



European
Copper Institute
Copper Alliance

2014 Annual Report

European Copper Institute

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Highlights

The European Copper Institute (ECI) and its network of national associations in Europe, collectively part of the Copper Alliance, continued to promote broadly the societal benefits of copper.

The Advocacy section outlines ECI's efforts to support the copper industry's licence to operate and to secure market access for its products by engaging in European and international legislation. Key 2014 items included the EU Emissions Trading System, the non-ferrous metals' Best Available Techniques Reference Document and a broad array of chemicals management requirements (e.g. REACH).

ECI also helps to grow and defend copper and copper alloy markets through integrated marketing communications, promotion and technical and market support in the key areas of Energy Policy and Efficiency Standards, Wire and Cable, Building Construction Non-Electrical and Heat Exchange Systems.

Finally, the Communications section showcases the many ways in which ECI spreads the word on copper – through publications, websites, social media, webinars and even a copper maze.

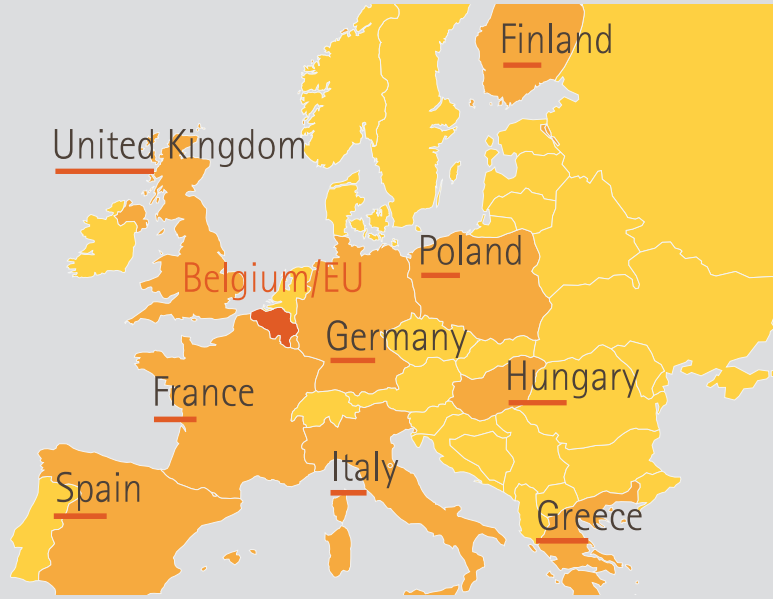
Professional Network

15

Years in Brussels, maintaining industry's market access and licence to operate

10

European Offices



45

Employees from various disciplines

€13mil.

Annual European budget

What we do



Demonstrate the benefits of **leading edge copper technologies** to end-use sectors



Lead industry efforts in **human health and environmental science**



Ensure copper's fair position in **codes and standards** at national and EU levels



Manage the **REACH** Copper Consortium to maximise industry's **efficiency & cost-effective** compliance with the regulation



Provide valuable **technical support & advice** to the copper value chain

Partnerships and Alliances



Chairman's Message

In line with most global commodities, the copper market has gone through significant changes in 2014. Data from the International Copper Study Group indicates that the EU's apparent annual refined copper usage increased 6% in 2014, to 3.2 million tonnes.

Global apparent copper usage reached 23 million tonnes, up 8% on 2013. In Europe, construction and infrastructure markets remain weak, particularly in the south. However, we have seen some recovery in the northern European economies and the automotive and renewable energy market sectors have performed reasonably well.

Thanks to mining industry investments made in the past five years, global refined copper production increased 7% in 2014. While the lack of transparency in metal inventories makes it difficult to establish accurate supply/demand data, particularly in China, the main metal exchange inventories had fallen to around 300,000 tonnes (less than one week's demand) by the end of 2014.

Copper dollar prices weakened during the second half of the year, resulting in an average 2014 London Metal Exchange price of 6,862 \$/T, down 6% (460 \$/T) from 2013.

During Q1 2015, global supply exceeded demand leading to an almost doubling of exchange inventories. However, while copper dollar prices have fallen a further 10%, the continued strengthening of the dollar has resulted in no change to the euro prices paid by European copper users.

EU regulatory issues continue to challenge our industry's licence to operate, as well as threaten market access for our products. The copper industry needs energy and climate change policies which will deliver more predictable and competitively-priced energy. Reforms to the EU Emissions Trading Scheme (EU ETS) must address the competitiveness gap faced by European energy-intensive industries. Best performers should not face undue costs and a more harmonised, EU-wide scheme needs to provide full cost compensation for both direct and indirect emissions, based on actual production levels.

The environmental specificities of metals and more specifically of copper must be recognised much more pragmatically in REACH implementation. The development of the ecotoxicity profiles used for classification purposes need to include a balanced weight of evidence of all data, as well as consider information on their natural occurrence, essentiality and geo-chemical cycling potential.

We welcome the Commission's recent decisions to postpone changes to the lead classification and to accept bioelution data in setting lead restrictions for consumer products. In response to increasing societal concerns, the copper alloy industry has invested heavily over many years, either to eliminate lead altogether, or to reduce finished product levels to the minimum required to meet strict end-user performance targets.

