

Two questions, two answers:

1 Do you see potential in the development of multi-functional additives and what challenges do you expect?

2 What trends do you think will influence the additive market in the next 5 to 10 years?

1 Multi-functional additives are highly interesting products. Let me start by stating that today, there are already several multi-functional additives available on the market. There are wetting agents that also help deaeration and defoaming, dispersants that also aid substrate-wetting, anti-settling agents that improve your coating's water resistance, etc.

In these examples, we speak about a combination of properties, which are generally perceived as positive by coating formulators. This makes these multi-functional additives widely and safely usable. Even if coating formulators are looking for only one of the aforementioned properties, the other is seen as a welcome add-on.

There are other types of multi-functional additives with very pronounced properties which, on one hand, may limit their broad usage. On the other hand, they add a very high value to the formulations for which they are suitable.

And this brings me to the challenges of the approach of developing multi-functional additives.

Additive suppliers need to clearly define which applications they are aiming for when developing such multi-functional additives. The more pronounced and specific the desired effects are, the more application-specific the resulting products become. We have found it extremely valuable to develop such products in close collaboration with our customers.

To finally answer your question: Yes, we continue to see potential in the development of multi-functional additives, including functionalities that so far have not been achieved.

2 We see some strong trends in the coatings industry that will impact the additive market for the years to come.

“Multi-functional additives which are able to replace two or three others can be a great contributor.”



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Source: Cipro - Fotolia



Market analysts forecast a continuously growing share of environmentally friendly coating technologies. Sometimes this trend is additionally supported by regulatory changes. Additives are needed to improve the application and film properties of water-borne, radiation-curing, and high solid coatings; in some cases, they even become true enablers for new coating technologies.

Along with that goes the trend of sustainability. And this means far more than just VOC reduction. Increasing the performance – and thus the lifetime – of a coating is very sustainable. A lot of development work is being done to make coatings more resistant, more durable, or stay clean longer. So there will be new additives developed supporting or enabling the use of new binder systems. Moreover, any additives that increase the lifetime of coatings will play a major role.

Also, there is a strong trend toward modular coating manufacture. The use of pigment concentrates, slurries, and other semi-finished components is and will be increasing. We believe that additives for these applications will continue to grow over-proportionally and that innovation on the additive side will strongly support this trend.

Last but not least: Working with larger coating producers, we encounter a lot of complexity-reduction projects. Additives that cater to the resulting needs, e.g. by being broadly applicable, non-hazardous, and globally available will benefit here. Multi-functional additives which are able to replace two or three others in an existing coating formulation can be a great contributor to such projects. 📌



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1 Modern high performance coatings provide levels of corrosion prevention and durability way in excess of what has been historically possible. With advances in coatings has come the expectation that systems will last for extended periods of time with, for example, the recent ISO12944 standard introducing a new requirement for very high durability systems that can last more than 25 years. Much of what contributes to coatings' long term performance is certainly to do with surface preparation and application, but the expectation is that modern coating systems will be capable of extended performance in harsh environments – if applied correctly. Developments in all areas of coatings formulation has made this possible including binders, pigmentation and additives. Although used in small quantities, the role of additives has played a major part in the advancement of coating formulations helping to design high performance, low VOC coatings that have great appearance and are easy to use. Used correctly, additives allow improvement in properties, optimised use of coating components and improved coating appearance especially flow, levelling and gloss levels. Further advances in coatings development are taking these sophisticated products and incorporating additional functionality into the formulation to provide added customer benefits way beyond the original intention. This has already happened in a number of areas and the successful coating suppliers of the future will be the ones who can serve the industry by addressing these previously unmet and sometimes hidden needs.

The fouling of ships' hulls by marine organisms is a major issue in the shipping industry with a fouled hull increasing the drag of the ship through the water, leading to increased fuel use and resulting in higher operating cost. The key function of antifouling paints is to prevent fouling and reduce the amount

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of fuel needed to power the ship through the water. Coatings have been developed to prevent fouling and also reduce the frictional drag of the hull in the water. These coatings now allow additional fuel savings of 6% to 9% with up to 40% fuel saving being targeted in further developments.

A challenge operating in cold climates is ice build-up; icicles falling from overhead pipes poses a hazard to workers below; ice formation on wind blades adds weight causing damage to the wind tower mechanism. Coatings are being developed that in addition to corrosion protection and abrasion resistance, produce a low energy surface that prevents ice formation.

Corrosion is a major problem with repairs costing billions of euros a year. Often corrosion is hidden, not possible to see when it starts and by the time it is visible, the areas affected are considerably greater than the initial breakdown. By incorporating sensors into the coating that can measure electrochemical or physical changes in the coating early on, targeted repair work can be carried out in a timely manner to prevent spread of corrosion, reducing the cost of repair and extending the life time of the coating system. As the challenges in the industry become ever more complex and the levels of additional functionality become more extreme, it is unlikely that simple formulation approaches will be successful and industry collaborations will be needed with contributions required from all players.

2 Many of the future properties of coatings are going to come from the use of a new generation of additives and not just from binder and formulation modifications. Increasingly we are going to see a need for additives that will be capable of altering surface characteristics, film morphology and electrochemical and physical properties of the coating. 