunched conductors, allowing thinner insulation and a more compact cable without sacrificing flexibility. Amongst the major wiring harness producers, different companies are looking at a number of different alternatives to copper conductors. As noted, aluminium primary wire is one possibility, but copper clad aluminium is another. For finer sizes of wires it may also be possible to reduce weight while staying with copper by reducing conductor sizes and using hard-drawn copper or copper alloys with greater tensile strength than the usual annealed copper wire. The timescale for any such developments is likely to be slow, as harness designers have to work very closely with the car producers and any successful innovations would be introduced as new models come on stream.

COPPER-CLAD ALUMINIUM

Growing Interest in CCA

Over the last year in many markets there has been increasing interest in copper-clad aluminium (CCA) wires as a possible way of reducing material costs in certain types of cable. Several Chinese companies have perceived a potential market opportunity and installed equipment for production of CCA wire. CCA consists of copper cladding surrounding an aluminium core. The most common grade of CCA is 10% CCA, meaning that it contains 10% copper by volume: only 5% of the radial thickness of this grade of CCA is copper and the rest is aluminium, though it contains approximately 43% copper by weight, since copper is a much denser metal than aluminium. 10% CCA has an overall conductivity of 65% IACS, i.e. 65% of the conductivity of an all copper conductor of the same cross-section, but its average density is only 37% of copper.

CCA Promoted as Low Cost

CCA suppliers promote the material as offering most of the advantages of aluminium, such as having lighter weight and lower cost than copper, but without the main perceived disadvantages of aluminium. With CCA they argue that there is no need, as there can be with aluminium wires used in LV energy cables, for specially designed accessories to give reliable electrical connections. Though CCA appears to have a significant cost advantage over copper because its main constituent is the cheaper metal aluminium, in practice some of this advantage is eroded by the higher fabrication costs of CCA, as cladding processes are more complex than conventional wire-drawing. Traditionally, in developed economies CCA has not been widely used as a low cost alternative to copper: for example, some lightweight aircraft cables using CCA actually cost more than their copper equivalents. This situation is, however, changing due to the sustained high level

of copper prices and increased production volumes of CCA that are becoming available from China.

CCA Used for HF Applications

One of the main traditional applications of CCA is in communication cables as the central conductor of coaxial cables. CCA is also sometimes used in enamelled magnet wire when low weight is critical (e.g. coils for headphones and aircraft instruments). Due to the skin effect, which means that high frequency signals are mainly transmitted in the surface layers of a conductor, CCA is usually used for carrying high frequency signals. For these applications (e.g. coaxial cable) the higher DC resistance of the aluminium core is not so important. Indeed, in really high capacity, very high frequency coaxial cables signal transmission within the central core of the conductor is so negligible that hollow copper tubes, not solid wires, may be used.

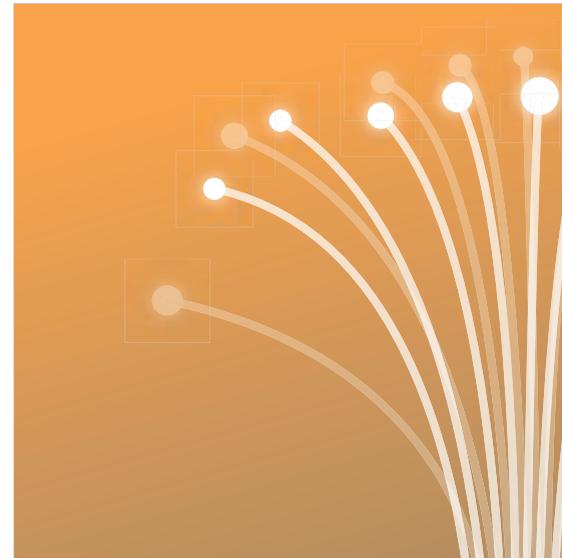
CCA Producers Consolidate

There are several producers of CCA conductors in China, but the largest of these is Fushi International, a Chinese company that is listed in the US. The main producer of CCA (and also copper-clad steel used in coaxial cables and drop wires) conductors outside China is Copperweld Bimetallics with its main production facility in the US and a smaller one in the UK. CommScope is also a producer of CCA conductors in the US. During 2007 Fushi International acquired Copperweld, making this company a major global player in this niche cable-making material.

New Applications for CCA?

Apart from the traditional applications of CCA, in coaxial cables and some specialised magnet wires, it has also been promoted for other applications such as LAN cables. Some Chinese producers have offered LAN cables containing CCA, rather than copper wires, at prices significantly lower than conventional LAN cables. We understand that these low cost substitutes would not meet all the technical performance specifications required for LAN cables used in business

premises, but they might find an application at the lowest end of the LAN cable market, such as home networks. It has also been suggested that CCA can be used more widely in building wire or LV power cable, but there would be major hurdles to be overcome in terms of getting this alternative material accepted in building codes and wiring regulations.



