



AITIVA
Associazione Italiana
Tecnici Industrie Vernici ed Affini

FOUNDING MEMBER



FATIPEC
Federation of Associations
of Technicians for Industry
of Paints in European Countries



UNIONE
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DEI TECNICI
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MEDITERRANEA

15 OCTOBER 2026

ONLINE STUDY DAY

organised by the AITIVA Technical Committee

"EUROCOAT/FATIPEC 2026 REPORTING SESSION"

AITIVA, promoter of technical culture in the paints and coatings sector, organises an online study day for those who, for various reasons, were unable to attend the EUROCOAT and FATIPEC congresses in 2026.

For this purpose, the AITIVA Technical Committee, composed of Bottaro, Di Tanna, Cesaretti, Cerri, Crivelli, Ferretto, Gasparetto, Marcacci, Pau and Zuccarella, selected around ten papers considered to be of particular interest and invited the respective speakers to present them again for AITIVA during this study day.

Olga Bottaro

PARTICIPATION FEE 100 euros - Soci AITIVA 80 euros

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PROGRAM
STUDY DAY "EUROCOAT/FATIEPEC 2026 REPORTING SESSION"

9.30 am **Welcome and introduction**
 Olga Bottaro AITIVA Honorary President
 Gianfranco Di Tanna AITIVA President
Chairmen **Rossano Ferretto** AITIVA Delegate to the UATCM Board
 Luciano Pau AITIVA Delegate to the FATIEPEC Board

9.45 am **Christian Schmitz** - Niederrhein University, Institute of Coating and Surface Chemistry
When AI meets reality: Data, models and limitations in coatings machine learning

The rapid development and promising potential of AI methods have simplified their use in applications and sparked great interest in their widespread implementation. Machine learning (ML) is a subset of AI with algorithms learning patterns and relationships from data. The claim that every problem can be solved with large amounts of data is impossible in practice due to the lack of a universal method and the heterogeneity of data structures. Consideration should be given to the form in which data is described, how much data is available or can be collected, and what the actual goal of using ML is. This presentation introduces three very typical questions from the field of paints and coatings for implementation with ML in order to illustrate the differences in the choice of ML methods and the provision and preparation of data.



The first case addresses statistical optimization and machine learning algorithms for model development, which enable generalizable modeling even for previously unknown formulation cases. Through sequential experimental design and data-efficient training strategies, a robust prediction model could be constructed with just a few experimental data points. In addition, explainable AI was used to present the modeled relationships in a transparent and comprehensible manner for users. The chemical system investigated comprised a two-component polyurethane coating whose optical and mechanical film properties were modeled as a function of the raw material composition.

Forecasting events in a time series requires extrapolation beyond the available data. The second case differs from the first in that, when applying the ML method as described previously, reliable predictions are limited to interpolation within defined system boundaries. Consequently, predictions concerning future developments, such as long-term damage progression, are not feasible using this approach alone. A concept is therefore presented that enables forecasting of long-term behaviour through similarity analyses of interpolated measurement series. Using this approach, the thermal yellowing of a white pigmented coating was predicted with good reliability after only one third of the total test duration.

The last case deals with more complex data structures, where the source is not a single measured value but an entire spectrum. These applications are comparable to image recognition methods and require a targeted selection of methods based on neural networks and, as a rule, a larger amount of data. It shows how colour prediction based on spectral data achieves better results than, for example, individual values from the $L^*a^*b^*$ colour space, and how this approach was used to develop models for the transition from wet to dry paint in a coating.

- [1] Schmitz, C., Schucht, D., Verjans, C., Krupka, F. (2022). Data-analysis method for material optimization by forecasting long-term chemical stability. *Journal of Chemometrics*. 36, e3383.
- [2] Zhang, G., Borgert, T., Stoffelen, C., Schmitz, C. (2025). High-throughput and explainable machine learning for lacquer formulations: Enhancing coating development by interpretable models. *Progress in Organic Coatings*. 205, 109265.
- [3] Zhang, G., Korten, O., Schmitz, C. (2025). Enhanced Colour Forecasting. *European Coatings Journal*. (6), 34 – 45.

10.15 am Ulf Stalmach - Smart Paint Factory Alliance e.V.
How to REALLY make use of AI in the value chain “coatings”

AI is THE buzzword these days, also in the Coatings Industry. A lot of companies try to deal with it, with an ever increasing number of suppliers of software to help them in one way or the other.

