nordic GALVANIZERS
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EGGA Assembly in Salzburg

Assembly 2023 was held in Salzburg, Austria at the Imlauer Pitter Hotel, 19-21 June. It had a special focus on the industry's path to 'net zero' and galvanizing's role in renewable energy generation. The main part of the presentations at the conference was connected to "Green Deal", energy and product sustainability.

EGGA Assembly 2023

"RACE TO ZERO"

Martin Kopf, President of the German Galvanizing Association, Vice President of EGGA and CEO of Zinkpower, had a presentation with the title "RACE TO ZERO - Sustainability offers opportunities and challenges for the galvanizing industry". Since the biggest customer segment for galvanizers, the construction industry, is more resource-intensive than any other when it comes to use of raw material, energy and water and also produce a lot of waste, it is very important for all suppliers to this sector to work to decreasing the burden. This makes galvanized steel very interesting as construction material, since it is both durable, reusable, repairable and recyclable.

For example it has been showed by a LCA study that regalvanizing of 1 km highway crash barriers (including transport, disassembly and reassembly) saves 112 ton CO_2 (5 times lower footprint) and 390 MWh energy. Recycling of galvanized steel is no downcycling, it is without any loss of quality. In Europe about 88 % of steel is recycled and 11 % of steel is reused, i.e. in total 99 % of steel is recovered! Steel is a recycling world champion! The CO_2-footprint of 1 ton of galvanized steel is 1320 kg, -14,6 % caused by galvanizing (Source: EPD Galvanized structural steel). By using green, non-fossile energy, the CO_2 emissions in our galvanizing plants can be reduced by more than 90 %.

Digital Product Passport

Valerio Mazzone, Manager Public Affairs at EGGA, informed among other things about Digital Product Passport. As part of its Circular Economy Action Plan, the European Commission presented the Ecodesign for Sustainable Product Regulation (ESPR). A central element of the ESPR is a proposal for a Digital Product Passport; covering all stages of the value chain. This passport will be continuously updated and follow the product throughout its life cycle. The aim of the passport is to provide producers and other key supply chain actors - as well as consumers and market surveillance authorities - with relevant information for ensuring the sustainable management of products.

Article 7 (2) of ESPR specifies the "information requirements" which is performance of the product and how to install, use and repair it. Annex III of ESPR lists the information that may be included (e.g. product identifier, global trade identification number, etc.)

Energy transition in the galvanizing industry

In Europe in general most of the galvanizing plants are using gas for heating the kettle and also in other parts of the process. To switch to electricity seems to be a necessary step in the green direction. Below some of the national associations in EGGA gave comments on their current situation. But first a short reminder about Scope 1&2:

Scope 1 - Direct CO_2 emissions caused by own sources within the organisation.

Scope 2 - This includes indirect emissions of CO_2. These are emissions that arise from the generation of electricity, heat and cooling and steam in facilities that are not part of our own operations, but are used by the organisation.

Energy transition in the Benelux

Where in the process is the CO_2 caused? Some examples of scope 1 savings from 1990 to 2030:

- better ovens through better insulation
- smarter burner systems for furnaces
- ceramic coating of furnace walls
- better covers for off production time
- furnace heat recovery for dryer
- furnace heat recovery for hot water
- more production on less galvanizing lines
- less idling time (pure waste)
- better production volume per line
- transport from fuel to (green) electric
- heat pumps for hot water

In zinc, there are two major savings - First you can buy "green" zinc, this is a big part because we use a lot of zinc, and extracting zinc takes a lot of energy and second - the use of zinc has become less due to better control of bath chemistry (hard zinc and ash) and thinner layers, especially on thick materials, by alloying the zinc. It is interesting to look at energy consumption per tonne of galvanised steel. In the presentations of previous EGGA conferences, a usage of 480-950 kWh/tonne has been presented, with the high range being spinning lines. The Benelux calculation assumed an average of 580 kWh/tonne. There are possibilities to get to 40 % absolute CO_2 in 2030 and still use gas for the furnace (as the first step). By this there is a chance to wait for the (necessary) infra structure to make the next move to net zero:

- Power supply big enough for our furnaces and green hydrogen gas.

Energy transition in Spain
Energy companies are offering industries to support their investments for electrification in exchange for establishing 10 years PPA-agreement with an energy price 15% cheaper than with natural gas. Having a possible PPA (*prior sales agreement with the client*) facilitates financing renewable energy projects by finance agencies. ”We are able to transform our plants” says Carola Hermoso, General Director of ATEG (The Spanish galvanizing asociation). Galvanized steel is essential to reach the political goal of being CO_2-neutral by 2050/2045, since it is needed in wind turbine, solar panel, agrivoltaics, etc. Galvanized steel has many competitive advantages compared to the substitutes, which ensures a good future market.

