



850 million lipsticks

Worldwide 27 lipsticks are bought per second, this equates to around 850 million lipsticks a year. In our case study on page 3, you'll find out how the Italian company Cosmelux uses Sprimag coating machines to provide a percentage of these lipsticks with high-quality coating.

» P.3

overview

1 Editorial

Inauguration of the new assembly hall

2 News + Facts

- » Processing customer requests more flexibly
- » Fifth machine delivered to ACI
- » 1111 Pressure Regulator

Drying solutions with increased energy and cost efficiency

3 Cosmetic products with glossy protection

4 Efficient surface finishing with PVD systems

Uwe Heydenreich, VTD-Vakuumtechnik

Anniversaries

Calendar

New colleague

Imprint



Joachim Baumann and Philippe Nollet, Managing Directors of Sprimag

Dear readers,

One of the focuses of this year's autumn issue of Sprimagazine is PVD coating. PVD stands for "Physical Vapor Deposition" and refers to a method used to create metallized surfaces. Our customer Cosmelux uses PVD technology in their processes, creating high-quality coating for cosmetics products. The Italian company coats 800,000 units of cosmetics packaging every single day. Sprimag supplied Cosmelux with a second automated coating machine this year. To find out more about how Sprimag managed to meet Cosmelux's high standards for performance and quality, turn to page 3 and read our detailed case study.

To find out more about PVD, we interviewed an expert from VTD Vakuum Technik Dresden GmbH, a company specializing in coating technology based in Dresden. Mr

Heydenreich explains exactly what is meant by the term PVD, gives examples of where the technology is used and describes what could happen in the future (page 4).

We also conducted a comprehensive thermographic analysis on our internal coating solutions for cans. Thanks to Sprimag's and Sprimag customers' many years of experience, we could use the results to improve our internal coating drying machines for cans. Turn to page 2 to read more about our new drying solution and how it helps to improve energy efficiency.

We hope you will enjoy reading the latest issue of Sprimagazine!

Joachim Baumann *Philippe Nollet*
Joachim Baumann Philippe Nollet

Inauguration of the new assembly hall

Sprimag celebrated the opening of its new assembly hall and the fully renovated office building in June with a summer party

On January 13th, 2014 the foundation stone for the construction of the new assembly hall was laid – and just about five months later Sprimag was able to celebrate the completion of the hall and the end of the renovation work to the office building. Over 500 guests attended the summer party on June 25th, 2014, which was held in the 2000 square meter assembly hall. They also visited the office building, the production area and the Sprimag machines. A band with various local and international musicians also helped to create a relaxed atmosphere. The appearance of Miller Anderson, who played at the Woodstock Festival in 1969 as a member of the Keef Hartley Band, was a special attraction.

With its generous height of 14 meters, the new assembly hall, which is painted in Sprimag red, is so spacious that it will be possible in the future to also build larger machines, and dryers in particular, without any limitations. Equipped with five cranes, three supply shafts and an exhaust system for flue gas and exhaust air, the hall meets the highest demands for flexibility. Bernhard Däschler, Assembly Manager at Sprimag: "By extending the existing assembly hall, we have successfully optimized the material flow. In the new hall, the final assembly is performed. The resulting free space in the old assembly hall will be used for the expansion of the electrical assembly, the pre-assembly and as storage place for the paint shop. Larger parts can be stored there and get in the final assembly hall

with short distance. The shipping of our machines is done conveniently and safely using a loading ramp with leveler."

At the same time as the assembly hall was completed, the extensive renovation of the office building also came to an end. The three-story building will also provide enough space for growth in personnel in the future. The heart of the building is a glass-roofed room with an olive tree which provides a welcome area for employees to relax in right next to the staff facilities. As well as helping to improve the spatial organization of the departments, the freshly renovated offices also mark the end of bottlenecks in the allocation of meeting rooms as well as providing the employees with a comfortable new environment.

» bettina.maier-hermann@sprimag.de



Impressions of the Sprimag

Summer Festival:

bit.ly/Sprimag_Summer_Party_Video



The completion of the new assembly hall was celebrated with a live band and more than 500 guests

news + facts



With the new turning and milling center of Chiron, customer requests can be processed quickly and flexible

Processing customer requests more flexibly

Sprimag has invested in a new Chiron turning and milling center. Various parts for our application technology, including nozzles, air heads and entire spray guns, will be manufactured using this center. "A total of eight axes allows us to produce a broader range of parts at the highest quality. Complex 3D contours and special nozzles can also be manufactured using this center," explains Jochen Quattlender, Production Manager at Sprimag. "This means that we can respond even better to special customer requests."

