



EPD FOR COPPER

EPD® STAKEHOLDER CONFERENCE 15TH MAY 2012
STOCKHOLM WATERFRONT CONGRESS CENTRE, SWEDEN.

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Chile is a mining country

- Contributes to 16,4% of GDP
- Represents 62,3% national exports
- Employs 232,000 people, with the highest pay rates
- Has the lowest accident rates compared to any economic activity in the country

Mining industry in Chile

- Chile cover only 0,6% global continental area and has 0,25% of the global population

But Chile is **first producer** of:

- Copper: 34% of global production
- Iodine: 58%
- Lithium: 45%

The importance of Copper

- ❑ Copper is an engineering metal
- ❑ Widely used due to its high electrical and thermal conductivity, malleability, ductility, resistance to corrosion, and anti-bacterial properties.
- ❑ Major application as electrical conductor
- ❑ Other industrial applications: building construction, plumbing, architecture, electronics, and health products.
- ❑ In the USA: it is the third most consumed metal (after iron and aluminum)

Copper industry in Chile

- Copper production in 2010: 5.4 million tons of fine Cu
 - Copper electrorefined (sulf mineral) : 1,5 million tons
 - Copper electro-obtained (ox mineral) : 2,1 million tons

Exports: 33% to China
18% to Europe
13% rest of America
12% to Japan

Sustainability of products



Following the global efforts towards sustainable consumption,

there is a national concern about the correct communication of environmental impacts of products.

Competitiveness.



RIO+20
United Nations
Conference on
Sustainable
Development

Product Category Rules (PCRs): An important topic for emerging countries



African
Network of
LCA

Establishing basic Product Category Rules (PCR) in order to ensure achieving the Green Economy in emerging regions: *disacoupling PCR from the economic and commercial interests of big companies and consortiums*

highlight the necessity of developing mechanisms for auditing and controlling those initiatives, projects and programs oriented to establish models of LCA or implementing as well other life cycle thinking tools.

We think that a direct way for this, based on standardized tools that already exist, is the **promotion of the use of the product category rules (PCR)**, according to the ISO14025.

INTRODUCTION

During the last decade, corporate social responsibility (CSR) required companies to adopt measures and tools for cleaner production and sustainable development. This became an important driver for sustainability in the production sector, and was also an effective vehicle to introduce these new concepts to several countries. This also helped to raise awareness in society of the relevance of taking care of the environment as well as the value of the biological richness of the planet for future generations. At the same time, new relationships and collaboration between industry and society started to be developed; under a novel approach for economic-social growth and the improvement of the standard of living, through a framework of respect to the environment.

What is the Problem?

In the present phase of world development, i.e. towards life cycle thinking and a green economy society has already been deeply instilled with the concept of sustainability. As part of public agenda of developing countries, the initiatives of the private sector have an important influence on general society and also on governmental agencies. These initiatives have the potential to fulfil the expectations of society regarding these areas and can also indirectly help governmental agencies to accomplish their own goals in

EPD as the reporting format and The International EPD system as the program operator

- Type III environmental declarations: for b2b operations.
- EPD is a multi-criteria claim: it gives the possibility to report impacts that are site-specific
- The International EPD System offers:
 - Clear and publicly available program instructions
 - Online database with PCRs and EPDs
 - Seeks international participation
 - Reliability

What is CIMM doing?

2011 National LCI :

- ▣ Electricity generation
- ▣ Copper concentrate
- ▣ Copper cathodes: including the conventional and hydrometallurgical processes

2012 LCI:

- ▣ secondary copper
- ▣ Copper wire rods: the raw material used for the elaboration of electrical wires

PCR

- ▣ Copper concentrate CPC 1421
- ▣ Copper cathodes CPC 41413
- ▣ Copper wire CPC 41513
- ▣ PCRs for copper are not developed within any public program

EPD

Impact category indicators:

carbon footprint,

water footprint,

land use,

social & economic impacts

What is CIMM doing?