The balance that needs to be found is between, on the one hand, setting classification limits which benefit human health and the environment and, on the other, in setting overly strict limits which will negatively impact recycling (40-50% of annual EU copper demand is sourced through recycling) or weaken the EU copper industry's ability to compete on the global market for its raw material needs (since all contain naturally-occurring, background levels of lead).

I am proud of ECI's accomplishments throughout the past year and want to thank all of the ECI staff, its member companies and the International Copper Association for their support in delivering these achievements.

Dr. Italo Romano
Chief Financial Officer
KME Group



Chief Executive's Message

The new European Commission's focus on a more integrated energy policy setting is very welcome. ECI strongly supports Climate Action Commissioner Miguel Arias Cañete's statements at the February Energy Union conference in Riga: "Going forward, our energy policy should take 'efficiency first' as its abiding motto" and "Can we take cost-effective measures to reduce our energy use that will also increase our competitiveness before importing more gas or generating more power?"

Copper's superior electrical and thermal conductivities make it one of the most important materials for power and heat distribution, transport and buildings. This results in around 70% of annual copper demand going into energy applications which generate (e.g. wind turbines, photovoltaics and solar thermal), distribute (e.g. wires and cables) or consume (e.g. electric motors and HVAC systems) electricity. Its increased intensity of use will be needed if the EU is to meet its 2030 targets for greenhouse gas emission reductions, energy efficiency and renewables.

Achieving the EU's aspirations for job creation, such as encouraging industry to grow its contribution to GDP to 20% by 2020, while at the same time pursuing ambitious climate change and resource efficiency policies, also presents real opportunities for building block material industries, such as copper.

As an integral part of the global Copper Alliance, a key role for ECI is to support the above by being a respected, authoritative and commercially-neutral source of information, to all key stakeholders, about the multiple benefits provided by copper products.

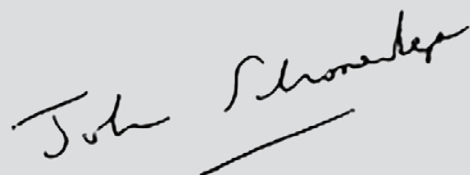
ECI is a member of the Coalition for Energy Savings, the Energy Efficiency Industrial Forum and the Renewable Heating & Cooling Technology Platform, which actively contribute to ongoing debates on EU energy and climate change policies.

ECI is also very supportive of the European Commission's efforts to strengthen its Circular Economy Package. Copper is one of the few materials which can be recycled, again and again, without any loss in performance, saving up to 85% energy compared to primary production. Globally, this saves 100 million MWh of electrical energy and 40 million tonnes of CO₂ annually.

The new Circular Economy Package needs to contain policy measures which enable the EU industry to secure cost-competitive access to secondary raw materials. It also needs measures to improve the collection of recyclable post-consumer goods, the pre-processing steps required to facilitate metal recovery, and metal recovery within the EU itself.

To learn more about copper, the benefits to society provided by copper products, or the industry's views on current policy and regulatory issues, please visit www.copperalliance.eu.

John Schonemberger
Chief Executive
European Copper Institute



Funding

Throughout 2014, ECI plus its network of nine national Copper Development Associations operated with a budget of €13 million to develop and carry out promotional and regulatory affairs activities.

In addition, European resources managed a €1.4 million budget for projects targeted at impacting the global demand for copper.

The International Copper Association, representing the world's leading mining companies, independent smelter/refiners and semi-fabricators, provided 80% of the annual industry budget.

Over 100 partners, both academic institutions and industrial companies, continue to provide strong support for ECI's Leonardo ENERGY program, which broadly promotes the sustainable generation, distribution and use of electrical energy.

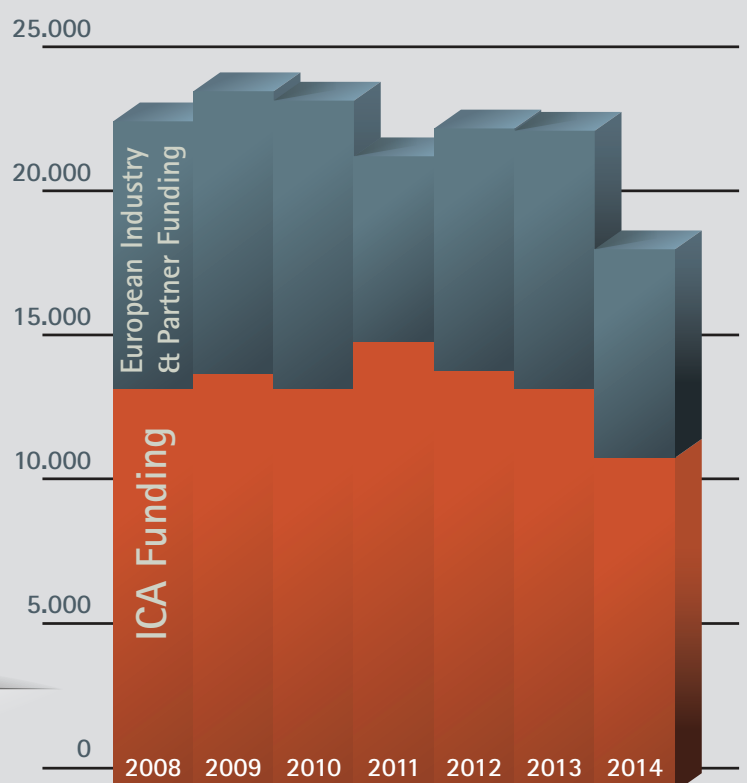
Other key projects, supported by significant funding from partners outside the industry, were:

- A partnership with the Economic Community of West-African States, worth €0.7 million/year from 2012 through 2015, to support the setting of technical standards and advocacy on energy efficiency;
- The second, worth €2.4 million/year for 2012 through 2015, with the Clean Energy Solutions Centre, a joint initiative of the United Nations and the Clean Energy Ministerial, to promote policies and programs that encourage the transition to a global clean energy economy;
- The third, worth €0.4 million/year, with FISUEL, the International Federation for the Safety of Electricity Users, to raise awareness of the positive impacts that mandatory inspections of residential electrical installations have on reducing fires, deaths and injuries.

European Promotion Funds

2014 funds (\$000)

Strategic Initiative	ICA Funding	European Industry Funding	Total
Building Construction	2.600	1.100	3.700
Electricity & Energy	4.000	4.500	8.500
Technology & Innovation	1.100	200	1.300
Antimicrobial Copper	800	300	1.100
Health, Environment & Regulatory Affairs	600	500	1.100
Communications	1.200	200	1.400
Administration	1.300	500	1.800
Total Funds	11.600	7.300	18.900



Our Members

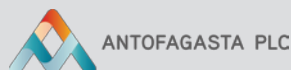
ECI's direct industry members include the EU's top six copper producers, Europe's leading manufacturers of semi-fabricated copper products and downstream companies taking advantage of copper's performance benefits in end-use applications and innovative technologies.

Europe has an efficient copper industry employing around 50,000 people directly. With a world-class smelting and refining sector, European companies have pioneered many of the world's metallurgical processing technologies.

The EU also boasts a well-established, semi-fabricating sector which converts both primary copper and scrap into a broad range of copper and copper alloy products for use across the value chain.

The member companies listed here are those that have assets or operations, employ people and pay taxes within the EU. They include members of the International Copper Association. For a full list, visit www.copperalliance.org.

Copper Alliance members operating in Europe



Board of Directors (*As of April 2015)

Italo Romano – KME Group (Chairman)
Gonzalo Cuadra – Codelco Services (Vice-chair)
Stefan Boel – Aurubis
Augenija Di Bucci – BHP Billiton
Oriol Guixà – La Farga
Jussi Helavirta – Luvata
Sven Hjelmstedt – Boliden

Bernd Kaimer – Sanha
Henryk Karaś – KGHM
Joel Adams – Glencore
Evangelos Moustakas – Halcor
Heiner Otten – Diehl Metall
Javier Targhetta – Freeport McMoran Copper & Gold
Werner Traa – Wieland-Werke

Advocacy

To support the copper industry's license to operate, ECI advocates on a broad range of issues. Throughout 2014, advocacy focused on short-term restructuring measures for the EU Emissions Trading System, the non-ferrous metals Best Available Techniques Reference Document (BREF), two Product Environmental Footprint pilot projects, as well as on several substance classification issues.

At an international level, ECI collaborated with the OECD to develop a globally relevant copper hazard database. It also contributed substantial technical analysis into the International Maritime Organization's efforts to strengthen its rules covering the shipment of bulk cargoes, such as metal concentrates.

ECI Advocates On Lead Classification and Restrictions

Reviews led by the European Chemicals Agency's (ECHA) Risk Assessment Committee have resulted in the proposal to introduce a human health classification and to impose restrictions for lead. All materials and/or mixtures containing a lead metal concentration above the proposed Specific Concentration Limit (SCL) of 0.03% would be classified as a Category 1 reproductive toxicant. The restriction, which mainly targets consumer products that could be placed in the mouth by children, imposes a lead limit of 0.05%.

For more than 20 years, the copper industry has invested in both process technology improvements, as well as in new alloy development, to reduce the lead content in copper alloys and in the slags co-produced out of the copper smelting process.

While ECI supports the proposed classification, it believes that more time is needed to evaluate the significant business consequences of the extremely stringent 0.03% SCL, given that it would apply to all lead-containing materials.

Advocacy of ECI's research data achieved copper-related exemptions in the annex to the restriction proposal: 1) acceptance of the use of bioelution migration data; 2) acceptance of the brass saliva bioelution report supporting a cut-off value of 0.5%, instead of 0.05%; and 3) exemptions for a well-defined range of products where the Commission noted that: "There seems to be a lack of suitable alternatives to lead in the manufacture of those articles, and the possible adverse socio-economic impact of applying the restriction to them could be significant."

