



Smooth ride for superior coatings

Sprimag Brasil extends it's capacity

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Joachim Baumann and Philippe Nollet, Managing Directors of Sprimag

Dear Readers,

For weeks we have been hard at work preparing for the K 2013 trade show in Düsseldorf. The world's biggest plastics and rubber trade fair is a key event for Sprimag. It gives us the opportunity to showcase new trends in the coating of plastic parts and to demonstrate the long-standing experience and expertise of Sprimag. Direct contact with customers and prospective buyers also allows us to gather information on current user requirements and incorporate this information into the development of our machines and systems.

As a supplier of systems for coating plastic parts to our subsidiaries in Brazil, we at Sprimag deal with questions, tasks and feedback from users on an everyday basis. This enables us to gather empirical data and put suggestions received from our customers into action. A new, large chain conveyor system for coating large-sized vehicle parts is currently being installed at our

plant in Brazil and will shortly go into operation (page 3).

The new system means that Sprimag Brasil is well equipped to meet high capacity requirements looking forward. Meanwhile our work at Kirchheim continues unabated. Revitalized and full of energy after our summer vacation, we must now set about tackling our backlog of orders, and confidently look forward to the year ahead. At the same time, we consider ourselves fortunate that delivery delays are not an issue despite the high volume of the orders – thanks our flexible and hardworking employees. So nothing stands in the way of interesting talks about concrete projects at our exhibition booth H4/A35 in Düsseldorf. We look forward to seeing you there!

Joachim Baumann *Philippe Nollet*
Joachim Baumann Philippe Nollet

The eco-friendly plastics coating solution

Sprimag will be showcasing their latest coating solutions for the plastics industry at the K trade show in Düsseldorf.

In the plastics industry, resource-efficient coating is an important argument for investing in a new coating system. Energy-efficient solutions will again be the focus of the world's largest plastics and rubber trade show, the K in Düsseldorf, which will be held from October 16 to 23, 2013.

The now established UV technology combines environmental compatibility with high performance. With plastic parts in particular, the highly scratch resistant UV coating has major advantages compared to conventional coatings. This UV coating cures in seconds, so there is hardly any dust buildup and the defects rate is considerably reduced. UV coatings allow a big reduction in cost per part as well as investment costs. Since coating systems can be built very compactly, they have a smaller footprint. And: the UV application has a very good environmental balance because it does entirely or to a high degree without volatile organic solvents (VOC).

The UV technology is the focal point of our exhibition booth at the K in Hall 4, Booth A35. Sprimag has already implemented several projects involving UV coating and therefore has all the necessary knowledge.

We would be more than happy to talk to you about the latest trends and custom coating solutions and advise you in detail on the applications of UV technology. We look forward to seeing you at this event!

» marketing@sprimag.de



Sprimag booth on the "K" in Düsseldorf

Visit us in Hall 4 Booth A35



NEWS + FACTS



Reverse spraying nozzle extension for very small bottle necks

Reverse spraying nozzle extension

Internal coating of glass bottles is a major challenge. The Sprimag nozzle extensions, which have an outer diameter of only 5 mm, are ideal for very narrow bottlenecks with diameters of about 8 mm. Thanks to a newly developed extension with a high angle (reverse spraying) spray jet, problem areas such as the bottlenecks can be coated easily and efficiently.

» achim.simon@sprimag.de

New! Circulation element for extensions

The circulation element has proven very effective in our S-333 and S-75 external spray guns. This system will now be adopted for our nozzle extensions, which, for example, are used for coating brake discs. Unwanted clogging of spray nozzles is now thing of the past. The optimized nozzle geometry reduces paint buildup on the nozzle tip. This makes cleaning the nozzle much easier.

» achim.simon@sprimag.de



Centrifugal guns from Sprimag – very reliable with close quarters

Enhanced quality

We have extended our range of centrifugal guns to include the S-542 version. Compared to the S-540, the S-542 has a shorter nozzle needle and paint tube and can even be used in confined spaces. In addition to this, we have revised our centrifugal nozzle portfolio. All nozzles in the "small tubes" category will now come supplied with our proven radial baffles. A new addition to our range is the centrifugal nozzle with 7 mm diameter.

» achim.simon@sprimag.de

Customized machine technology for advanced UV coating

Sprimag delivers new coating machine for UV-Mono-Cure paintings

Fehst SGPS S.A wanted for its production plant in Portugal an UV coating system suitable for coating flat plastic parts with an UV high-gloss paint as used in automotive interiors.

