

# Newsletter November 2013

It has been a busy autumn, with several news both in terms of standardization in technology and directive on the environmental side. When it comes to environmental matters Sweden and Stockholm stands out in comparison with the other Nordic Countries, where the negative focus on zinc and other metals in the environment has not been as pronounced. Thus, what happens in Sweden can affect the rest of Europe, and for that reason we have good help from IZA (International Zinc Association) and our own European Organization EGGA to respond and comment on the proposals for the directives that has been presented.

## Zinc and other metals in water – a highly topical issue

Zinc is currently not a priority substance in the Water Framework Directive (WFD), which is the result of hard work and lobbying by the zinc industry throughout Europe. This is good and we are very pleased about this. Besides the list of priority substances, where the restrictions are the worst, there is also a list of so-called “specific pollutants”. These substances are selected by the European countries among the substances that are not listed as priority substances in the WFD. The selection criteria is that the substance in question must be present in such quantity that it is likely that it will affect the water quality in the country. In Sweden and several other countries zinc and copper are selected as specific pollutants. For these substances limits have been set and these limits can be referred to in water quality assessment. Being a specific pollutant is significantly less restrictive than being a priority substance, and the zinc industry prefers that zinc continues to be listed as specific pollutant rather than as a priority substance. In Sweden is the Water Authority officially responsible for all matters concerning the Water Framework Directive. In December last year we had a meeting with the Water Authority where they explained how they will proceed when assessing a water environment’s status. The following workflow was proposed:



- Compare the measured value with the limit value (EQS) for the current environment
- If the measured value exceeds the limit value, apply the model for bioavailability (BLM)
- If the value is still too high, remove the background concentration of the metal in the relevant field
- If the measured value is still over the limit despite the bioavailability and background value has been taken into account, than the level is too high and action to reduce the current metal content should be taken.

From the industry perspective, we found that this workflow is consistent with the rest of Europe’s approach and it felt as if we had a good working relationship for the future.

We were therefore all surprised when we this autumn learned that the Water Authority and the Environmental Protection Agency in Sweden will not take bioavailability into account when assessing water quality. The bioavailable part of the metal is the part that can be taken up by living organisms, i.e. affect the environment, and this value is usually significantly lower than the measured total concentration. The reason that Swedish authorities not want to consider the bioavailability and instead work with total concentrations is mainly that they believe that Sweden’s water has different properties than the rest of Europe’s water. They have also chosen to set the limits (EQS-values) considerably more conservative than the rest of Europe.

Is Sweden’s actions important? Of course it is important for us that operate here and are most affected by the decisions Swedish authorities take, but also the rest of Europe do follow Sweden’s actions with great interest. There is a risk that the reactions of the Swedish authorities’ will influence on the rest of Europe, and for that reason we recently have had a number of teleconferences with IZA / EGGA in this question.

The Water Authority in Sweden has during the autumn presented a draft to a number of documents that are referred to as “Hjälpredor” regarding the assessment of water quality. The documents will not have the status of a standard or norm, which has been stressed out when the industry pointed out that the documents do not comply with the rest of Europe’s policy of the issue. However, in absence of other information and knowledge it is most likely those documents will become a guideline when local authorities consider water quality in Sweden. This is something that probably will be of great importance for the industry. Within MITF (a group for cooperation between different metals industries in Nordic countries) we have therefore adopted the policy that we should “help the Water Authority to make Hjälpredorna as good as possible”, i.e. free from errors that are negative for the industry. For this reason, the three most important documents have been translated into English and sent to our organizations in Europe, in our case the zinc producers organization IZA, for expert commentary. The comments will be compiled and after that translated back to Swedish to provide input to the Swedish authorities. We now hope for positive results for the work carried out.

## Stockholm Chemical Plan

The city of Stockholm previously had their “Environmental Program 2012-2015”, which states that copper and zinc in roof and façade materials should be avoided. This document has caused problems in some cases, but many times it has been possible to circumvent the Environmental Program, and zinc and galvanized steel has still been chosen for these products. Now, however, something that may be even worse for our industry has come, namely “Stockholm Chemical Plan”. In this plan