ECI also provided a socio-economic analysis showing the significant detrimental impact on metals recycling (higher costs and lower recycling rates). Efforts have been coordinated closely with the International Lead Association, with advocacy managed by Eurometaux.

Energy And Environment

ECI Calls For EU ETS Level-Playing Field

ECI recognises the EU Emissions Trading Scheme (EU ETS) as a cost-efficient driver for CO₂ reduction. Through significant capital investments, the EU copper producing industry has successfully reduced its own CO₂ emissions by cutting its unit energy consumption by 60% versus 1990. Today, the industry's emissions are around 4.5 million tonnes/year, a modest 0.1% of the EU total.

However, ECI believes that specific issues need to be adequately addressed in the Commission's current work to restructure the ETS after 2020. For example, compensation for indirect emissions are left to Member States, state aid compensation is unpredictable and the carbon leakage risk due to the cost burden from indirects is not considered.

ECI supports the position of Eurometaux which includes the need for EU-wide harmonised compensation, no undue costs for the best performers, and compensation based on actual production levels.

EU Adopts Non-Ferrous Metals BREF

Following ten years of advocacy by ECI, other metal commodities, individual companies and Eurometaux, the European Commission has published its final opinion on the non-ferrous metals (NFM) Best Available Techniques Reference Document (BREF).

Following publication in the EU's Official Journal, the newly-set emission limits will become binding under the Industrial Emission Directive (IED). Companies will have a maximum of four years to adapt their installations and update their operating permits. ECI's Regulatory Affairs Manager, Katia Lacasse, represented the NFM industry in the final debate.

Product Environmental Footprint Initiative Supported By ECI

"Greening society" requires the supply chain itself to become greener. The European Commission is evaluating ways to provide better, comparative information to help consumers in their decision making. One approach is to incorporate Life Cycle Assessment (LCA) methodologies in its Product Environmental Footprint (PEF) pilot. ECI has been publishing environmental life-cycle inventory data for the main copper products since 2004.

Supported by key members, ECI is taking part in two PEF pilots – one on tubes, the other on metal sheets. These 3-year pilots, which bring together industry, academia and other stakeholders, have the task to develop rules, to test them on actual products, and to evaluate different end-user communication routes.

One aspect that is very important to recognise in this activity is that the methodologies to identify life-cycle parameters for metals, on eco-toxicity, human toxicity and resource depletion, are not yet well-established in the scientific or regulatory community. ECI has played an important role, with Eurometaux and Euromines, in advocating for the right indicators and recycling formulae.

Research

OECD Agrees Copper Effects Database

In April, the Italian authorities submitted an effects dossier on copper and copper compounds to the Organisation for Economic Cooperation and Development (OECD). The dossier was based on the copper EU Voluntary Risk Assessment, managed by ECI and reviewed by Italy, and the REACH dossier developed by the REACH Copper Consortium, also managed by ECI.

After extensive review, including ECI providing responses to >300 comments, the OECD approved the hazard profiles for the category (copper and copper compounds), based on those agreed by European Chemicals Agency, along with bioelution data that justify read-across to non-tested materials. The dossier concludes on no human health hazards for copper oxide, copper powders and copper massives. The one data gap identified, the potential for eye irritation from copper powders, is being addressed by an industry study.

For the environment, it was concluded that copper and copper compounds may present a hazard based on the release/bioaccessibility of copper ions and on the conditions of the receiving environment (pH, hardness, organic matter, etc.).

The importance of this OECD outcome is that regulatory authorities around the world are able to make use of a solid and consistent body of evidence on which to base their own national chemicals management policies.

ECI Supports Industry With IMO Compliance

The International Maritime Organization (IMO) is introducing new rules covering the shipment of bulk cargoes, such as metal concentrates. Throughout 2012 - 2014, ECI worked with industry to develop a methodology, consistent with other classification mechanisms such as the UN Global Harmonized System, for use by companies in securing their licence to operate under MARPOL Annex V. This requires shippers to report whether, or not, their cargoes require classification as Harmful to the Marine Environment (HME).

Under the advocacy umbrella of the International Council on Mining and Metals (ICMM), results for copper concentrates were presented to Norway, Belgium, Netherlands, Spain, Japan, Australia and Peru, as well as to the IMO subcommittee on the Carriage of Cargoes and Containers. Further input is expected after the Marine Environmental Pollution and Control Committee meets in May.

Later in 2014, ECI launched Phase II of its Business Venture. This will assess the physical and human health hazards of copper concentrates to support compliance under the IMO's Materials Hazardous in Bulk rules. A generic guidance document was prepared and company-specific health hazard assessments were carried out using the multi-metal MECLAS tool. Some data-gaps were identified for follow-up in 2015.

Copper Markets

ECI's other key role is to support market access for its members' products. Its work to both defend and grow demand falls into five main end-use sectors:

- Energy Policy and Efficiency Standards
- Wire and Cable
- Non-electrical Applications in Building Construction
- Heat Exchange Systems
- Technical and Market Support to the Industrial Value Chain

Energy Policy and Efficiency Standards

DSM University Kick-Off

In 2013, ECI joined forces with the International Energy Agency's Demand-Side Management (IEA-DSM) Programme to create the DSM University, a new facility targeting policymakers, utilities and energy managers to adopt demand-side management solutions. This year's University launch event was attended by 230 participants from 70 countries.

