

EGGA Assembly 2016 in Seville

The EGGA Assembly 2016 was arranged in Seville in Spain 6-8 June. After a welcome speech from the president of EGGA, the conference started with a presentation from the Spanish galvanizing association, ATEG.



The galvanizing industry in Spain

Javier Sabadell, ATEG, informed about the galvanizing industry in Spain. The economy in Spain has been bad during the latest years, and the unemployment is high, all of 24,4 % in 2014. A slight improvement is now seen, and the unemployment is expected to going down to around 18.2%.

Traditionally a large part of buildings and constructions in Spain are made of concrete and stone, but the consumption of cement is going down and steel structures now are an important sector for the Spanish economy. Because of the bad financial situation, renovations and rehabilitation in the society has gone down during recent years. The investments in new official buildings and constructions are very low, and only necessary maintenance of already existing constructions is performed.

As a consequence of the bad situation the number of galvanizing plants in Spain have decreased from 53 down to 43. The total amount of galvanized steel was 595 000 tonnes in 2015. The largest market is infrastructure with 281 000 tonnes and construction with 189 000 tonnes. Javier told us that the association nowadays focus on activities like training and courses, while work related to technical advice to customers and users has gone down.

Courses are arranged, both for prescribers and for operators working at the plants. The association organize centralized purchasing of power and gas for the member companies, which saves money for the members.

ATEG has its own Quality Certification for their member companies, where it is checked that:

- Galvanizing is performed in full agreement with EN ISO 1461
- The process is in full agreement with the existing BREF
- The personnel are continuous trained in safety, chemical processes, inspection and environment
- The zinc bath is classified according to the DAST-Richtlinie 022
- The galvanizing plant facilitates the carbon footprint calculations according to ISO 14067:2013 and sectorial EPD according to PCR CPR "88731 Metal Treatment and coating services"

Information from EGGA

Intergalva 2015 was one of the most successful conferences ever, according to EGGA:s director Murray Cook. Next Intergalva will be in Berlin in 2018. Even though EGGA only has a few staff, they could be very effective by working with partners like for example IZA and others. Working in committees where EGGA-members are active, is another way to be effective. In the committees ideas are exchanged, common threats are identified and work in common projects are performed.

Fire resistance of hot dip galvanized steel parts

Christian Gaigl from the Technical University in Munich had a presentation about galvanized steel exposed to fire. High costs of passive fire precautions are a huge economic disadvantage of steel-concrete composite structures, compared to constructions of concrete only. Hot dip galvanizing is an economic and efficient way to permanently protect steel components from corrosion. If hot dip galvanizing additionally could contribute beneficially to the fire resistance of unprotected steel members, it would be a great economic advantage.

This study has shown that galvanizing can help to influence the emissivity. The bigger the difference between the temperature of the fire and the steel part, the larger is the influence of the emissivity. This positive effect strongly occurs at the beginning of a fire. The emissivity of hot dip galvanised surfaces is influenced by the properties of the zinc layer (roughness, weathering grade) degree of oxidation, melting of zinc etc. This project sees very promising, but more work has to be done before a reliable conclusion could be made.

Post treatment of galvanized steel

There are many reasons for post treatment of galvanized steel and it is very common in some countries. Certain conditions of moisture, temperature, pH and oxygen during storage can be very aggressive to the zinc coating, for example during delivery by sea or long travel by truck in hard conditions.

Chromium-based post treatments have been used for many years but environmental regulations have already, or will in a near future, restrict the use. There are nowadays several alternative products on the market. The reason for post

treatment are among others:

- To delay the white rust and keep the brightness for a longer time - a must for some types of products
- To increase the durability of the galvanized coating
- If the products have to be stored outdoors.

Jaume Grau from the Spanish company ProCoat Tecnologias S.L. informed about their different systems for post treatment of galvanized steel. BRUGAL GALVAPAS 320 is an inorganic passivation which is solvent free and water based. It is a Cr+3 version with long industrial experience (> 5 years). It is possible to add in the cooling tank, so no extra bath is needed. If BRUGAL GALVAPAS® 320 is used there are no white rust at short term, the durability is increased and outdoor storage is no problem. It even offers higher corrosion protection than the most common Cr+6 passivations, according to Jaume.

BRUGALCOLOR® is a Cr- free Thin Organic Coating (TOC) formed by an inorganic package which produces a conversion of the galvanized surface, and an acrylic resins which form a physical barrier above the zinc layers. The application is made by gun, over a hot or

cold product. Jaume Grau mean that BRUGALCOLOR® is a new alternative to duplex systems. BRUGALCOLOR® has a coloured and translucent finish and the zinc surface visible through it. It is available in different colours and shades and there are several cases and projects where it has been used with very good result. BRUGALCOLOR® is decorative, has lower cost than duplex and high corrosion resistance, according to Jaume Grau. It is also available in a colour free version.

ProCoat Tecnologias S.L also has another product with a little different properties compared to BRUGALCOLOR®:

- A clear surface with "Anti-Graffiti" quality.
- Greater hardness and resistance to scratches.
- Longer durability.
- Enhanced gloss finish. (Also available in matt)

BRUGAL®ZincBloc® - Protection of surfaces where zinc not is wanted

Sometimes some elements must be partially galvanized. BRUGAL® ZincBloc® is an unique blend of synthetic resins especially designed as a suitable and convenient stop off material for general galvanizing. It is easily applied by brush or by dipping and resistant to all common chemical processes previous to the zinc stage. After the kettle, it turns as an ash, which is easily removed with a brush.

