



Criterion O29 Comments by Scandinavian Copper Development Association

Two impartial expert surveys have been carried out by two countries' governmental environment research institutes, IVL in Sweden and SYKE in Finland about environmental aspects of copper usage in buildings. Both have studied the information provided by Swedish EPA, Stockholm Vatten & Avlopp, Svenskt Vatten and Miljömärkning Sweden AB, and have concluded that there is no general justification to ban copper on national nor Nordic level. Miljömärkning Sweden AB has justified their opinion based on information delivered by Svenskt Vatten about unfavorable copper/phosphorus quota in some batches of sewage sludge in Sweden. The operators in question have not verified this information. Copper is an essential nutrient in agriculture. Deficiency of copper is common and excess extremely rare, if not non existing. Recycling copper from sewage sludge as fertilizer to plants is an efficient way to save primary resources. In addition, copper in building products is 100 % recycled copper, 100 % recyclable after use, zero waste at building site, has long lifetime and low carbon footprint. Nordisk Miljömärkning cannot overlook these studies and aspects.

SYKE: [Miljöeffektbedömning av rörmaterial som används i byggnader](#)
[Putkimateriaalien terveys- ja ympäristövaikutukset](#)

IVL: [Koppar i byggprodukter](#)

[Detailed comments to document 089 New Buildings, consultation version 0.0, 12 January 2022:](#)

Miljömärkning Sweden AB:

The largest sources of copper spreading into the environment are road traffic and tap water. Sheet metal on the outside of buildings (roofs and facades) and contact cables for the railway are also relatively large sources. The primary recipients of the copper differ. For water mains, it is the sewage treatment plant, while the distribution of copper in road traffic primarily ends up in stormwater and soil. A predominant percentage (60–80%) of the copper entering the treatment plants originates from tap water pipes in properties.

SCDA:

Copper levels in sewage sludge, as well as in agriculture and environment are well investigated, reported and safe. Environmental levels of copper are dominated by natural background concentrations. Human activity caused emissions into the nature are today insignificant compared to natural background flows. Sewage sludge is for diffuse copper a perfect collection point, because from sludge it can be effectively recycled to plant nutrition in agriculture. As essential fertilizer recycled copper from sludge replaces chemical copper fertilizers.

Even so, the numbers presented by Miljömärkning Sweden AB, 60-80 % of sludge copper originating from tap water pipes, don't have a real reliable scientific background. Stockholm city Miljöbarometer estimates 50 %. Also this is an uncertain estimate based on calculating material flow balances from different sources. Contribution of households to sewage treatment plants has been measured and calculated 51 % in a long-range study 1995-2013 in Skarpnäck, Stockholm. This share includes diffuse emissions from other sources to household water; water heating equipment, water system components, household appliances and consumed food, thus contribution from copper tubes is less. When Stockholm Environmental Program forbade copper tubes and roofs in 2002, no reduction was detected in sewage sludge copper content. If the share of copper originating from tubes would have been 60 – 80 %, it would have caused a significant change in copper content of sewage sludge. There are multiple sources, also natural sources, of copper into sewage treatment plants. They are variable according to natural events and practices. Copper does not cause an environmental problem in sludges.

Miljömärkning Sweden AB:

A large part of the copper that reaches the treatment plants via wastewater ends up in the sludge. Unfortunately, the general positive trend for reduced levels of metals in the sludge does not apply to copper and zinc.

SCDA:

Major copper reduction in sludges in Sweden from 1500 mg/kg DM to 400 mg/kg DM happened between 1970's and 1990's and the trends are still pointing downwards. Copper levels in sludges are well below safe limits and government guidelines in all Nordic countries.