Future events are planned with the International Smart Grid Action Network and the Regulatory Assistance Project. Inspired by the concept, the IEA's Implementing Agreement for a Co-operative Programme on Photovoltaic Power Systems is considering setting up a similar initiative.

UN Solar Thermal Partnership Continues

In a global collaboration with the United Nations' Environment (UNEP) and Development (UNDP) Programmes, ECI continues to manage www.solarthermalworld.org, a searchable online database for solar thermal professionals. The platform now contains over 3,000 entries covering domestic, industrial and district heating and cooling.

ECI launched a partnership with the IEA's Solar Heating and Cooling Programme for researchers to share their results on the website's database. The site was also a source for the solar thermal section of the REN21 Renewables 2014 Global Status Report.

Copper Given High Profile At EU Sustainable Energy Week

ECI's Nigel Cotton, Director of Building Construction & Technology, spoke about the sustainable energy and efficiency benefits of copper at Visualising Energy 2014, the opening ceremony for the EU's Sustainable Energy Week which took place in Brussels. Other speakers included HRH Prince Laurent of Belgium, Founder of the Global Renewable Energy and Conservation Trust.

West African Safe Electricity Pilot Supported By ECI

Sub-Saharan Africa is one of the main areas targeted by the United Nations Sustainable Energy for All (SE4ALL) initiative. With investment support from the World Bank, a pilot to provide 1,000 peri-urban households with a safe and efficient electricity supply is taking place in Senegal. Ivory Coast and Burkina Faso are in talks to join the programme. The provision of electricity is fundamental to growing the economy and hence overall living standards.

First Copper Overhead Line Pilot Projects Deployed

Three years after ECI began supporting the use of new, high-performance copper alloys in overhead conductors, four pilot projects were installed in 2014:

- 20 km in a copper mine to validate the performance and economics.
- 1.5 km in a salt mine to check corrosivity performance.
- 1.5 km in the Pyrenees to test ice and freezing fog conditions.
- 18 km to replace an existing line, which was recycled into the new, high-performance line.

EU Ecodesign Regulation Passed

The EU announced, on 21st May 2014, its long-awaited regulation on distribution transformers. ECI has contributed strongly to this activity, since 1998, with its technical analysis able to overcome opposition from other parts of the downstream value chain.

The regulation requires new power transformers, put into service in the EU internal market from 1st July 2015, to fulfill minimum energy-efficiency standards. The Commission estimates the resulting energy savings to be 16 TWh/year from 2020 onward, equivalent to saving half of the annual electricity consumption of Denmark. This equates to 3.7 million tonnes/year of avoided CO₂ emissions.

In parallel with the 2009 regulation on electric motors, this reinforces the positive role that copper's superior conductivity plays in improving overall energy efficiency and thus helps the EU achieve its 2020 energy efficiency target.

ECI Urges Life Cycle Cost Analysis To Boost Energy Efficiency

A recent Leonardo ENERGY survey found that 7% of electricity generation is lost in Transmission and Distribution Systems. With a 1% loss reduction saving the EU more than 30 TWh/year, it is crucial that national regulatory authorities increase their focus on network losses.

The business case for the installation of high-efficiency equipment, such as transformers and copper overhead line conductors, is weakened if ongoing operating cost savings are not used to offset higher up-front investments. ECI therefore strongly recommends using life-cycle cost analysis (LCCA) and end-of-life recycling credits to arrive at more relevant economic and environmental justifications.

ECI Consortium Secures Horizon 2020 Funding

The ECI-led proposal 'Innovative Business Models for Market Uptake of Renewables in Industrial Electricity Use' was granted €1.9 million by the European Commission's Horizon 2020 Research and Innovation Programme. If the EU is to achieve its 2030 and 2050 de-carbonisation goals, many industrial processes will need to be adapted to use electricity from intermittent renewable sources. This 3-year project brings together stakeholders from the research community, renewable energy and copper sectors. The focus will be on industry sectors where the negative consequences of intermittency can be best offset by the production process itself.

Wire and Cable

Power Cable Defence Programme Progresses

ECI's power cable defence programme is carried out in close cooperation with the International Wrought Copper Council's Wire-Rod Committee. Over the past 5 years, the low price of aluminium, relative to copper, has led to an increase in the use of aluminium conductors. However, designers and specifiers need to take into account the lower conductivity of aluminium (61% of that of copper), the larger diameter conductors required to carry the same current, plus the worse corrosivity and poorer mechanical properties.

ECI has developed a series of comparative technical and economic arguments that take into account life-cycle costing, end-of-life recycling benefits and compactness in urban networks. Outreach towards the value chain began with the paper 'Copper versus Aluminium in Low Voltage Power Networks' being presented at conferences in the Netherlands and the USA.