» jochen.quattlender@sprimag.de

Fifth machine delivered to ACI

The bulk order placed by Renault ACI (Auto Châssis International) in 2013 for five coating machines for brake disks has now been completed with the delivery of the final machine. The machines coat various brake disks in mixed operation and meet the customer's high requirements in every way. Thanks to the good collaboration between Renault and Sprimag, the large-scale project was successfully implemented from the planning phase right through to commissioning.

» rainer.mendl@sprimag.de



The 1111th Sprimag pressure regulator

1111 Pressure Regulator

With an optimized design when it comes to functions, maintenance and flexibility, the Sprimag pressure regulator was first launched in 2010. Since then, demand for accurate and easy-to-clean pressure regulators for single and multi-component coating systems has grown every year. Sprimag marks every one of its application products with a laser-engraved number, which enables products to be identified by year, making it easier to order replacement parts. On 23.09.2014, we produced the 1111th pressure regulator, marked with this special number.

» bernd.koerner@sprimag.de

Drying solutions with increased energy and cost efficiency

Sprimag has developed a new generation of dryers for drying internal coating in cans. The new dryers can be customized from a range of ready-to-install solutions

Drying internal coatings in cans involves vaporizing high levels of solvents in a range of different coatings. This process requires a lot of energy which is why Sprimag decided to take a more detailed look at its internal coating dryer. By conducting a thermographic survey and a detailed analysis of the processes used, we were able to develop a new energy-efficient drying concept with a number of new and improved features. Part of this concept is our new three-row and extremely space saving dryer generation.

Optionally to the internal coating dryer (DIT), the Sprimag Energy Saving System (SESS) can be selected. The system is based on an intelligent control of the dryer exhaust air quantities depending on the operating mode. The heart of this control and regulating circuit is a dedicated differential pressure controller, whose signals are transmitted to the frequency-controlled drive of the exhaust fan.

Additional to the integration of electronic features to optimize the energy consumption, a main point of the optimization of the energy

Besides the integration of electronic features to improve the energy consumption, particular attention has been paid to the optimization of the energy balance in the dryer. Through the use of new materials and increasing the insulation layer in the ceiling area, the radiation energy, which was previously already unattained low at Sprimag dryers, could have been further reduced. Using advanced, thermographic analysis, further improvement potential has been identified and implemented at the door seals. The energy consuming transfer systems, such as the conveying chain with cradles and the transfer drums were included in the optimization concept. To ensure optimum process reliability and lose as little energy via the

interfaces as possible, our engineers have developed a sophisticated interface concept. The upstream AVT transfer drum is available in 2 or 3-row design, the integrated can cooling tower plus additional AVT and the optional attached storage drum were also studied in the analysis and have been optimized accordingly. In addition to the many technical improvements, the design of the dryer was adapted to the linear concept of HIL-94. The newly designed oven doors create greater accessibility.

The trendsetting internal coating dryer will be available in 1-, 2- or 3-row version, depending on production speed and available space. The DIT meets all market requirements for fast production processes, space-saving solutions, low maintenance technology and energy efficiency.

"Thanks to Sprimag's modular dryer designs, we are able to configure cost-

» Thanks to Sprimag's modular dryer designs, we are able to configure cost-efficient versions of our DIT solutions tailored to our customers' exact needs. «

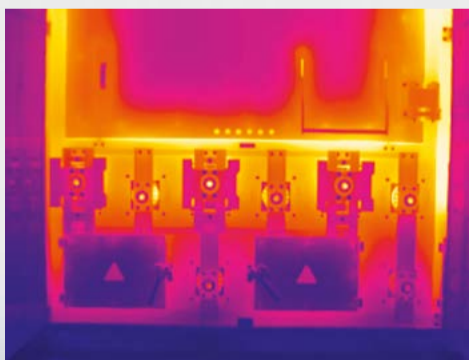
Dietmar Ramminger

efficient versions of our DIT solutions tailored to our customers' exact needs" explains Dietmar Ramminger, Head of Design for Packaging at Sprimag. "The relevant process factors: production speed, can dimensions, drying time, and customer-specific installation requirements, provide the basis for the variant selection."