Although UV coating processes have been around for a while, some in the industry still have their reservations. Sprimag had already received several requests to convert existing systems to UV, but this always seemed to involve cus-

tomers making compromises. Fehst has now put its faith in the expertise of Sprimag and invested in its future with new systems technology, designed specially for UV-Mono-Cure coatings.

Michael Blankenhorn, who was co-responsible for systems design at Sprimag's Development and Process Engineering Department, explains the advantages: "For this application we designed a coating system with a three-axis coating machine including a dry ice cleaning station, an ionization and a downstream evaporation zone for the relaxation and UV curing of coatings. The system which we implemented for the first time in this constellation allows processes to be configured optimally for various UV coatings. The three-axis coating machine has been fitted with a decoupled pallet transporter. This allows the individual process steps to be carried out at different speeds, which not only results in advantages with regard to quality, but also saves energy.

To minimize the scrap rate, which is typically higher with high-gloss coatings,

a CO₂- snow jet cleaning stage was integrated prior to the coating process.

After this, the carriers are separated, positioned and automatically loaded into the three-axis coating machine.

No paint transfer – only the plastic parts are coated

Only the carriers loaded with plastic parts are fed into the spraying booth and coated. Michael Blankenhorn: "That way, we avoid paint transfer. The racks stay on the transport system prior to the spraying booth. The parts are once again blasted with ionized air as they are loaded into the spraying booth in order to remove any last traces of dust adhering to the coating."

The three-axis coating machine is equipped with a conveying axis for mounting the racks, and a rotary step axis for positioning and rotation of the racks as well as the spraying axis. The generous distances between the side walls and spraying surface as well as the fact, that the spray jets are always aligned facing the rear wall, ensure optimal coating without turbulence and keep

contamination of the spraying booth interior to an absolute minimum.

To extract and clean the exhaust air, the spraying booth is equipped with a dry separation system with a special labyrinth system and paint stop filters. After coating, the racks are removed from the spraying booth and placed back onto the rack. On completion of the spraying cycle, the parts pass through an evaporation / relaxation zone where infrared lamps can be activated as required.

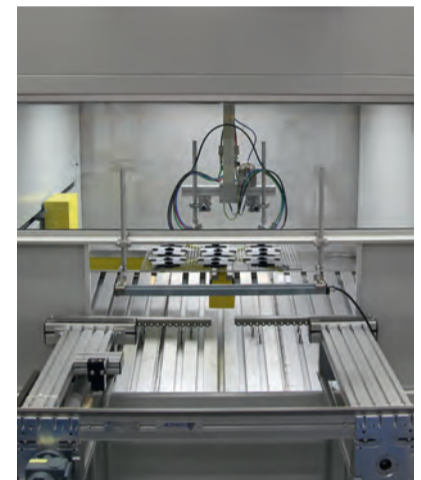
UV curing in inert gas conditions – a special process of the system

The parts are subsequently UV cured in an inert gas atmosphere using mercury lamps. Inert gas conditions allow better crosslinkage of the coating to be achieved with the use of less UV power.

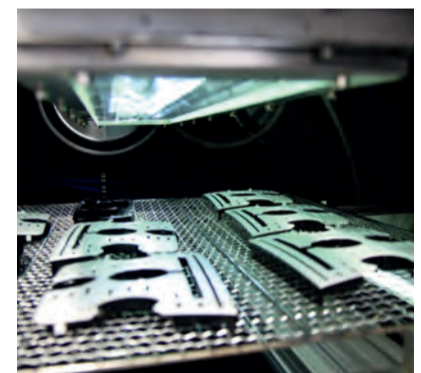
An air supply system which conditions the air for high-quality coating is used to ventilate the individual units of the Sprimag system. In each of the process zones the air is again fed into the system through a filter.

In this way the Sprimag system produces plastic part coatings of the highest quality, both with respect to scratch resistance and gloss level.