ECI launches the Copper Academy

This new outreach initiative organises monthly webinars on the benefits of copper in conductivity applications. It targets multiple end-users including utilities, railway operators, manufacturers and design engineers. To date, 131 participants have taken part in webinars on copper overhead lines (a new application), copper in comparison with alternative materials, and the copper value chain.

New Standard Requires Copper Cables In PV Systems

In accordance with EN 50618, copper was established as the conductor material in the 'Requirements for the constructions of cables', Chapter 5 of the European draft standard on 'Electric cables for photovoltaic systems'.

ECI Updates Database For Conductivity Metals

ECI made further updates to its Copper Alloys Knowledge Base, a database with up-to-date knowledge on 27 copper and copper alloy conductor materials. This comprehensive database, which now has over 800 publication summaries, not only provides designers with easy access to copper performance properties, it also lists independently verified comparisons between copper, aluminium and the key alloys of both.

Building Construction Non-Electrical

End-user Campaign Revamped

ECI continued its Copper in the Built Environment (CuBE) campaign, which promotes the benefits of copper products and systems directly to end-users. Major revamps to the campaign's national language websites were completed, providing better value to users. The sites promote the broad spectrum of copper applications in the built environment, including architectural products, copper interiors, plumbing and heating, antimicrobial touch surfaces and electrical uses. Work also began on a new, pan-European platform aimed at providing up-to date technical information on plumbing systems to professionals.

Controls And Automation Gain Importance In Building Energy Efficiency

As an alternative to improving insulation, copper-based controls and automation technologies are gaining recognition as a way of achieving zero-energy building stock. A report by Leonardo ENERGY, the sustainable energy community managed by ECI, found that this approach could deliver a 22% reduction in the energy consumption of European buildings by 2028. The European Building Automation and Controls Association has extensively referenced this report.

Related reports estimate that intelligent controls and automation technologies will deliver savings which outweigh the additional investment – no matter in which region, how well the house is insulated, or how energy-conscious the residents are.

Copper And Drinking Water Research Mentioned By WHO

Two ECI-supported projects on the role of biofilms in drinking water have been cited recently by the World Health Organization's (WHO) Collaborating Centre. The research, sponsored by the German Federal Ministry of Education and Research, shows that copper does not automatically kill bacteria in drinking water, as is the case for dry copper surfaces. However, copper ions do help to reduce bacterial reproduction rates in drinking water, keeping bacteria levels low. The study confirms that copper is suitable for drinking water systems because its use reduces pathogens more than competing materials.

European Antimicrobial Copper Developments

2014 saw broader recognition of the positive role played by copper in reducing harmful pathogens, such as MRSA, in health-care environments, a continued increase in the number of companies marketing Antimicrobial Copper Cu+ products, plus an increase in installations. As examples:

- Asklepios, Germany's largest healthcare provider, announced the biggest ever Antimicrobial Copper touch surface installation – 600 copper door handles.
- The Greek Ministry of Health publically recommended the use of Antimicrobial Copper to reduce infection.
- Copper was mentioned for the first time in UK guidelines on preventing healthcare-associated infections.
- The Polish National Centre for Research and Development awarded €650,000 for research on Antimicrobial Copper products for hospitals.
- The world's largest clinical assessment of copper began in France. Led by a Cu+ partner, 2.7 tonnes of copper (1,000 door handles and 1,000 m of hand rails) were installed in the Champagne-Ardennes region. The trial will measure copper's ability to reduce acute infection rates in long-term care homes. The initiative is jointly-funded by the Cu+ partner, the Champagne-Ardennes region and the EU.

Antimicrobial Copper Exhibited At Events Worldwide

At MEDICA, the leading trade fair held in Dusseldorf, Antimicrobial Copper exhibited a 'Copper Hospital' showcasing 60 commercially available Antimicrobial Copper products from around the world. Several Cu+ partners exhibiting at the fair also used the Copper Alliance's stand to enhance their own outreach.

To raise awareness of research towards healthcare decision makers, ECI also participated in eight medical conferences across Europe.

Antimicrobial Copper Being Considered By WHO

In November, two scientists, one industrial Cu+ brand licensee and one user of antimicrobial copper products presented information on touch-surface products to the World Health Organization, as well as to regional and national health authorities, at the 'Risk Prevention and Patient Safety' workshop held in the National Assembly in Paris.

The event was organised by Le Lien, a French patients' organisation representing the victims of hospital acquired infections, based on consultations with the Copper Alliance in France. The core theme was to strengthen the recognition and adoption of Antimicrobial Copper touch surfaces as an important way to further reduce the levels of harmful pathogens present in health-care environments.

First Cu+ Bed Showcased In Poland

So far, AMC product manufacturers have prioritised hardware applications, such as door handles and grab rails, and smaller medical equipment, such as IV poles and over-bed tables. In 2014, the first prototype of a Cu+ hospital bed was showcased at Poland's largest medical trade fair, SALMED 2014. Given that bed rails have been highlighted as the most contaminated hospital surface, this new product is a very important addition to the Cu+ range.