Galvanizing and Architecture - Information point Glories, Barcelona

Jose Manuel Toral, from Peris +Torral Arquitectes in Spain, informed about an interesting project in Barcelona. It is a new part of the city with an area of 200 m², which has been built as a low cost building. Modules of containers have been used, and it was a wish that the building should melt into the surrounding. Mesh of galvanized steel was used for protection from rain and solar radiation around the containers. Two types of mesh with different scales was used. The light is reflected in the evening and gives an amazing look. In the day the building is more invisible. The cost for the building is around 500 Euro/m², much lower than the normal prize for houses, which is 1000-1200 Euro/m². Another benefit with this building is that it is possible to mount down and move. It took 3 months to build this house. Galvanized steel was used because of its excellent corrosion protection and the possibility to change by light.

"Knowing the market" - North American Market Research and Specifier Analysis

Melissa Lindsley, Marketing Director at AGA (American Galvanizers Association), had a presentation about a big analysis performed to get more information about the market in US. There are some reasons for customers to choose galvanizing - but also for not choosing it. Where comes the views from, what is knowledge based and what is hearsay or pure misunderstanding? Limitations like price, design, aesthetics, kettle size was mentioned – but do the customers actually know what sizes that are possible?

In the study they have asked a large group of specifiers in US some questions about hot dip galvanizing, to get an understanding of the knowledge level in this area.

The first question was about size / span length. Is there a true size limitation issue? Or is it a perception issue? 72% answered that they should use more HDG if they could galvanize larger spans. 68 % of the users and 56% of non-users believe 19,5 m is the current max span length.



BRUGALCOLOR® on crash barriers.



Information point Glories, Barcelona - winner of ATEG Galvanizing Prize 2016.



Appearance concerns was another question. Many users were negative to inconsistency/differences in appearance. 35 % of the users and 36 % of the non users think that this is a problem. There is also a wish for a colour other than grey – 25 % of the users and 31 % of the non-users were asking for that. 70 % of the users and 50 % of the non-users found Duplex interesting, and that seems to be an increasing trend.

Environmental friendliness is also very important. 77 % of the user and 74 % of the non-user rated HDG a 4 or 5 on “greenness”, which was higher than all other products, and this opinion seems to be an upward momentum.

Longevity is a top reason to choose HDG, but still a mystery since no one in this study expected more than 55 years life time of a galvanized construction.

Implicit motivation research of specifiers in the Benelux

Bruno Dursin, managing director at Zink Info Benelux, the galvanizing association in Belgium and Netherlands, had a speech regarding marketing of galvanized steel. Zink Info Benelux provides technical information and inspiration in order to promote the Benelux HDG industry.

“Are our marketing strategy still up to date” has been one key question in this study. Zink Info Benelux has used consultants that research on behaviour for purchasing, to get a better understanding of their customers. HDG is challenged, stakeholders are convinced there is room for improvement and a more assertive marketing is required. A strategic research project was conducted to identify and address HDG’s main issues.

The galvanizing industry normally work with fact based communication. That is good – but a successful product has to fulfill a *need*. What is the need for galvanized steel? The highest scores in the research project are all related to *certainty*.

- Above all, the clients need certainty - reduction of risks through their choice of reliable suppliers. The certainty that they can truly count on their suppliers. It is very important to keep up the quality, because if the quality is uncertain our main asset is diluted, concluded Bruno. In projects – always try to avoid problems! It must be easy to choose galvanized steel!

The Use of Galvanized Elements in Thermo-solar Plants

Dr. Eduardo Zarza from CIEMAT – Plataforma Solar de Almería (Spain), had a presentation about products for thermo-solar plants. A CST system collects direct solar radiation to convert it into thermal energy in a wide temperature range. The main applications for Concentrating Solar Thermal (CST) Systems are industrial process heat where the thermal energy is used to feed industrial processes and electricity generation. In the latter case direct solar radiation is concentrated and converted into thermal energy at a suitable temperature, to feed a thermodynamic cycle and thus produce electricity. It is the most important commercial application at present, with 5 GWe in operation.

These solar systems are called Solar Thermal Electricity Plants. There are four different technologies available: “Central Receiver Plants”, “Parabolic Trough Collectors”, “Stirling Dishes” and “Linear Fresnel Concentrators”. Heliostats are key components in Central Receiver Plants. A heliostat is composed of mirror segments supported by a galvanized steel structure. A typical 120 m² heliostat needs 2500 kg of galvanized elements. Thousands of heliostats are required for each STE plant.

Another technique is Parabolic Trough Collectors. There are many different designs of Parabolic Trough Collector, and all of them use galvanized steel components (steel profiles, steel tubes, steel supports, etc.) A typical 820 m² collector needs 12 Tm of galvanized components. A typical 50 MWe STE plant with Parabolic Trough Collectors needs more than 8000 Tm of galvanized components. Solar Thermal Electric Plants are significant consumers of galvanized steel components. A significant market growth is expected during next decades if the planned cost reduction is achieved.