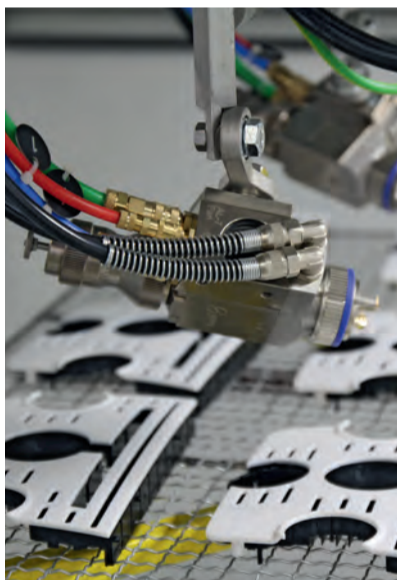
» axel.bolowich@sprimag.de



Spray booth of coating machine – only the plastic parts are coated



Curing of plastic parts with mercury lamps in an inertgas atmosphere



Exact coating of plastic parts with high gloss paint

» The Sprimag system produces plastic part coatings of the highest quality. «

Rainer Mendl

Major order from Renault

Reliable cooperation of Sprimag and Renault makes line-specific mixture possible



View on induction cabinet and paint booth

As part of a strategic decision by Renault to universally change the coatings on its brake discs and brake drums, Sprimag has received a contract to supply five coating systems. Four of them will be installed in the Renault ACI factory (Auto

Chassis International) at Le Mans, the fifth in an European plant.

Renault ACI is the largest employer in the city mainly known for motor racing as well as the Saint Julien Cathedral. At Le Mans, the first Grand Prix race ever took place in 1906 (the winning car originated with Louis Renault) and the 24-hour race has now already been run 81 times.

After extensive testing, Renault decided in mid-2012 upon the new Geomet 360LC coating material from NOF Metal Coatings Group. Besides the required performance, a significant reason for this decision was the lower curing temperature of 250 degree Celcius in comparison to other Geomet coatings.

Mainly because of the existing production structure at Le Mans, four very detailed and different layouts for

line-specific mixtures of parts had to be designed during the planning phase that followed. Reliable cooperation between the planning departments of both parties made this possible.

Due to the very limited space available for setting up equipment, systems with energy-optimized induction dryers were designed for Le Mans. Because of the higher power supply costs abroad, the machine for the European factory was designed with gas-heated convection ovens. Extensive coating tests as well as the optimization of heating sequences for the very different parts geometries were required beforehand.

Despite strict budget limitations, the systems were equipped with the latest technologies including high dynamic Siemens servo drives, ABB robots and automatic spray jet controls. Each sys-

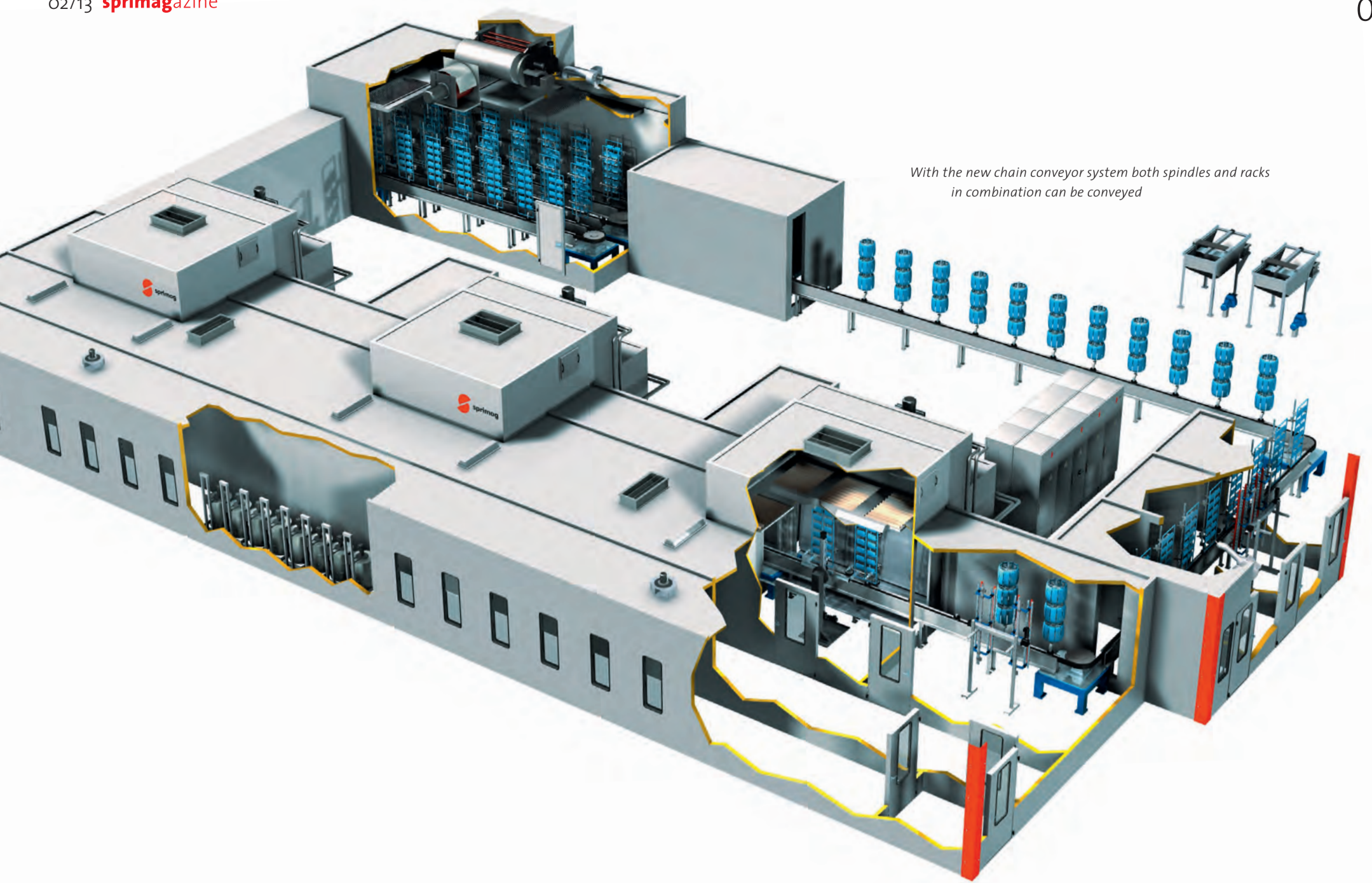
» Despite strict budget limitations, the systems were equipped with the latest technologies werden. «