Miljömärkning Sweden AB:

One reason for this is that copper is largely built into the infrastructure and it is therefore not as easy to reduce the supply of copper as it is for other metals that should be reduced in the cycle. The Swedish Environmental Protection Agency states that the copper levels found in arable land do not show negative microbiological effects, but that the margin is small. Both the background content of copper and local factors vary across the country. In order to provide general protection against the effects of copper, it is therefore justified to have stricter requirements regarding copper for the return of sludge. The Swedish Environmental Protection Agency further states that the supply of copper must specifically be reduced in order for sludge to be recycled in a manner that is sustainable in the long term. This is important as increased recycling of phosphorus from sludge is desirable from a resource efficiency and recycling point of view. This is the primary reason why Nordic Ecolabelling wants to limit copper as a material in tap water pipes and as a roof and facade material.

SCDA:

The information presented by Miljömärkning Sweden AB from Swedish EPA is based on an old report from 9 years ago (NV 6580 2013), and science has proven thereafter that the precautionary principle to restrict copper on agricultural fields is counterproductive. No threat that has been described in that EPA report has realized. On the contrary, according to [Jorbruksverkets gödslingsråd 2021](#) long term trend requires growing attention to copper deficiency in agriculture which is an increasing problem in Sweden. In Jorbrukverket's fertilizing instructions higher amounts of copper are recommended than for sludge, from 500 to 1000 g/ha/year. A new Government report about handling of sewage sludge in Sweden, SOU 2020:3 has been produced, which recognizes copper as essential nutrient and does not address any need to reduce copper in sludge nor in agriculture.

Phosphorus in sewage sludge has reduced to half last decades and banning copper in buildings will not bring phosphorus back. Sludge phosphorus is a minor share of phosphorus balance in agriculture, in total 4 % in Sweden. With current copper/phosphorus quota in Swedish sludges, there has not been reported about problems to utilize both the copper and the phosphorus in full either directly on fields or in other soil improvement products. A threat has been stated by Svenskt Vatten that farmers would not find sludge as attractive fertilizer, but due to emerging deficiency of fertilizers this threat seems not to be valid anymore.

Miljömärkning Sweden AB:

A study carried out by SYKES²⁴ on behalf of the Finnish Ministry of Employment and Economic Affairs concludes that the negative effects of the supply of copper to the environment through sludge returned to agricultural land are not a general Nordic problem. This is correct. However, the problem is not limited to the Stockholm area in particular, which is incorrectly pointed out in the investigation. On the contrary, copper is a limiting factor for returning sludge to arable land in large parts of Sweden. Nordic Ecolabelling has come to the conclusion that it is not relevant or practically possible to write geographically adapted requirements. Therefore, a general Nordic restriction requirement remains in the criteria.

SCDA:

Stockholm and Uppsala counties have some naturally high copper background values in fields, where additional copper fertilizing is not advised. These represent 3,7 % of all field area in Sweden. Still Stockholm

Vatten & Avlopp nor Uppsala have no problems to recycle their sludge on agricultural fields. Only few individual small wastewater treatment plants in Sweden are known to have had high copper levels in sludge, because they have had challenges with corroding water quality, which is possible to adjust. Two large sludge entrepreneurs, who handle major part of Swedish sludges, have given information to Svenskt Vatten, that 16 and 16,5 % of their sludges have unfavorable copper/phosphorus quota, but they did not confirm to SCDA that copper would be a critical problem in sludges which they handle. Copper does not hinder sludge usage; in worst suggested cases it would reduce phosphorus dose with 0 – 4 kg per year per ha. The claimed missed amount of phosphorus would be negligible share of Swedish fields' phosphorus balance, about 0,1 percent. It is also possible to avoid any reduction with intelligent 5-year planning of spreading. With this quota sludges can be used utilizing phosphorus dose fully on areas where there is copper deficiency, and 600 g copper/ha/a is recommended. There are 650 000 ha copper deficient fields in Sweden, 30 – 40 % of all the fields in southern Sweden. Half million tons, equal to 2,5 times all sewage sludge produced in Sweden could be spread on this available area, in other terms about 10 times as much sludge than is spread today. The copper/phosphorus quota problem addressed by Miljömärkning Sweden and Svenskt Vatten seems to be created only due to lack of correct information flow.