The screenshot shows the EPD website interface. At the top, there is a navigation bar with tabs for 'Using EPDs', 'Creating EPDs', and 'PCR'. Below this is a search bar and a 'Site search' button. The main content area is titled 'COPPER, ORES AND CONCENTRATES' and features a timeline diagram. The timeline starts with 'INITIATED' on 2011-02-22. It then shows four stages: 'Start open consultation' (2012-06-01), 'Deadline open consultation' (2012-08-01), 'PCR review and approval' (2012-08-15), and 'Publication' (2012-09-01). A note at the bottom of the timeline states 'Preliminary dates are in italics'. Below the timeline, there is a 'PCR INFORMATION' section with text and a list of topics: 'Copper wires' and 'Copper cathodes'. To the right, there is a 'COMMENTS ON THIS PCR' section with a 'Start a discussion' button. At the bottom, there is a 'DETAILED INFORMATION' section with a dropdown arrow and a table of details.

Using EPDs Creating EPDs PCR EPD®
THE GREEN YARDSTICK

What are Product Category Rules? PCR Basic Modules PCR Development PCR Search PCR Forum Site search

PCR Search \ Copper, ores and concentrates SEARCH PCR

COPPER, ORES AND CONCENTRATES

INITIATED
2011-02-22

Start open consultation
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Deadline open consultation
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PCR review and approval
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Preliminary dates are in italics

PCR INFORMATION

This PCR will be developed within a project running during 2012.

This project will also develop PCRs for:

- [Copper wires](#)
- [Copper cathodes](#)

COMMENTS ON THIS PCR

Be the first discussing this PCR

[Start a discussion](#)

DETAILED INFORMATION

Name:	Copper, ores and concentrates
CPC Code:	14210
CPC name:	Copper, ores and concentrates
GPI version:	GPI 1.0
Prepared by:	Research Center for Mining and Metallurgy (CIMM)
PCR moderator(s):	Claudia Pena Research Center for Mining and Metallurgy (CIMM)

PCRs for copper products

Declared unit: 1 metric ton of copper concentrate/cathode/wire at the port ready to be shipped

System boundaries: cradle-to-gate (due to the numerous uses), *excluding:*

- *Exploration stage*
- *Building of the production site*
- *Production of equipment*
- *Personnel activities as trips to work and others.*
- *Dismantling activities.*

cut-off rule: 1% of mass contribution, energy relevance and environmental relevance

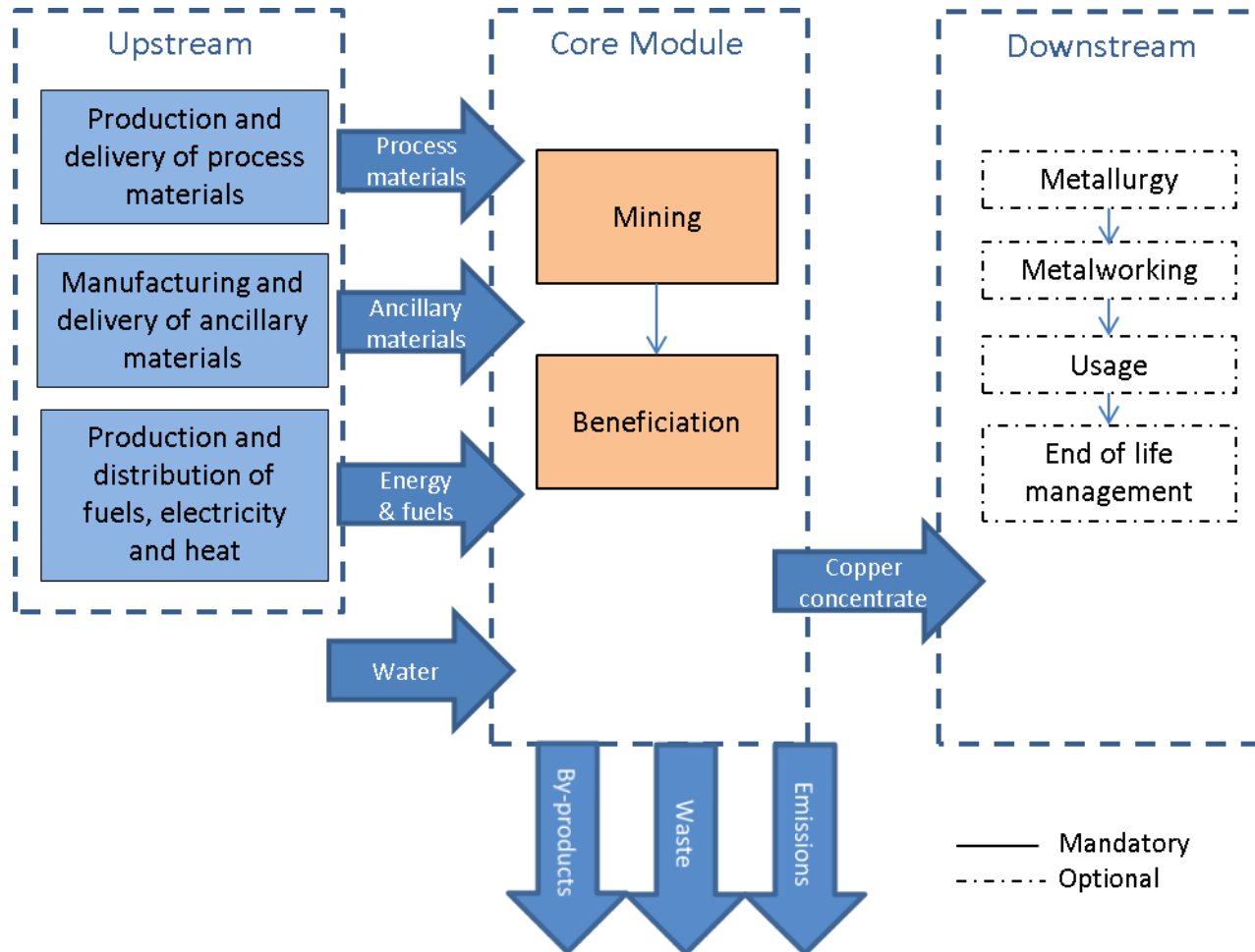
Allocation rules: economical allocation between co-products , Polluter-Pays (PP) allocation method for wastes