Joachim Baumann, Managing Director of Technology and Sales at Sprimag, is pleased with the improvements of an already excellent product. "I remember the only three years earlier report of a large German aerosol cans manufacturer, which according to its own thermographic measurement was shocked by the threefold higher heat radiation of a competitor's product. This value now should have been significantly increased again after the Sprimag measures".

» dietmar.ramminger@sprimag.de

Features of the new Internal Dryer for Cans (DIT)



Using a thermographic analysis, further potential for improvement were identified and implemented in the area of door seals

- » Compact design thanks to 3-row version
- » Reducing radiation losses through less outer surface
- » Optimized sealing concept

» Increased ceiling insulation

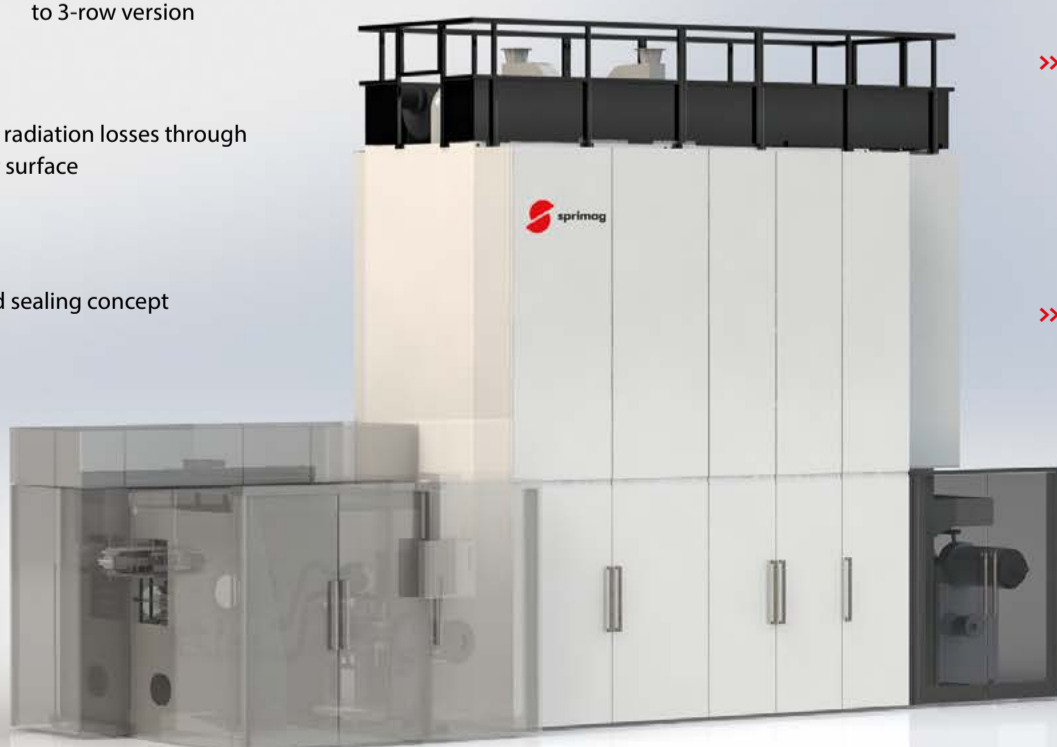
» Lowered heat output due to reduced heat capacity of the cradle transport system

» Minimizing thermal bridges through the new door lock

» Improved accessibility with less interfering edges

SESS: Sprimag Energy Saving System

- » intelligent control of the dryer exhaust air quantities depending on the operating mode
- » Correction of the exhaust air volume by frequency-controlled drive
- » Differential pressure controller with analog output for flow monitoring





Maximum flexibility – a wide variety of part shapes and varnishes can be processed on the Sprimag system

Cosmetic products with glossy protection

In the small town of Carate Brianza in Italy, around 120 million cosmetic products are coated by Sprimag coating systems every year

Throughout the world, 27 lipsticks are bought every second. This equates to 850 million lipsticks every year. When we look at these figures, it comes as no surprise that the cosmetics industry is booming. Cosmelux, a company based in Italy, understands the high requirements cosmetics producers place on the coatings of mascara and lipstick tubes. The family-run company with headquarters in Carate Brianza specializes in the production of high-quality UV coatings and metalization for the cosmetics market. Cosmelux was formed in 2002 from the Metal 3 Group, which has over 40 years' experience with surface coating.