Rainer Mendl

tem is operated with 2-3 linkage belts and, after coating, the parts are channeled to a corresponding number of linkages for automatic outfeed. Because of a special dummy disc detection system, an additional parts identification system could be avoided despite operation with mixtures of parts.

With this project, Sprimag was able to meet the challenges of simultaneous engineering as well as to handle precise logistical implementation. Thus, the first system was installed during the precisely defined time frame for the 2013 summer break at ACI. The following deadlines were fixed accordingly one after another and should be completed with the summer break 2014.

» rainer.mendl@sprimag.de



With the new chain conveyor system both spindles and racks in combination can be conveyed

Expand capacity upwards

The Brazilian way continues – New production system for Sprimag Brasil

To pave the way for further growth of Sprimag Brasil, the Sprimag holding is investing heavily: this year the company will move to a larger site near São Paulo. Sprimag Spritzmaschinenbau GmbH has already designed a new coating system together with its Brazilian partners and shipped it out to Brazil.

For this edition of SPRIMAGazine, Rainer Mendl, Technical Director at Sprimag, explains the concept behind the new system.

Tripling of capacity

"The machine consists of a chain conveyor system with the capability to convey both spindles and racks in combination. Maximum coatable part length is 1450 mm and maximum part width is 500 mm. Smaller parts can, depending on their geometry, be arranged either on position-oriented racks or on spindles with a maximum rotation diameter of 450 mm. The product range of the existing external part coating system maps

one-to-one to the new system, resulting not only in a potential tripling of capacity but also higher availability of these products.

Flexible process steps

The system is configured for the transfer of pre-loaded carriers or direct parts transfer. An automatic ionization pretreatment station equipped with rotating blast nozzles and a manual cleaning station handle the fine cleaning of sensitive areas. An automatic flame treatment station activates the surface of certain plastics, and an ionization cleaning system is installed prior to the coating area. The latest components of the SprMix II mixing unit are utilized in a primer coating booth with a wet extraction unit and a 2-component supply for different primers. Two spraying areas with servo-controlled lifting equipment including an automatic spray unit positioning system ensure that consistent coating quality is main-

tained. Our latest spray gun, the S7-S with quick-change adapter, paint flow control and paint dump valve for quick paint changes delivers optimal spraying results. The lifting equipment can be

» The big advantage of this system for Sprimag Brasil is that process steps can be selected or deselected depending on part program. «

Rainer Mendl

operated both as a stationary unit and as a mobile unit which travels in the direction of chain conveyor. Intermediate evaporation zones are located in front of the basecoat and/or clear-coat booths, which are basically identical in design to the primer booth. The system also features a paint supply system for quick color changing in the basecoat area and a 2-component system for clear coat. Furthermore, the system integrates an evaporation zone after the

clear coat area, a circulating-air dryer and a cooling zone".