Environmental impacts & indicators:

1. use of materials and energy, use of water
2. Global warming potential (GWP), Ozone depletion potential (ODP), Acidification potential (AP), Photochemical ozone creation potential (POCP), Eutrophication potential (NP)
3. Other (as reported in GRI): PM10, Mining waste, hazardous and non-hazardous industrial waste, Land use, relevant social and economic indicators.

UN CPC 1421 copper ores and concentrates

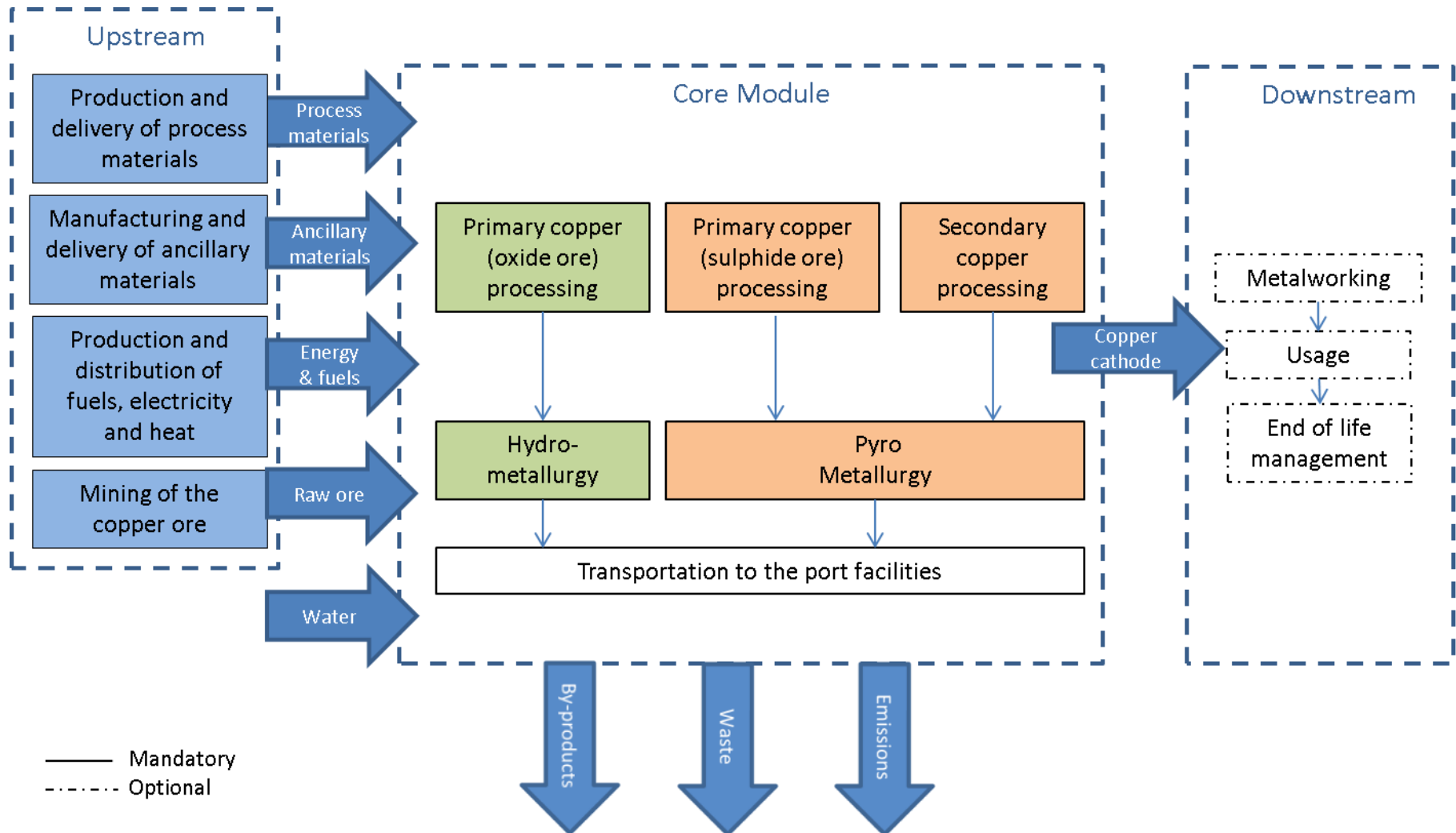
System boundaries: cradle-to-gate



UN CPC 41413 refined copper and copper alloys

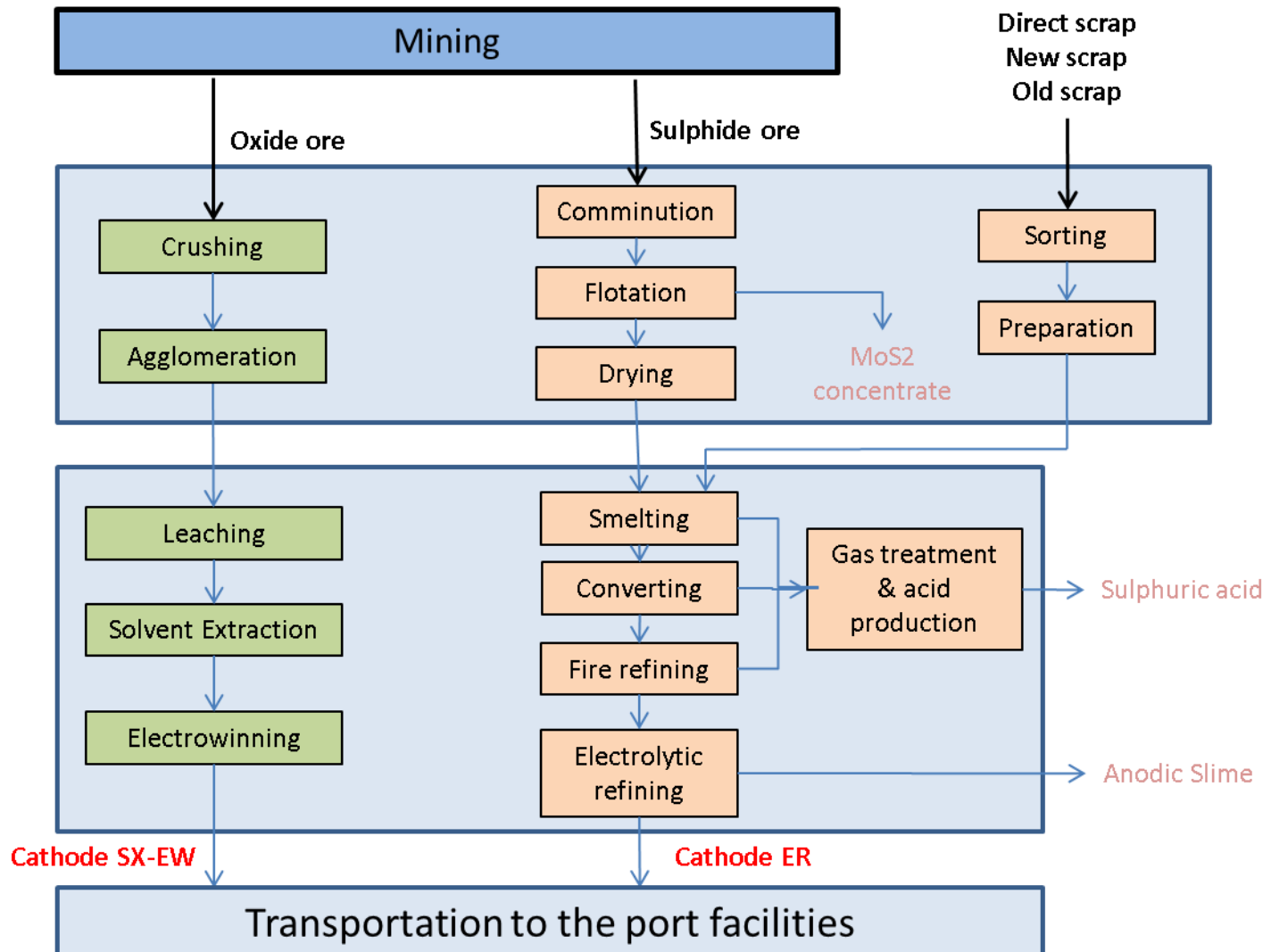
System boundaries: cradle-to-gate

based on the requirements and guidelines given in "PCR Basic Module, CPC Division 41: Basic Metals"



UN CPC 41413 refined copper and copper alloys

Core Module



Product group: UN CPC 41513 wires of copper



Purpose: to compare electrical wires that are potential competitors on the market place

- ▣ Wire of copper
- ▣ Wire of aluminum
- ▣ Wire of alloys

Thus, the category does not really apply to the function of the product.

The issue of product category definition in PCR alignment



Product category rules: set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories (ISO14025, def. 3.5)

