



# “Alluminio & Acque” Conference - 14 April 2021

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The digital conference “Alluminio & Acque” on the management of aluminium and water, organised by CIE and MST Chemicals in collaboration with AITAL (Italian Association for Aluminium Surface Treatments) and the ipcm® magazine, was held in Italy on 14 April 2021. It was divided into four sessions in which various topics were addressed, such as the increasingly variable and strict discharge limits, the shortage of adequate supplies and discharge systems, and the environmental protection policies in force.

In the introductory session, AITAL general secretary Giampaolo Barbarossa provided useful information about the regulations on nickel and the toxicological limits set by the European Commission. He also emphasised that the use of chromium trioxide must be authorised by an upstream player and that the review of the list of restrictions by the European Commission could be postponed; by 2024, however, a list of materials that are allowed for contact with drinking water should be published. Afterwards, ipcm® editor-in-chief Alessia Venturi described the role of an international technical magazine in fostering dialogue between suppliers and users and thus promoting industrial innovation. Magazines

also make it possible to stay in touch with the market and gain visibility, not only for promotional purposes but also to allow for greater dissemination of innovations.

### 1<sup>st</sup> SESSION: treatment processes and chemicals

BASF Chemetall sales manager Cristiano Laurita’s speech focussed on new technologies. The aim is to design chemical pre-treatment solutions to ensure that surfaces have the right electrochemical resistance against environmental factors that promote corrosion. Laurita then presented Oxsilan®, an eco-friendly technology for chromium replacement that allows working at room temperature and reduces water

and energy consumption, as well as being virtually sludge-free.

Lodovico Palladini from Henkel compared acid satin finishing with conventional alkaline satin finishing through anodising. Acid satin finishing, which is not widely used in the European market but is often employed in the US, guarantees a substantial reduction in sludge and treatment time. However, it also presents some critical issues, such as the presence of a few specific plant requirements and some waste water treatment problems. The report then continued with a presentation of a new way of applying chrome-free conversion products (Adhesion Promoter No Rinse, APNR) in vertical coating systems for aluminium

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The Conference’s speakers. From the left: Franco Falcone, Rosario Patricelli, Anastasios Vergani and Angelo Quaini.



The CIE's fully automated chemical physical waste water treatment system at TALEX plant, Abu Dhabi.

profiles. Advantages include the elimination of conversion bath controls, of any pollution problems due to dragging, and of the final cleaning phase.

### 2<sup>nd</sup> SESSION: plants and tools

The second session was opened by Alessandro Corrà from SAT (Surface Aluminium Tech), who described the advantages of mechanical profile brush-off systems in vertical coating lines. The vertical brush-off machine called "The Brusher", to be installed before the chemical pre-treatment tunnel, performs a mechanical surface preparation of profiles by removing any defects that prevent chemicals from reaching the inside of the aluminium parts. This improves the profiles' quality, as well as reducing chemicals and water consumption and waste rates.

Then, it was the turn of Irene Marcolungo, external consultant of CIE, who clarified that the management of cleaning operations is a crucial aspect in any anodising plant. It is necessary to carefully assess the

best technologies to be implemented in order to limit the use of water while guaranteeing good cleaning quality and compliance with environmental parameters. Although evaporator water is generally used in closed-loop systems, she suggested using mains water in the cleaning stages after the soda tank and between the cold sealing and hot process stations.

### 3<sup>rd</sup> SESSION: purification plants and technologies

Rosario Patricelli from CIE pointed out that the increasingly stringent European restrictions on the discharge of sulphates, fluorides, and aluminium require state-of-the-art plant and chemical solutions. In the aluminium sector, although they have been on the market for more than thirty years, ZLD (Zero Liquid Discharge) solutions are used in less than 5% of existing plants. According to the speaker, the reasons are mainly economic, although he expects that the technologies for reducing (or even eliminating) the final evaporation phase will become increasingly popular.



Chemical-physical treatment tanks.

Afterwards, Angelo Quaini from MST presented the PUR-ALL® technology, which makes it easy to keep sulphates below 300 ppm (as per the regulations on discharges into rivers, lakes, and surface water). He also noted that, with the right equipment, it is possible to achieve a value of less than 100 ppm, virtually allowing the liquid to be reused in the same line.

**4° SESSION: ZLD waste water treatment**

In conclusion, Anastasios Vergani from CIE further clarified the functionality of the PUR-ALL® technology: it is a ZLD solution that guarantees zero energy costs and 100% reuse of water without the use of UF, RO, or evaporator systems. With a few modifications, it can also be adapted to already existing water treatment plants.

Around fifty people attended the conference and the debate that ensued was very constructive, generating – despite the limitations posed by the global pandemic – interesting food for thought. The organisers looked forward to future initiatives, to be found on the CIE Group and MST Chemicals’ websites and YouTube channels. ○



A waste water treatment system developed by CIE Srl.

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