Energy transition in Germany
The german galvanizers want to transform their industry because of increasing CO_2-taxes but also to improve the image. Germany should be climate neutral by 2045 and EU climate neutral by 2050. Like the Spanish also the German galvanizers point out that they are willing and able to transform their plants. Galvanized steel is essential to reach the political goal of being CO_2-neutral by 2050/2045. Apart from all these progressive thoughts, the galvanizing industry needs certain requirements like a transformation of electricity prices, quick permits and security. What the German galvaniziers have done so far is a hot-dip galvanizing campain to show sustainability of galvanizing and galvanizing as an enabler of transformation.

Net Zero by 2050 - How to reduce your Carbon emissions?
Angela Curtis from Hasco-Thermic Ltd, that works with supply, design and manufacture of hot-dip galvanizing plants, talked about pros and cons with gas vs electrified kettles.
There are different options for heating the kettle, but there are always more things to take under consideration when changing from gas to other alternatives. The switch to electricity only reduces carbon footprint if green electricity is used, and the infrastructure for electricity supply needs to be in place. The cost will probably be higher and a bigger kettle may be needed to secure the heat input.

Electric heated furnaces – An Update
Nils Erik Faulhaber from CH Evensen had a little different profile when he discussed electric heated furnaces. The benfit with electric energy production is that it is not depending on a single energy source. Different energy sources can be transformed like:
- Gas
- Waterpower
- Geothermal energy
- Wind energy

With the choice of the energy source the CO_2-footprint can be chosen as well. Sustainable sources are available.
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Environmental Product Declarations in Context
Chiara Urbani from Life Cycle Engineering Srl talked about EPD:s, something that is very intersting for the moment. EGGA will update the old EPD, that have been very useful, but which now is expired, and many of our members have asked for the new one.

LCI data (Life cycle Inventory) provides information on all emissions and resources associated to the life cycle of processes and materials. LCI data are used in LCA (Life Cycle Assessment) studies, eco-design of materials and processes, comparisons between possibile alternatives (ex. different corrosion protection services). There are some common LCI databases; Ecoinvent, GaBi, PEF, etc, that often are used to collect generic data.

EPD stands for Environmental Product Declaration. It provides transparent and comparable information about the life-cycle environmental impact of a product. The calculations are based on the results of a LCA study. It must be third-party verified before it can be published. An EPD is valid for a fixed time period. EGGA’S EPD has a reference unit which is defined as: ”1 year of protection of a 1 m^2 steel plate of 8 mm thickness”. The data collection from the galvanizing plants for the new version of EGGA:s EPD will start soon. Last time (2015) 66 plants from 15 different countries participated with data.

Competition from ZM steel in the Asia-Pacific Region
ZM coatings is a threat to the galvanizing industry in Europe, but also in other parts of the world. At the end of 2022, there were 30 ZM galvanizing lines with capacity of around 9 million tonnes in China. Nearly 20 projects are under construction in 2023, with capacity of nearly 8 million tonnes. ZM coatings have government approval to be used in photovoltaic power station supports. If the corrosion class is ≥ C4 it requires HDG 100 microns or ZM 31 microns, for C3 it is HDG 80 microns or ZM 25 microns and for C2 or lower it is HDG 65 microns or ZM 20 microns. Similar rules allow use in roadside barriers.

Usage of ZM steel in Australia has shown bad results with heavy corrosion after only two years on site. Magnelis is available in 2.5 to 6 mm steel thickness. Higher steel thicknesses leads to more problems with corrosion due to a larger unprotected cutted edge area without any coating.

The Assembly in Salzburg was a good and informative conferance. As always the Gala Dinner was a really nice event, and the works visit was also very interesting. I really want to recommend everyone who has the opportunity to participate in EGGA’s Assembly and Intergalva conferences. It is where all new information is presented and the best way to stay up to date on what is happening in our industry, and also to get to know colleagues from other parts of the world.

Bottaro - New affiliate member in NG
Bottaro produces wires for the galvanizing process: soft, resistant and with low zinc absorption. Many of our members are already their customers, and we are happy that they now also are a part of our association. More information regarding their products can be found here: https://www.bottaro.org/

NG study trip to France 2023
Join us on our study trip to the Normandy area in week 43 to visit two interesting plants! The trip is arranged in cooperation with Ann-Marie Zimendorf from Metal Trading. More information will come.

We wish you all a wonderful summer and holiday!

Annikki Hirn
Annette Hjelmare