Product category: group of products (goods and services) that can fulfill **equivalent functions** (ISO14025, def. 3.12)

The issue of product category definition in PCR alignment



Product classification systems:

CPC: developed for economic statistics

UNSPSC: developed for spend management solutions

GPC: developed for synchronization systems between trading partners in the supply and demand chains

We need to incorporate functionality in the definition of products

The issue of product category definition in PCR alignment - Conclusions

- The complete function must be included in the definition of the product category
- The use of descriptive language to define a product category can be misleading and result in duplicate PCRs.
- Product classification systems are useful due to their organized structure, *but which is the most appropriate?*
- UNSPSC , CPC and GPC were developed based on supply chain, which is also the inherent application of EPDs, but they don't consider the function of the product.
- The need for global alignment
- **We need a broad definition of product categories, with more flexible PCRs that give the mandatory rules to create EPDs.**

This allows to comparability amongst products that fulfill the same function, and more detailed PCRs that provide specific rules for products within the same industry or of the same material.

■ For example:

- PCR 1.0 Electrical conductors: mandatory rules to create EPDs that allow comparability
- PCR 1.1 Electrical conductors - wires of copper: specific rules set by copper industry



CILCA 2013
PRE ANNOUNCEMENT
INTERNATIONAL CONFERENCE
ON LIFE CYCLE ASSESSMENT



Dear Colleagues,

It is a pleasure to invite you to join us to the **V CILCA** that will take place in Mendoza, Argentina on 2013.

The programme of this event is being planned with the aim of spreading the Life Cycle Thinking and promoting the use and development of Life Cycle Assessment as a media to achieve the sustainability of products, processes and activities.

The National Technological University of Mendoza is proud to organize this conference and will be very pleased to count with your presence.

With kind regards,

Pablo Arena
Organizing Committee.

Life Cycle



Initiative

24-27 March, 2013
MENDOZA-ARGENTINA

E-mail: cilca2013@gmail.com

Thank you
for your attention

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Chair of the Ibero-American Network of LCA

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