Copper Wire Scrap Recycled

Copper wire scrap normally trades at only a modest discount compared to copper cathode, since, so long as the purity of the scrap is guaranteed, it can be easily recycled with minimal need for further refining. However, guaranteeing the purity of the scrap in-feed material is critical, since any contamination by other elements could potentially lead to an expensive batch of substandard production. Some copper wire scrap is generated during the cable production process, while some is recovered from cables at the end of their life. There have always been good economic arguments for recycling copper wire scrap, but there is an even stronger need for maximising scrap recovery when metal prices are as high as they are currently.

Potential for Scrap Contamination

Tinned copper wire can be readily identified, segregated and diverted through its surface appearance, but scrap CCA wire

is potentially much more of a problem. Superficially CCA wire appears to be the same as copper wire: it is necessary to look at the wire in cross-section to be sure that a wire is pure copper and not CCA. The aluminium content of CCA is a big potential hazard as it could contaminate a batch of clean copper wire scrap, and careful checking would be needed



to avoid this problem. This has not been a major issue while CCA wire has been used only in niche applications, but it would become a more serious problem if CCA were in wider use. In Europe a major copper producer and scrap recycler has already experienced problems with CCA contamination of its scrap feedstock. In China there has been caution about approving CCA more widely because of concerns about CCA scrap.

Little Value in CCA Scrap

On the other hand, CCA has sometimes been promoted on the grounds that it has lower scrap value than pure copper because it cannot be recycled as readily as copper! The outer copper coating of CCA wire cannot be easily stripped away from the aluminium core. Thus cables containing CCA should be less attractive to thieves, as the scrap value is much lower than copper, though it may be optimistic to expect criminals to be so well informed. There are some potential outlets for scrap CCA, such as

an in-feed material for coin blanks that use alloys containing copper and aluminium, so a market for CCA wire scrap could develop if the material came into wider use.

CABLE THEFT

Theft a Worldwide Problem

There continue to be frequent reports of cable theft, both of power cables and of telecom cables, from many parts of the world, with cables being stolen for the scrap value of their metal content, especially copper. Though cable theft has existed as a low level problem for many years, it has become a much more serious issue as a result of the rise in metal prices. This problem is widespread and is certainly not limited to poorer developing countries. For example, in the US local telecom carriers have regular problems with theft of sections of pole-mounted copper telecom cables from their access networks. In the UK, British Transport Police, the force that maintains security on the rail network have stated that reducing cable theft is one of their highest priorities – only countering potential terrorist threats ranks higher.

But Especially in Developing Countries

But the problem of cable theft is particularly acute in some developing countries. In China there were 190,000 recorded incidents of theft of “telecom facilities” in 2006, up from 53,000 in 2005. In South Africa the power utility Eskom lost cables valued at R20 million in 2006, while Transnet Freight Rail lost cable worth R5.5m. Building construction sites in South Africa have been the targets of raids by well-organised armed gangs, so that cable is stolen even before it can be installed. South Africa is an exporter of copper, despite the country having no copper mines!

Encourages Adoption of Wireless

Cable theft is not only a cost burden for end-users, but can affect their strategic decisions: in some African countries, such as Kenya, telecom operators

have decided to invest more heavily in wireless networks due to the persistent problem of cable theft. However, even these “wireless” systems are not immune and can be disrupted by cable theft, as cables used within wireless base stations may be targeted by thieves. In India the main telco, BSNL, has attributed the loss of fixed line customers in some cities to disruptions in services caused by cable theft, though it also suggests that there may be more involved than low-level criminality. BSNL has accused rival phone companies of encouraging “anti-social elements” to cut BSNL’s cables.

Not Even Fibre Optic Cables are Safe!

In an unusual variation on the theme of cable theft, in 2007 there were reports from Vietnam that thieves using fishing vessels had stolen several lengths of fibre optic cable from the seabed in the South China Sea! This caused major disruptions in the country’s international communications. The scrap value of such submarine cables must be small – containing metal only in the form of steel armour and copper wire used to power repeaters. Thieves have also damaged land-based fibre optic cables in Kenya, presumably acting under the mistaken belief that these cables contained valuable copper scrap.

CONCLUSIONS

Despite the continuing high and volatile level of prices, copper continues to be by far the most popular conductor material in many types of cable. Any substitution of copper by alternative materials is much less obvious for cable applications than it is for some non-cable applications. There are, however, some signs that OEMs and end-users are considering the alternatives to copper more seriously. Most commentators suggest that the currently high level of material prices will not be sustained long term. Once prices do return to a lower level, the search for alternatives to copper in cable applications is likely to have a lower priority.

The background features a grid of thin, light-colored lines. Two thick, 3D-rendered ribbons, one orange and one light blue, are intertwined in a complex, looping pattern. The orange ribbon starts from the top right and loops downwards and to the left. The light blue ribbon starts from the bottom left and loops upwards and to the right. The ribbons have a slight shadow and a gradient, giving them a sense of depth and movement.

UPDATE

RAW MATERIALS
PRICE TRENDS AND IMPACT ON CABLE MARKETS