800,000 parts per day

The range of coatings at Cosmelux is extensive. They are applied not only to nail polish bottles and mascara, lipstick and lip gloss tubes, but also to atomizers for perfume bottles and bottle lids for spirits such as whiskey or cognac. Around 800,000 parts are metalized every day within a three-shift system. "The quality of the coating is crucial," says Julien Leclerc, Product Manager at Cosmelux. The cosmetics industry places stringent requirements on visual aspects such as surface finish and gloss, but also on scratch and impact resistance. In order to fulfil all of these requirements in the best way possible, the cosmetic parts are metalized at Cosmelux using a Physical Vapor Deposition (PVD) process. First of all, the supplied plastic parts are pretreated. Then the base coat is applied with a UV lacquer, which ensures an even surface finish. Following this, the parts pass through the metalization process (sputtering), and finally a top coat is applied and hardened with UV lamps. "The UV top coat provides the coloring and the gloss effect and ensures that the surface is highly scratch- and shock-resistant," explains Julien Leclerc and adds with a smile "This is extremely important, particularly when you consider the amount of sharp-edged objects cosmetic products come into contact with inside a lady's handbag!" It is not only the "extreme" conditions inside a handbag that require a high coating quality, but also the bottling systems used by Cosmelux's customers. The cosmetic parts

are filled in fully automated systems, which means that if the UV coating did not feature the necessary hardness and scratch-resistance properties, the parts would be damaged before they even went on sale.

» Thanks to the automatic coating system of Sprimag we can meet the market demands and deliver the highest quality. «

Annalisa Mariani



Annalisa Mariani, Managing Director of Cosmelux trusts in Sprimag and in the delivered quality

High level of automation for superior quality

In order to meet these extremely high quality requirements, it is important to use the right technology. Back in 2010, Cosmelux invested in a fully automated coating system from Sprimag with an integrated PVD system from VTD (Vakuumentchnik Dresden GmbH). The outstanding feature of this system is its ability to fully automate the entire metalization process. Just four years

later, the company bought its second system, which was commissioned in May this year. "Our investment in an additional automated painting system stemmed from our desire to increase capacity. This is essential if we want to meet the constantly growing demands of the market," explains Annalisa Mariani, CEO of Cosmelux. Automation has enabled Cosmelux to reduce personnel and production costs, improve coating quality, and increase production efficiency. By switching over to state-of-the-art technology, cosmetic products can be produced for the mass market with superior quality and at a competitive price. As a result, the Italian company has enjoyed continuous growth in recent years.

Close collaboration during the development phase

During the development phase for the system concept, coating tests were performed with lacquer manufacturers at the Sprimag Applications Center in Kirchheim-Teck, Germany. This enabled the ideal coating concept and optimum lacquer to be determined. Thanks to the close collaboration between the lacquer supplier, Sprimag, and Cosmelux, an innovative system concept was developed. "The key to a high-quality coating is a combination of the right lacquer, the right expertise, and the right machine," explains Julien Leclerc. The concept was developed with the objective of meeting the requirements of special finishes, which generally require several coating layers, quickly and flexibly.

Confidence in Sprimag and high quality

In addition to a high degree of flexibility, the systems combine the key advantages of maximum reliability, repeatability, and easy operation and cleaning. "No cleaning cycles are necessary. Thanks to the automatic cleaning of the spray booth, we can work for 24 hours without interruption," says Julien Leclerc. "When it came to deciding whether to invest in another Sprimag system, the assurance that the system would be ready to operate immediately and deliver optimum coating quality was crucial. We have huge confidence in both Sprimag and the quality of its systems," continues the Product Man-

ager. Thanks to the experience gained with the first system, the second machine was ready in record time. "By working closely with Cosmelux, we were able to put the system into operation in good time, despite the tight schedule. The final layout was only approved in September 2013, but our customer was still able to start production for its customers in May this year," says Axel Bolowich, Sales Director Surface Coating at Sprimag.