The big advantage of this system for Sprimag Brasil is that process steps can be selected or deselected depending on part program. The coating system was engineered to meet the latest requirements of the Brazilian automotive industry for solvent-based coating paint systems and offers high floor area output as well as the necessary flexibility. There is enough space in reserve to retrofit coating robots and to upgrade the system for water-based primer or UV clear coat applications.

A fully air-conditioned air supply, an air-conditioned paint supply and FI-controlled exhaust systems were also integrated to ensure that the production processes maintain the required level of consistency.

Equipped with suspended matter filters, the system was designed on the premise of maximizing first-run ratios by strict adherence to low turbulence airflow principles. A special gray-and-white zoning system with airlocks helps to reduce the release of particles from operators and service personnel. A paint conditioning stage directly adjoining the coating areas minimizes travel time and distance for the relatively large number of color changes per layer in the basecoat area.

This increase in capacity means that Sprimag is now well equipped to stay apace with the changing demands of the Brazilian automotive market.

» rainer.mendl@sprimag.de



The new head office of Sprimag Brasil

Review

In our last edition of SPRIMAGazine, we reported on the development and spectacular growth of our subsidiary in Brazil since its official opening in 1999. Today, Sprimag Brasil is a major supplier to the Brazilian automotive industry. The current service program notably includes the coating of plastic automotive parts and vehicle interior parts. In addition to this, Sprimag Brasil caters to various branches of the consumer goods and appliance industry.



The project team of Sprimag Brasil

INTERVIEW

Outstanding scratch resistance – Perfect gloss

Mankiewicz Gebr. & Co. and Lankwitzer Lackfabrik GmbH are leading manufacturers of UV paints. Both companies are long-standing development partners of Sprimag. One of the key aims of the collaboration is to improve the application of UV-Mono-

Cure coatings in automotive interiors in particular. Jointly, the three companies have already tested a number of customer specs for UV coating at the Sprimag Application Center in Kirchheim/Teck. We talked to Marcus Steckhan from Mankiewicz and Michael Kraft from Lankwitzer.

Sprimag: Development work on UV coating systems has been in progress for some time now. What are the advantages of this technology?

Marcus Steckhan: "The benefits of using UV-curable coating systems are ultra-fast curing, reduced susceptibility to dust and immediate packaging of parts. The benefit for customers who apply these paint systems is a technology of unmatched process and cost efficiency with a small footprint and low energy consumption."
Michael Kraft: "Another advantage is the very low defects rate vis-à-vis aqueous and solvent-based systems since no evaporation zone is required for UV coatings. UV coatings have excellent scratch resistance and a high resistance to chemicals."

Sprimag: How do you meet the quality requirements of car manufacturers? In what areas do you see

further opportunities for the application of this technology?

Steckhan: "We work closely with systems manufacturers and prospective users. This has enabled us to establish modern UV-curable systems for high-gloss finishes in volume production and set new standards for scratch resistance and resistance to aging. The greatest potential for this technology is in coating compact-sized metallic and plastic components."

Kraft: "There are now a number of potential applications for black piano finish interior parts, for which we have received approval from Renault, VW and Audi. UV curing in an oxygen-reduced atmosphere opens up entirely new possibilities when it comes to more complex components such as fittings for tachometers and rev counters, as well as radiator grilles. This makes excellent curing of hard-to-reach areas."

Sprimag: What are your experiences with the application of these paints with regard to the coating equipment?

Kraft: "When designing systems it is important to make allowance for the specific processing properties of these coatings. An automatic system is necessary because manual application can lead to hypersensitivity in spray painters."

Steckhan: "When planning systems it makes sense to talk to systems manufacturers who already have experience with UV-curable systems. The proper curing of surfaces demands know-how with re-

gard to lamp types, lamp positionings and the necessary dosages."

Sprimag: What are the special properties of your coating system?

Steckhan: "The coating system utilized in this joint venture with Fehst SGPS S.A. in Portugal is a highly scratch resistant and chemical resistant version of a high-gloss black paint which is applied in a single layer to thermoplastics of types ABS, ABS/PC or PC. The surface cures in seconds, without the need for auxiliary heat sources. Other special properties are: simple handling, significantly shorter process cycle times, reduced scrap and immediate packaging of parts."

