Review of: "A Review of the Risks of Copper Foil Manufacturing Plants. A New Facility in Catalonia, Spain"

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Potential competing interests: No potential competing interests to declare.

First of all, thank you to Dr. Domingo of *Universitat Rovira I Virgili* for the interesting article, which gives a general scenario about the main processes and environmental issues involved in copper production.

It's important to underline that the process related to the manufacturing plants for electrolytic copper foil production is very different from the other processes described in the article, such as the copper primary extraction process, mining and metallurgy industries, and e-waste recovery.

In my opinion, it should be underlined in the article that the potential environmental and safety impacts are not comparable.

Generally, in copper foil manufacturing plants, 100% of the copper used for feeding the process is recycled.

This is a crucial point. The manufacturers use copper scraps to prepare their copper sulphate solution and start their electrochemical process.

Scraps come from the high-purity copper foil produced, but out of specifications, and/or from other copper scraps, coming, for example, from used copper wires, well-known scraps from the electrical industries.

Copper foil manufacturers don't use primary copper.

The copper scraps are recollected, properly cleaned, and treated in their process for copper foil production.

Reuse of the quality-defect copper foil is around 100%.

Emissions come mainly from the natural gas burnt on site to provide energy to copper foil production technology, but, as for all industrial plants, they have specific systems of abatement based on government regulations.

The copper foil is produced through an electrochemical process that requires a significant amount of energy.

The process also consumes a large amount of water, but they generally have closed recirculation systems in their processes to reuse water as much as possible.

Generally, with specific treatments such as reverse osmosis, they treat and clean this water before reusing it in their manufacturing processes.

They generally have a water treatment plant within their site. The water treatment removes the copper, chromium (a sensitive component coming from the last steps of copper foil treatments, the Treater phase), and sulphates and ensures that only treated and cleaned water is released into the pipe system.

The outcome of this removal results in chromium hydroxide sludge, which is generally externally landfilled.

A closed recirculation system is adopted to reduce the dispersion of water as much as possible.

My suggestion is to refer to the main copper foil manufacturers' websites, where their process is explained very well, with details for every phase, and there are very interesting and public official reports related, for example, to their goals for sustainability (*Sustainability Report*).

In this way, it’s possible to understand well what the company’s plans are to reduce the carbon footprint and what the real focus points are for them.

For example, VOLTA ENERGY SOLUTIONS Ltd. (Hungary), a recent new European plant, has been in operation since 2020 and is fully dedicated to ultra-thin copper foil production for Lithium-ion batteries.

In my opinion, this company could be an interesting reference; it’s a new plant, last completed in Europe.

In their *Sustainability Report*, attached to the present review, they refer in detail to all they’re doing to reduce their carbon footprint and their targets.

With a study and collection of information about the main manufacturers' companies and proper reference to the copper foil production process and plants specifically, in my opinion, it will be possible to have a targeted scenario more focused on the future plant in Catalonia.