

# “MAID – results of a Nordic project towards harmonization of approval procedures for materials in contact with drinking water”

## A Nordic Innovation project

Olivier Rod, RISE KIMAB

Olivier.rod@ri.se

The MaiD project “Material and product innovation through knowledge-based standardization in drinking water sector” was conducted 2014-2018 with participants from Norway, Denmark, Sweden and Finland. The project has been funded by the Nordic Innovation between 2014 and 2018.

The background for this project has been the different practice to verify that drinking water products are fit for use (i.e. in accordance with the regulations) in the Nordic countries. The practice and regulations are also different for indoor and outdoor water installations among these countries. Hence, different burdens regarding approval testing and certification for the industry operating on the Nordic market are created, which makes it challenging to maintain a level playing field.

The main objective of MaiD was to identify the key components that should be included in the national approval procedures in the Nordic countries in order to safeguard drinking water, material quality and ensure a level playing field. The recommendations to the national procedures have been based on European standards and practice as far as possible.

The MAID project has been conducted by SINTEF (Norway), Satakunta University of Applied Sciences (SAMK)/WANDER (Finland), Swerea KIMAB (Sweden) and Danish Technological Institute (Denmark).

In addition, an Authority Advisory Group (AAG) and an Industry Advisory Group (IAG) have contributed with information regarding current legislation, certification and approval practice, potential innovation hindrances etc. The following institutions have been participating in these two advisory groups (alphabetic order):

City of Gothenburg, department of sustainable waste and water (Sweden) (AAG)	Norwegian Food Safety Authority (Norway) (AAG)
Cupori (Finland) (IAG)	Norwegian Water BA (Norway) (IAG)
Danish Environment Protection Agency (Denmark) (AAG)	Oras (Finland) (IAG)
Danish Industry (Denmark) (IAG)	FM Mattsson Mora Group (Sweden) (IAG)
Danish Transport, Construction and Housing Authority (Denmark) (AAG)	Raufoss Water and Gas (Norway) (IAG)
ESBE AB (Sweden) (IAG)	Rørentreprenørene (Norway) (IAG)
Finance Norway (Norway) (IAG)	Rørforeningen (Denmark) (IAG)
Finnish Association of Mechanical Building Service Industries (Finland) (IAG)	Standards Norway (Norway) (AAG)
Kiwa Sweden (Sweden) (IAG)	Scandinavian Copper development Association (IAG)
Ministry of Environment, Department of the Built Environment (Finland) (AAG)	SP Technical Research Institute of Sweden (Sweden) (IAG)
Ministry of Social affairs and Health (Finland) (AAG)	Swedish Association of Plumbing and HVAC Contractors (Sweden) (IAG)
<a href="#">National Board of Housing, Building and Planning (Sweden)</a> (AAG)	Swedish Chemicals Agency (Sweden) (AAG)
National Food Agency (Sweden) (AAG)	Uponor (Finland and Sweden) (IAG)
Nordic Brass Gusum (Sweden) (IAG)	VA og VVS produsentene VVP (Norway) (IAG)
Norske Rørgrossister Forening (Norway) (IAG)	Valves & Fittings of Sweden (Sweden) (IAG)
Norwegian building authority (Norway) (AAG)	Veltek (Denmark) (IAG)

The project focused on regulations, drinking water composition and testing procedures.

The building regulation form in the Nordic countries regarding hygienic properties are different. In Denmark, the regulations are more performance based than in Sweden and Finland whereas it is entirely functional based in Norway. Furthermore, the Norwegian building rules are also covering outdoor water installations. The approval and certification practice also differ to a certain extent both for organic and metallic products. The project group recommended a number of measures, which may be easily processed in a continued Nordic network (e.g. synchronising limit values, updating old procedures etc.).

In relation to the relevance of the test waters used in the available leaching tests, a Nordic drinking water survey was conducted. It revealed that the water compositions vary between the Nordic countries, in particular regarding the alkalinity and hardness. Hence, the rig test for metallic materials (EN 15664) is a relevant test method since three different test water compositions are specified and at least one of the test waters is compatible with the Nordic conditions. However, a short-term leaching test for the final product initial surface is considered relevant for metallic products. In test methods where several conditions for the test water exists (test temperature, disinfection pre-treatment and chlorination), a clear guidance should be developed and provided.

The 4MS Common Approach was also evaluated in regard to the Nordic systems. This approach was initiated as the work on the European Acceptance Scheme (EAS) ceased. In general, the principles of the Common Approach are applicable in the Nordic countries as it is based on the same hygienic properties (taste and odour, leaching, microbial growth and leaching of unsusceptible substances) and assessed according to EN standards developed for the purpose. The assessment and approval schemes need to be designed and maintained in such a way that hygienic and mechanical properties are emphasised equally. For metallic products corrosion failures can be developed several years after installation and during the propagation period increased leaching may happen without disclosing them. Hence, corrosion properties may be assessed on a more routine basis (e.g. part of continuous production control).

Finally, MaiD has established a unique network which consists of building and health authorities, manufacturing industry, professionals and industrial bodies, certification bodies and R&D institutions from Denmark, Finland, Norway and Sweden. To utilise the results of the MaiD project in a rational way, the network may be continued as a unique place for sharing the experiences and knowledge that will be gained in the future process. It is also considered to be a rational forum to discuss and process some of the recommendations given in MaiD.

A summary of the main findings from MAID project will be presented at Eurocorr 2019.

The detailed results of the MAID project are available through the three reports listed below, all available at the home page of Nordic Innovation ( ):

- “MAID- report 1 – Drinking water quality”, Tuija Kaunisto, Martti Latva, Christian J. Engelsen, Sten Kloppenborg, Olivier Rod and Sverre Gulbrandsen □ Dahl, 2017
- “MAID- report 2 – Regulations and approval systems in the Nordic countries”, Olivier Rod, Tuija Kaunisto, Martti Latva, Christian J. Engelsen, Sten Kloppenborg, Sverre Gulbrandsen □ Dahl and Bjørn-Roar Krog , 2017
- “MAID- report 3 – Material and product innovation through knowledge based standardization in drinking water sector – Final Report”, Christian J. Engelsen , Tuija Kaunisto, Olivier Rod , Sten Kloppenborg, Martti Latva and Sverre Gulbrandsen □ Dahl, 2017