New Antimicrobial Copper Directory Online

The Global Antimicrobial Copper Products and Services Directory has been updated. Available at www.antimicrobialcopper.com, it now includes 92 companies (39 from Europe). Of particular importance, is the increase in service providers (companies offering to package together products from individual suppliers into system solutions) – a good sign for supply chain evolution.

Helping Architects Specify Antimicrobial Copper

The Copper Alliance in the UK developed the training module 'Antimicrobial Copper: innovative and cost-effective materials for healthcare design', which has been approved by the Royal Institute of British Architects (RIBA). It is being delivered by Cu+ partners during face-to-face training sessions in architects' practices.

Heat Exchange Systems

Expanding Renewable Heating And Cooling

Europe spent €545 billion on imported fuels in 2012. ECI presented at the 'Renewable Heating and Cooling European Technology Platform', a high-level technology and policy summit. The presentation focused on how renewable heating and cooling can reduce Europe's dependency on gas, improve security of supply in the eastern countries of the EU and decarbonise the energy system.

Promoting Environmental Benefits of MicroGroove

ECI continues to lead the promotion of MicroGroove, a global brand covering the marketing of small-diameter copper tubes for the air-conditioning and refrigeration sectors. Original Equipment Manufacturers are looking for lower weight, higher energy efficiency and the ability to use more environmentally-friendly refrigerants. In addition, they would prefer to avoid substantial changes to their own factory footprints.

The Copper Alliance prepared a paper, entitled 'Smaller Diameter-Copper Tubes Support Manufacturing and Design', highlighting the ability of MicroGroove tubes to deliver on these needs. It is widely available to OEMs, their customers and refrigeration service engineers.

Technical and Market Support

Garden Bridge To Be Built With Copper-Nickel

The Copper Alliance in the UK provided technical, aesthetic and sustainability information which supported the choice of copper-nickel, as an alternate to reconstituted stone, for London's new Garden Bridge. This exciting new pedestrian walkway across the River Thames is being designed by Thomas Heatherwick, who designed the copper cauldron for the London 2012 Olympics. He describes copper-nickel as a "warm, coppery material...highly resistant to corrosion".

New Technical Website Launched

The Copper Alliance in Germany launched a technical support website in German and English to serve industrial users of copper and copper alloys. In addition to a range of free services, visitors are invited to register for in-depth technical seminars and/or submit requests for bespoke engineering services. Visitors have welcomed the site's interactive features and purchase orders for both in-house seminars and engineering services have been received.

Revised Busbar Book Published

First published in 1937, 2014 saw publication, by the Copper Alliance in the UK, of the latest edition of 'Copper for Busbars'. ECI believes this to be the only technical reference manual available to support the design of efficient, reliable busbar systems. The book serves a global market of around 500,000 tonnes of copper.

Symposia Focus on Drinking Water and Material Science

The Copper Alliance in Germany organised its annual Copper Symposium in cooperation with the German Society for Corrosion Protection. Attended by around 120 participants, the 2014 symposium covered a broad range of leading edge topics on copper alloy material science and applications.

A separate event, attended by more than 80 participants, strengthened the link with German regulators on the European 4-Member State effort, which covers the use of copper alloys and other materials in contact with drinking water.

Communications

Alongside its advocacy and marketing efforts to sustain copper demand, ECI also communicates its program achievements and copper's benefits across a wide range of platforms.

As part of ECI's efforts towards the Building Construction sector, two pan-European websites, copperconcept.org (targeting architects) and Initiative Copper (targeting plumbers and installers), plus the six national Copper in the Built Environment websites (targeting home owners and developers), were completely revamped.