The close collaboration with the customer meant that the second system could be designed even more efficiently. Based on the knowledge gained with the first system, system components were optimized, cycles improved, and processes further developed. "We see ourselves not only as a system supplier, but also as a service provider. It goes without saying for us that customers should continue to receive support even after the system has been commissioned. It is only by working hand-in-hand with the customer that we can offer the best possible service and superior quality," underlines Bolowich. Service requests can also be responded to quickly and flexibly thanks to the integrated remote control system.

Stringent demand for quality

With its expertise and experience in the field of coating and thanks to important investments in new technologies, Cosmelux has become a leading company in the surface treatment industry on an international scale. The owner-operated company, with the second generation now on board, continuously invests in the future of its business. As such, Cosmelux is currently expanding its product range to include pad printing machines so that it can better serve the market as a whole. Annalisa Mariani has a confident outlook: "By expanding, we will be able to perform the complete finishing process in-house. As a result, we are raising the bar when it comes to quality."

» axel.bolowich@sprimag.de



Removing dust of the parts in a brushing station



By ionizing the parts remain dust-free



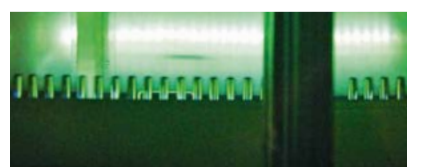
Activation of the surface via flame treatment



Reduced overspray by precise coating and coordinated systems engineering



The PVD system is integrated fully automatically



Small footprint due to fast processes (UV-curing)



Up to 18,000 parts per hour are coated on the Sprimag machine

interview

Efficient surface finishing with PVD systems

The company VTD – Vakuumtechnik Dresden GmbH is a manufacturer of PVD Systems, Uwe Heydenreich explains in the interview, which challenges they have to face and in which areas the process is used

The PVD process has been a fixed component of coating technology for some years now. What exactly does the term "PVD" mean? PVD stands for Physical Vapor Deposition and refers to a physical procedure whereby physical processes cause the source material to become gaseous and move to the object which is to be coated. It then condenses, forming the actual coating. Typical PVD processes for coating plastics are evaporation and sputtering. In evaporation, the source material is heated by a filament and evaporates. In sputtering, the target material is atomized by gas ions (mainly argon).

In which areas is the PVD coating predominantly used?

PVD processes are used in a variety of areas in thin-film technology: To coat wafers in the semi-conductor industry, to coat architectural glass, lenses and tools, or even to finish plastics, to name just a few applications.

Which conventional coating methods are being replaced by PVD?

I would not say that conventional methods are being replaced. Every coating process has advantages and disadvantages. On the other hand, some products would not exist without PVD. When coating plastic parts, the combination of paint (2-component or UV-paint) and PVD can replace electroplating.

What are the main advantages of the PVD coating compared with conventional methods?

One benefit of PVD compared with electroplating is, for example, that it does not use any environmentally-critical source materials. The extremely thin layers also mean that savings on material can be made.

How has the PVD coating method developed over the past few years?

In the area of coatings for plastics parts, the sputter method has won out against thermal evaporation time and again. In thermal evaporation, the evaporation material is only enough for one production batch. It then has to be reapplied by an operator. A sputter

target, on the other hand, is enough for several hundred or thousand batches and only has to be replaced once a week. This means that parts can be coated fully automatically and integrated into complex production lines.

How are the developments for new areas of use for PVD coatings, such as in the area of exterior automotive parts, progressing?

Combining different coating methods always presents a particular challenge. Generally speaking, it involves a base layer of paint which, amongst other things, evens out the smallest bumps in the basic part, but which also ensures high adhesion to the plastic part. The PVD coating – made of chrome, for example – is applied to this layer of lacquer. This, in turn, is protected by a top coat of lacquer. The coating system must meet high requirements such as those for scratch protection, stone chip resistance, color fastness and resistance to heat, cold and moisture. Together with our development partners in the area of paint and UV, we have made significant progress over the past few months and we are optimistically looking forward to a market launch in the near future which would involve approval of the process by automotive manufacturers.

What are the other application areas for PVD coatings? For us at VTD Vakuumtechnik Dresden GmbH, using PVD is also significant in terms of wear protection. The coating of engine components in particular in order to reduce friction and, therefore, to ultimately reduce CO₂ emissions, will

become increasingly important throughout the world over the next few years.