The typical value chain “Coatings” features a linear process chain across the whole coatings company, with incoming goods from a supplier and outgoing goods to a client. Typical examples for AI initiatives are located in R&D or in production, maybe even across organizational silos, the so called “departments”. Quite often, these initiatives encounter problems in the form of data, either not available, not suitable or not of the right quality. Hence, huge efforts are made to remedy these problems, but the number of success stories remain rather low still.

In this presentation, the potential of AI in the Coatings Industry is highlighted by introducing a new concept, namely that of data sharing. It will demonstrate how modern measurement devices can help to understand product interaction and processes while providing digital data for further analysis, which in turn can help to close control loops. These control loops would be ideal to provide learning data for digital twins. Connect these along the whole value chain, and we have a completely new ball game.

This is the approach that the Smart Paint Factory Alliance wants to foster in the Coatings Industry, by introducing a holistic approach to the entire value chain. In this context, the data sharing would speed up getting a large amount of data to establish digital twins, which would subsequently learn continuously via the closed loops. Top that with a consumer-centric flow of data, and we would have a situation where all participants along the value chain could benefit.



10.45 am Charles Jouanique - LabV Intelligent Solutions GmbH
Faster to the optimal formulation: Artificial intelligence in coating development

Accurately analysing and predicting coating properties early in development is key to reducing time-to-market and increasing formulation efficiency, yet data silos and complex interdependencies often slow progress.

This talk presents a real-world coatings use case demonstrating how structured data in combination with AI, turn scattered R&D data such as formulations, test results, and process parameters into actionable insights. Once consolidated into a centralised data structure, correlations become visible, trends can be explored, and even early property estimates such as solids content or viscosity become feasible.



AI accelerates decision-making by uncovering correlations and highlighting promising directions early in R&D. Beyond estimation, predictive AI filters out unlikely candidates and focuses testing on the most viable options, reducing the number of physical experiments required while maintaining scientific rigour.

11.15 am Ulf Stalmach - ORONTEC GmbH & Co. KG

Eliminating tinting steps: The role of AI in modern paint production

Paint production often relies on corrections at the end of the manufacturing process, when the complexity of the product is high, making the corrections very tedious and costly. ORONTEC is focused on early process control and aims at preventing error propagation along the production process to increase productivity by tackling this problem. The presentation will demonstrate this philosophy with the example of pigment paste production and their subsequent use to formulate colored paint.

First, we will look into why we need tinting steps to begin with: variances in raw materials, process parameters and sample preparation are the main causes, together with measurement methods that are not suitable for the task.

Good methods need to fulfill 4Rs: they must be rapid, reliable, reproducible and relevant. We will demonstrate why traditional methods fail here, and show how to do better.

Last, we will demonstrate by a model calculation about the impact of early process control to the bottom line as well as the sustainability of a product. The role of AI in this process will also be highlighted appropriately.



11.45 am Sara Valenti - EPY Srl

CLP Updates and their Impact on Labelling

In November 2024, Reg. 2024/2865 was published, introducing a wide range of amendments to CLP, many of which impacting labels.

However, in May 2025, the *Reality Check Workshop on the possible simplification of chemicals legislation – CLP* was held, to collect stakeholders' feedback on these new requirements. The analysis that emerged highlighted the excessive administrative and economic burden associated to the new rules.

In response to this analysis, the European Commission developed a twofold strategy, to grant a better balance between health and environment protection and industrial competitiveness:

- “Stop the Clock” Regulation – postponing various deadlines to favour a more sustainable transition
- “Simplification” Regulation – proposing less complex requirements, specifically for labels.

The goal of the presentation is to create a clear overview of what these new regulations entail for companies and how to best navigate the numerous changes.



12.15 pm Ellen Reuter - Evonik Operations GmbH

Mastering surface morphology: Designing ultra-low gloss coatings with enhanced durability

Coatings commonly serve dual purposes, providing both protective and decorative functions across diverse many applications. In recent years, there has been a growing demand for very low gloss systems, particularly in fields such as architectural coatings and wood coatings.