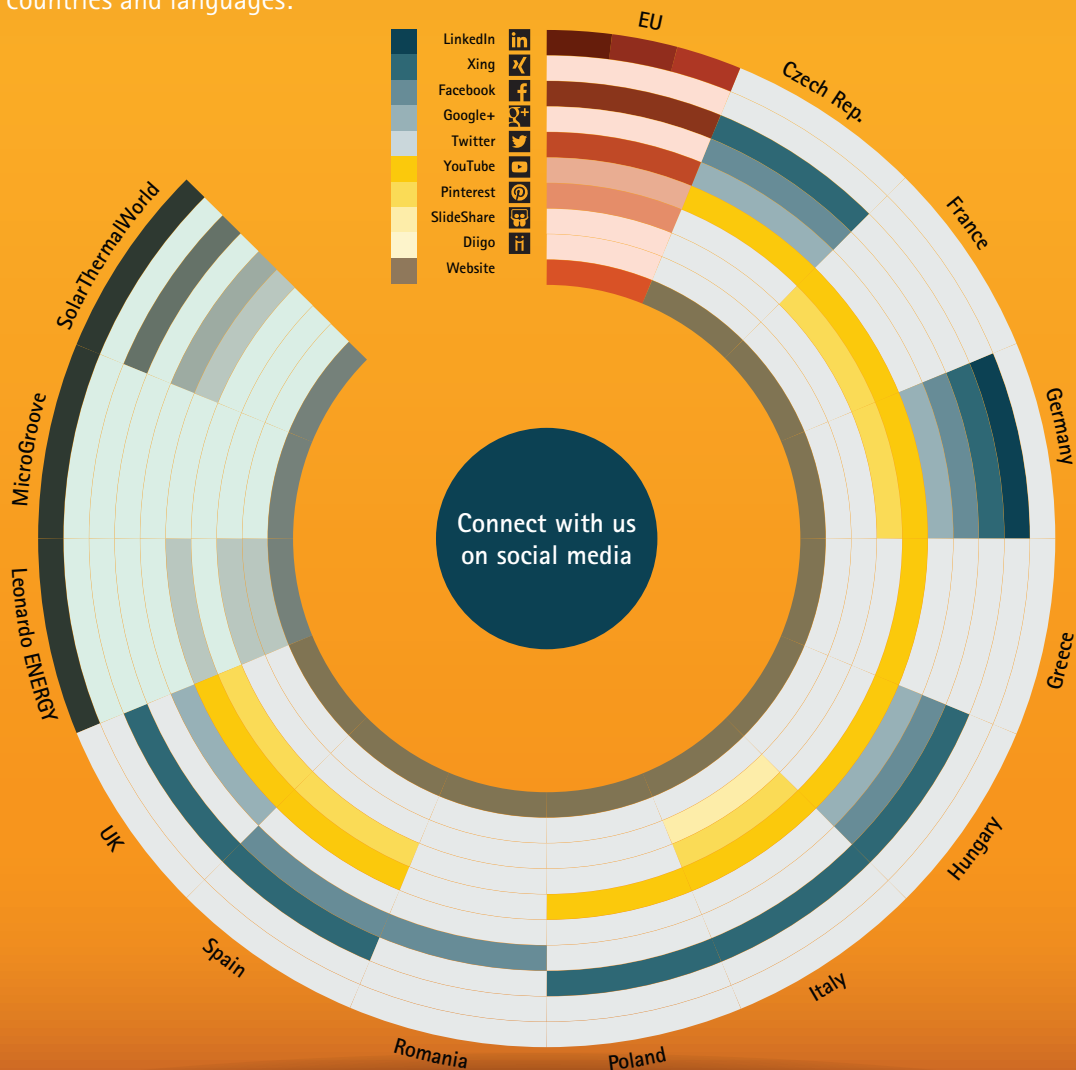
Copper Architecture Forum Magazine

As part of the 'European Copper in Architecture' campaign, this publication is distributed, twice per year, to 20,000 architects and building professionals throughout Europe in English, Czech, Danish, Finnish, French, German, Hungarian, Italian, Norwegian, Polish, Russian, Spanish and Swedish. 2014 content included:

- Issue 36: Results of the 2013 European Copper in Architecture Awards, including an interview with the architect behind the Platform of Arts and Creativity in Guimarães, Portugal, the outright winner.
- Issue 37: The increasing diversity of copper and copper alloy surface designs, including their use in a major sports stadium in Adelaide, Australia.

Social Media Expansion Continues

Via a number of channels, the Copper Alliance continues to engage its communities in a variety of countries and languages:



New social media campaigns include:

- #gocopper Aimed at engaging more copper users in social media, ECI rolled out the hashtag #gocopper across its social media platforms. This was accompanied by a number of new videos. ECI encourages stakeholders to use #gocopper to showcase innovations that meet end-users needs and deliver societal benefits based on copper's performance characteristics.

- #upcopper Copper Upcycling Contest Launched in Paris, this competition invited participants to repurpose a household object, made from copper or a copper alloy, and create an upcycled new product. #upcopper was created so participants could enter via ECI's 'Copper Mania' Pinterest Page.

New Copper Academy Offers Webinar Programme

Focusing on copper in conductivity applications, ECI's new Copper Academy organises monthly webinars for end users in many areas, including utilities, railway operations, manufacturers and design engineers. Delivered by experts from member companies and academia, webinar topics have so far included new copper overhead line applications, copper versus alternative materials and the copper value chain.

New Electrical Installations Initiative

ECI launched Pitchbook, a newsroom aimed at raising end-user awareness of the ever-increasing flexibility and functionality available through home electrical installations. As part of ECI's

CuBE campaign, the website demonstrates the expanding range of home comforts, efficiency and security that are available via copper-based products and systems.

Communicating On Energy-Efficient Copper

Through its 'Copper Wire' newsletter, targeting EU stakeholders, and a related video, ECI showcased best practice examples of how the copper industry's products have contributed to both industrial energy efficiency as well as to that of the broader EU economy. EU and industry representatives, alongside other stakeholders, contributed their opinions on energy efficiency targets. The video can be seen on ECI's YouTube channel.

Amsterdam Museum Displayed Unique Copper Labyrinth

In collaboration with two Dutch artists, ECI designed and installed a copper labyrinth at the Hermitage Museum in Amsterdam. Made from 100% recycled copper, the display complemented the temporary exhibition 'Dining with the Tsars'. The 450 metre long copper pipe was manually polished, sanded and designed in a wavy pattern. It featured at the museum throughout winter 2014.



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