it is written "In the city's chemicals work, a clear basis should point out what should be avoided." The Chemical Plan lists a number of substances in different groups, and zinc and copper belongs to a group that is called "Local focus substances". These substances are described as "substances or groups of substances that are of particular concern locally, where their presence, sources and routes of exposure should be pointed out". Further, it states that "zinc is spread from tires, roofs, facades and other galvanized surfaces as light poles, etc." So, from having had limitations for zinc in roof and facade materials there's now also focus on other galvanized products, which is really not good. Mistrust of copper and zinc has a long tradition in Stockholm, and this is the result of that some people in Stockholm's environmental management believes that the levels of copper and zinc in the sediments in Stockholm and adjacent areas are too high. This is a pure sediment issue, and it is on that level we need to manage it. From the zinc industry, we must show that the levels are within acceptable limits, which among other things can be done with the help of bioavailability and background levels, but then it is important that the authorities also wants to listen to our arguments. We have good support from our international experts (IZA and EGGA) and we have a plan forward. Unfortunately, both this issue and the initial water issue are difficult jobs to handle, but very important areas.

#### **And where is the good news?**

These news was unfortunately not very positive, but there are nevertheless many good examples where zinc and galvanized products have been chosen because of its positive environmental characteristics. One such case is the building Troll in Stavanger, Norway, which is one of the first buildings built as both passive house and energy class A. The building's facade is composed by galvanized plates length 4 500 mm and width of 300-400 mm. The thickness is 1.6 mm and the facade represents a total of 3 300 m<sup>2</sup>. Galvanized steel was chosen since it proved to be the most environmentally friendly in comparison to other materials from a lifecycle perspective. Of course it is very good for our industry when galvanized steel is chosen for buildings that will have an extremely environmentally friendly approach. We need more examples to highlight, please let us know if you have any interesting projects to tell us about!



#### **Nordic Galvanizers autumn meeting in Borlänge**

The meeting was held in cooperation with the steel producer SSAB, who contributed with several interesting presentations and a work visit during the second day. The presentations included the development of SSAB's hot rolled high strength steel, and the changes that have been made to make DOMEX more suitable for galvanizing.

DOMEX is available with yield strengths up to 1 100 MPa, of which those with yield strengths up to 700 MPa has the possibility to be galvanized without affecting the strength. Previously, the silicon content in DOMEX steels remained at 0.10 %, i.e. within the so-called Sandelin area, the area where the layer growth during galvanizing becomes very thick and the layers often receive poor quality. In the new standard for DOMEX that SSAB has developed there's two variants, one HDG Thin Zn coating with the maximum silicon content of 0.03 %, and the Special class 3 HDG Thick Zn coating with silicon content from 0.15 to 0.21 %. SSAB has also conducted studies in collaboration with Swedish galvanizing companies, regarding how silicon and phosphorus in steel affects the result at galvanizing. (More detailed information from the meeting is available on our website under the link: For members, username: "varmzink", password: "3583zink").

#### **EGGA committee meetings in Prague**

EGGA's committee meetings this time focused on the problems regarding the accelerated corrosion test methods that are frequently used to show that the pre-coated sheet steel with aluminum-zinc-magnesium is better than batch galvanizing. Accelerated testing is requested frequently, of course, for the reason that it gives a quick result, but unfortunately the results is often far from what the actual use of the material shows. Several of EGGA's member countries have made requests to EGGA that they, EGGA, would develop an accelerated test that "gives zinc justice" but EGGA disagree since they don't think it is possible to develop such tests. The reason why zinc can't handle accelerated tests is because the passive film that gives zinc its good corrosion protection cannot be formed under the prevailing conditions in accelerated tests. The same applies to stainless steel. To compare galvanized steel with Magnelis alloys EGGA has suggested that Magnelis should be included in a study of zinc corrosion properties that is ongoing in Italy. Test panels will be exposed to different natural environments and brought in for evaluation after suitable intervals. The studies that Nordic Galvanizers participated in, performed by the research institute Swerea KIMAB, have shown that the Al-Mg-Zn alloy corroded in exactly the same extent as other zinc and galvanized samples in a road tunnel environment. "Better resistance" could in that case definitely not compensate for the low coating thickness.

Another important issue raised on EGGA's board meeting was the regulations that apply to galvanizing companies that have operations in multiple countries. There are now examples of large business groups with many plants that are not member in the association in their home country, but instead are members of the association in any country where they have single or a few smaller plants and thus can benefit from EGGA's work to a lower cost. This will not be acceptable in the future and a working group within EGGA is developing a fair system.

#### **Planned Operator courses**

Operator courses for employees of NG's member plants will be held 4 December at Gallac in Skellefteå and 16 December at Smekab in Önnestad. In late January 2014, we are planning a course in Mora with a work visit at Wibe (Schneider Electric) and there will be opportunity to register for those who wish!

**Annikki Hirn**  
**Annette Hjelmare**