Kraft: "There are no solvent emissions with our 100-percent UV-Mono-Cure products. Another advantage is the reduced dust and dirt contamination. Dry film thicknesses of between 15 and 18 micrometers which meet the requirements of VW and Audi are already achievable for automotive interiors. In terms of media and hydrolysis resistance as well as scratch resistance in particular, the properties of UV-Mono-Cure coatings are superior to those of conventional aqueous and solvent-based systems as well as UV-Dual-Cure coatings. Spray marks and flow lines are largely covered."

Sprimag: Both companies together with Sprimag have successfully tested various UV coating applications at our Application Center. What

are the strong points of the collaboration with Sprimag?

Kraft: "The Application Center is highly equipped. Furthermore, Sprimag is very quick off the mark and flexible when it comes to scheduling coating trials. We have already achieved very good results with several UV coating systems from Sprimag. By having the flexibility to arrange advance trials at short notice, we were able to make improvements to the finish of parts, for instance by selecting different spray guns or different nozzle sizes. I personally was very impressed with the way we planned a UV coating system for the application of 100-percent solvent-based UV coatings, as well as aqueous and conventional coating systems."

Steckhan: "Sprimag has years of experience with coating systems and UV curing. However, a key factor in the timely and successful implementation of all projects is ultimately the quality of the cooperation between the companies and, most importantly, the people involved. We would like to take this opportunity to acknowledge the high level of expertise of the staff at the Sprimag Application Center and thank them for their trusting, straightforward and highly productive cooperation in all projects."

CALENDAR 2013/2014

K 2013
International Trade Fair
for Plastic and Rubber
Düsseldorf, Germany
Oktober 16 – 23, 2013
Sprimag booth: hall 4, A35
www.k-online.de



AEROSOL & DISPENSING FORUM
International Aerosol
Congress and Exhibition
Paris, France
February 5 – 6, 2014
www.aerosol-forum.com/en



PAINT EXPO
International Trade Fair for
Industrial Coating Technology
Karlsruhe, Deutschland
April 8 – 11, 2014
Sprimag booth: hall 2, booth 2510
www.paintexpo.de



METPACK
International Trade Fair
for Metal Packing
Essen, Germany
May 06 – 10, 2014
www.metpack.de



REPORT FROM ABROAD

Intercultural career learning – Sprimag offers overseas placements

In 2008 Michael Durst successfully completed his apprenticeship as an electronics technician for automation engineering at Sprimag. Today, he is studying with us for an integrated degree in electrical engineering specializing in automation engineering.

"During my integrated studies at Sprimag I had the opportunity to spend a few weeks working at the Sprimag subsidiary in the United States. The ten employees at the site in Cincinnati, Ohio, serve customers in the USA and Mexico. With such a small workforce, everyone of course has to pitch in. Accordingly, there was never a dull moment during my placement. Depending on requirements, I got to put to use my

knowledge as a programmer, mechanic, painter, electronics technician and forklift truck operator. I was able experience machines that had been assembled and tested in Germany just weeks beforehand operating in actual production conditions at a customer's plant in St. Louis, Missouri. The interaction between the multiple sections of a production line as well as the production of aluminum bottles were also very interesting.

However, during my placement I also had plenty of time to take in the sights and taste the American way of life. Cincinnati is an ideal starting point for extended weekend trips. It is just a few hours' drive to Chicago, Buffalo, Lake Erie and the Niagara Falls. An in-

tegrated degree course offers the opportunity for such an overseas placement. At Sprimag I had many interesting experiences, both at work and privately."

» michael.durst@sprimag.de



Michael Durst during his stay with Sprimag Inc.

ANNIVERSARIES 2013

10TH ANNIVERSARY

Klaus Larsson
» Electrical Project Engineer

40TH ANNIVERSARY

Sigrid Birker-Groß
» Electrical Engineering Design
Karl Halm
» fitter
Helmut Bauer
» fitter



Two "40-aged": Karl Halm and Sigrid Birker-Groß

Sprimag thanks all of these employees for their many years of service and for their long-standing relationship with the company.

OUR INTERVIEW PARTNERS:

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Mankiewicz Gebr. & Co., Hamburg

MICHAEL KRAFT
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Lankwitzer Lackfabrik GmbH, Osterwieck

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