Our customer Cosmelux uses a VTD sputter machine for the PVD process. What was the challenge associated with this project?

The coating of cosmetics packaging parts involves a combination of various sophisticated processes whereby the PVD coating method is just one of these. The challenge associated with the machines for Cosmelux was to achieve the identical metalization of different parts in a variety of shapes with a high gloss level. As we had already implemented a machine for Cosmelux, we had the relevant experience which helped us to develop the second machine.

Thanks to experience and the excellent cooperation and coordination with the various project partners, we managed to implement the project smoothly and on time. We consider Sprimag to be an important and reliable partner and we look forward to undertaking further joint projects.



our Interview-Partner

Uwe Heydenreich

Uwe Heydenreich has been CEO of VTD Vakuumtechnik Dresden GmbH since April 1st, 2014. Previously, the qualified physicist worked as a sales manager for several years and engaged various positions in the service and application area at suppliers for the semi-conductor industry. He worked at Leybold Optics Dresden GmbH as a process engineer, and later as Director of Research and Development and as a plant manager at a manufacturer of thin-film silicon photovoltaics modules.

VTD Vakuumtechnik Dresden GmbH

VTD was founded in 1991 and manufactures technology and customer-specific vacuum coating machines. The Dresden-based company emerged from VEB Hochvakuum Dresden (HVD) which was founded in 1960. Since 2003, VTD has been part of the IST METZ international group and, with around sixty employees, generates an annual turnover of ten million euros.

VTD's product portfolio includes vacuum coating machines for

- the metalization of plastic, glass, ceramics and metal
- functional and decorative PVD hard coatings
- precision optics coatings

With the PVD machine "META ROT", the cosmetic parts are metallized at Cosmelux



anniversaries 2014

10TH ANNIVERSARY

Matthias Etzel
» Electrical Project Engineer
Alexandru Saya
» Electrician
Matthias Schlenker
» Warehouse Staff

40TH ANNIVERSARY

Andreas Bauer
» Mechanic



25TH ANNIVERSARY

Georg Langer
» Mechanical Project Engineer
Rainer Mendl
» Manager Engineering

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

new colleague

New Head of Customer Service

Since July 1st, 2014, Mark Gotzmann has been head of the Customer Service department at Sprimag in Kirchheim, Germany. The qualified industrial electronics engineer started his career at Siemens AG in Regensburg. He came to Sprimag in 1999 and was initially employed as an industrial assembler, carrying out assembly and commissioning work all over the world. He then moved to the Customer Care department and worked as a service technician in the Packaging and Coating area providing customer service. In 2007, after spending a year in the Construction department at Sprimag, he took over management of the Electrical Assembly and Further Training area. From 2012, he was responsible, as a project manager, for the installation of new machines at Sprimag Brazil and was Head of Customer Care there for the latter half of the year. Marc Gotzmann has many years of experience which he has gained from working in Germany and abroad, as well as extensive knowledge of customer care and will do his best to help you with service-related queries.



» Mark.Gotzmann@Sprimag.de

imprint



Sprimag
Spritzmaschinenbau GmbH & Co. KG
Henriettenstrasse 90
73230 Kirchheim/Teck
Telephone: +49 (0) 7021 579-0
Fax: +49 (0) 7021 41760
info@sprimag.de

Managing Editor:
Bettina Maier-Hermann
(Responsible for content)

Design and Production:
pr+co GmbH,
Tine Bärthel, Martin Reinhardt
Fuchseckstrasse 7
70188 Stuttgart

Picture Credits:
Cover: © picsfive - Fotolia.com
P.3 above: Cosmelux, Shutterstock
P.4 Interview: VTD
Other pictures: Sprimag

Reproduction and Printing:
GO Druck Media GmbH & Co. KG
Einsteinstrasse 12-14
73230 Kirchheim / Teck

calendar 2015

Aerosol & Dispensing Forum
February 04 – 05, 2015, Paris,
Espace Champerret
www.aerosol-forum.com



Cannex & Fillex Asia Pacific
June 01 – 04, 2015, Guangzhou, China
Sprimag booth 525
spgevents.com/cannex-fillex