Achieving such low gloss levels requires careful optimization of particle packages within coating formulations. However, combining very low gloss with high mechanical robustness presents a significant challenge for formulators. To address this, detailed assessments of surface morphology have proven essential in understanding and balancing gloss reduction with mechanical performance. By fine-tuning particle interactions and distribution, it is possible to meet the stringent requirements for both aesthetic appearance and durability. This presentation will explore the formulation strategies and characterization techniques that enable the development of advanced coatings with optimized gloss and robustness properties.



12.45 pm – 2.00 pm lunch break

2.00 pm Francesca Chiarinotti - Vinavil S.p.a.

Sustainable Durability: High Performance Acrylic Coatings for Building Protection

Protecting exterior surfaces is crucial for preserving buildings and reducing long-term maintenance costs. Modern polymer technologies have enabled the development of water-based acrylic systems capable of matching or surpassing the performance of traditional coatings. Coalescent-free paints have been formulated to ensure high adhesion, flexibility, and weather resistance. Tests regarding water absorption, UV resistance, adhesion, and accelerated aging have demonstrated excellent film stability and long-lasting color retention. Furthermore, the absence of solvents contributes to a significant reduction in VOC emissions. Thanks to their high durability, these coatings extend the service life of protected surfaces—reducing the frequency of maintenance and the associated environmental impact—thereby demonstrating how technical performance can be a key factor in sustainability.



2.30 pm Hatice Turgut - Dow Europe GmbH

Novel waterborne acrylic binder for 1K fast dry and improved early rain resistance in external thermal insulation composite systems (ETICS)

External Thermal Insulation Composite Systems (ETICS) are widely used, multi-layer façade solutions designed to improve the thermal performance of a building while providing a protective and aesthetically consistent exterior finish.

Freshly applied ETICS topcoats are vulnerable to rain, which can cause washing off, staining, or texture defects.[1] A faster dry coating with improved early rain resistance (ERR) greatly increases the reliability, especially in regions with unpredictable weather. By reducing the time



during which freshly applied surfaces remain susceptible to moisture/rain damage, contractors can maintain project schedules more effectively and avoid weather-related delays.[1] These improvements also reduce the likelihood of costly repairs or reapplication, helping minimize material waste and labor time. Despite several efforts towards designing fast-dry polymers, the industry has struggled to find practically useful solutions.[1-4] Many of the systems that can dry faster are two-component, have strong odors, are unstable, utilize harmful chemicals or require external stimuli.[2-4] This prevented a wider adoption of these systems in the construction industry and calls for the introduction of an improved waterborne, one-component fast-drying polymer dispersion.

Dow developed a novel and patented one-component waterborne acrylic polymer dispersion that endows fast-dry and outstanding ERR properties to cement-free ETICS basecoats and topcoats, while offering improved sustainability profiles. ETICS topcoats containing the new acrylic binder show comparable or better dirt pickup resistance (DPUR) without using photoinitiators and good color durability. In addition to cost savings realized from less weather sensitivity and high durability, the new polymer dispersion affords formulators the ability to reduce TiO₂ levels while achieving similar hiding in white ETICS at lower cost-in-use.

In our presentation, we share formulation expertise and laboratory data comparing current technologies with our novel acrylic polymer dispersion. With a focus on ERR, color retention, DPUR, and application performance of ETICS mortars, we will cover selected adjacent application segments too.

References:

- [1] Kellogg, S., (2018). Developing and Evaluating Early Rain Resistance in Exterior Architectural Coatings. *CoatingsTech*. 15, 46–52.
- [2] Hermes, A.R., Lavoie, A.C., Schall, D.C. (1999). Quick-drying aqueous coating compositions. U.S. Patent 5,922,398.
- [3] Sobczak, J.J., Hermes, A.R., Schall, D.C., Sanfilippo, A. (2002). Method for producing fast drying multi-component waterborne coating compositions. U.S. Patent 6,475,556.
- [4] Hegedus, C.R., Pepe, F.R., Dickenson, J.B., Walker, F.H. (2002). Waterborne acrylic-epoxy coatings. *J. Coat. Technol.* 74, 31–39.

3.00 pm **Davide Ghisolfi** - Synthomer Deutschland GmbH

Strong, clean, durable: The new pure-acrylic binder for facade coatings

Facade paints play a crucial role in protecting buildings and structures from environmental influences. They shield against harsh weather conditions, UV radiation, and moisture (EN 1062), prevent structural damage and extend the lifespan of surfaces.

A long service life with longer intervals between renovations contributes to sustainability. In addition to very good UV resistance, the aspect of low dirt pick-up is becoming increasingly important, as renovation of heavily greyed facades is often accelerated for aesthetic reasons.

The innovative pure acrylic binder can be used in a versatile manner for low-VOC thin-layer as well as thick-layer, crack-bridging facade coatings.

The binder exhibits a well balanced property profile with very good moisture resistance, excellent durability and an outstanding dirt-pick up resistance (DPUR).

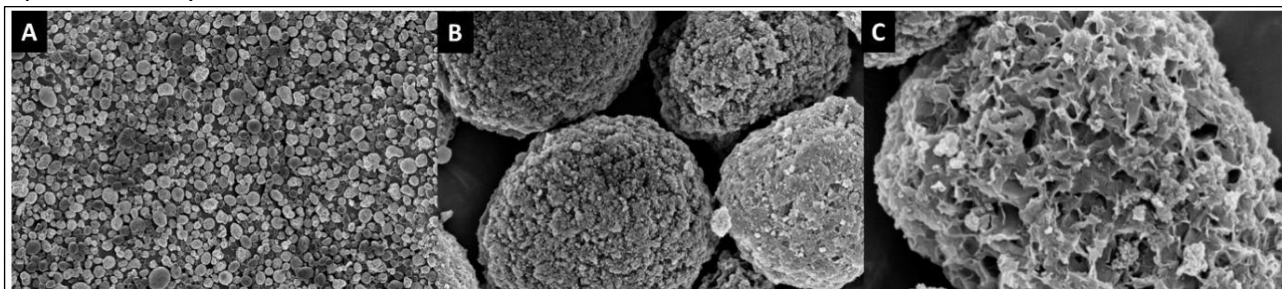


3.30 pm **Christoph Soeffing** - Evonik Operations GmbH

Novel spherical calcium silicate anti-corrosion pigments for protective coatings

Corrosion protection pigments are essential for safeguarding materials, particularly metals, against environmental degradation. In response to increasing performance demands and regulatory pressures for sustainable solutions, Evonik studied two innovative spherical calcium silicate anti-corrosion pigments based on its SPHERILEX® technology. These novel pigments leverage unique particle morphology and advanced calcium silicate chemistry to deliver enhanced corrosion resistance across diverse coating systems, including water-borne, solvent-borne, high-solid formulations and powder coatings.

The SPHERILEX® technology represents a breakthrough in silica-based materials, offering spherical particles with tailored porosity and an optimized balance of anti-corrosive performance, mechanical integrity, and ease of formulation. Calcium ions on the pigment surface enable ion exchange with corrosion-stimulating ions, forming a protective layer of calcium silicate on the substrate.



The spherical calcium silicate anti-corrosion pigments address critical challenges in the market. Traditional pigments, such as chromates, are highly effective but carcinogenic and phased out due to regulatory restrictions. Phosphate-based pigments, while safer, face scrutiny due to their toxicity to aquatic life. Zinc-based pigments, widely used for corrosion protection, pose sustainability concerns due to zinc's environmental footprint. Calcium silicate anti-corrosion pigments offer a zinc-free, chromate-free, and environmentally friendly alternative, supporting compliance with global standards while meeting increasing demands for sustainable solutions.

Extensive testing compared spherical calcium silicate anti-corrosion pigments to established anti-corrosion pigments, including zinc phosphate, phospho-silicates, and ion-exchange silicas in various coating systems, e.g. epoxy, polyaspartic, high solid silicone systems and powder coatings. Results from salt spray tests (ASTM D1654, DIN ISO 9227) demonstrated superior corrosion resistance, with reduced corrosion creep and delamination even at low pigment dosages. Furthermore, formulations containing spherical calcium silicate anti-corrosion pigments showed corrosion protecting performance on various substrates, including sandblasted and blank steel.

Mechanical and chemical resistance tests confirmed that the spherical particle morphology supports coating integrity and enhance abrasion resistance, which is critical for applications exposed to physical wear. At the same time the studied two innovative spherical calcium silicate anti-corrosion pigments did not negatively impacting adhesion, flexibility, or humidity resistance.

4.00 pm Conclusion