Eco-Efficiency Analysis for car manufacturers

New basecoat plant in China

Coil coatings on growth path
Dear readers,

**Sustainability is a pivotal subject** of our time. The definitions are many, and implications are far reaching. As the industry-leading global supplier of paints and coatings, we have the unique position to use the power of chemistry as a driver for a more sustainable world. At BASF, our goal is to develop a highly efficient integrated process for coating automobiles which improves business sustainability, and, at the same time, reduces organic solvent emissions and the environmental footprint.

**One of these high-performance processes** is our new ColorFuse™ technology. ColorFuse is a coating technology tailored to customer needs that was developed and registered in North America. It is used in a streamlined coating process that reduces the baking steps required from three to two. Moreover, with ColorFuse, the film thickness can be significantly reduced.

**And isn’t that** what creating a more sustainable world at BASF is all about? Driving sustainable solutions and developing innovations to make our customers more successful.

Here's wishing you an enjoyable read of the new Coatings Partner E-Journal, and of course creating inspiration for our ‘more sustainable world’.

Best regards,

Juan Carlos Ordoñez
Senior Vice President
Coatings Solutions North America

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A new study conducted by BASF and Dürr enables car manufacturers to improve eco-efficiency of OEM coating.

COMPREHENSIVE, EFFICIENT

**Integrated Processes** without primer or with wet-on-wet application offer significant advantages for OEM coating for both business and the environment. On top of that, modern paintline and application technologies can considerably boost eco-efficiency. These are the findings of the recent comprehensive Eco-Efficiency Analysis performed by BASF and Dürr, which used a holistic perspective to examine the paintline and coating technology. The results of the study permit the two companies to individually improve the eco-efficiency of OEM coatings at the car manufacturers’ plants.

**The coating process is one of the most energy-intensive process steps** in industrial automotive manufacturing. Volatile organic compounds (VOCs), energy consumption and CO₂ balance play a major role. “The study confirms the path we have consistently followed for some three decades as we have developed waterborne, solvent-reduced or solvent-free paint systems. For instance, as early as 25 years ago, we introduced the first waterborne paint for OEM coating. We’re pioneers and technological leaders in this area,” said Dr. Walter Jouck, head of technology management at BASF Coatings.

**The eco-efficiency analysis** developed by BASF looks at environmental impact in proportion to a product’s cost-effectiveness. It helps BASF and its customers decide which products and processes are the best choice for a defined purpose, both ecologically and economically. To this end, the Eco-Efficiency Analysis examines the entire life cycle of a product or process from raw materials sourcing to product manufacture and use, as well as disposal. The most important results of the current study refer to coating processes with primer, shortened coating processes and the use of state-of-the-art paintline and application technologies.
Waterborne systems
In processes with primers, BASF and Dürr studied the most important versions of solventborne and waterborne paint systems used in industry. The detailed findings show that waterborne processes consume more energy (air conditioning of the spraybooth and an additional intermediate dryer), thus causing more CO₂ emissions than processes with solventborne paint. On the other hand, waterborne processes involve significantly lower emissions of solvents (VOCs). As a result, in the study, the waterborne processes show overall good results with respect to eco-efficiency.

Integrated processes
Integrated processes are shortened coating processes in which the primer and, in turn, a baking step are eliminated. In the eco-efficiency study, both solventborne and waterborne integrated processes were evaluated compared to conventional primer processes. The results show a clear advantage for the shortened processes with regard to energy consumption, CO₂ balance and VOC emissions. For instance, energy consumption and CO₂ balance are each reduced by approximately 20 percent. When the potential for saving VOCs is compared, a significant improvement between waterborne standard processes and waterborne integrated processes is revealed. In general, for this reason, the integrated processes show a significantly higher eco-efficiency compared to the conventional primer processes.

Modern paintline and application technologies
Improved modern paintline and application technologies can considerably boost the eco-efficiency of the coating process. For example, significant potential for savings is yielded with respect to the energy consumption of the spraybooths if they are operated with recirculating air. This technique allows the solvents to be removed efficiently from the spraybooth air by means of post-combustion. As a result, the eco-efficiency can also be significantly improved with solventborne processes.

Eco-Efficiency Analysis

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Coatings Partner
Young Hwan Park, key account manager for Asian customers in Europe, proudly looks at the red Solaris in the showroom of Hyundai – it’s the first car that was produced in the St. Petersburg plant. On the hood of the car shine the signatures of the chairman of Hyundai, Mong-Koo Chung, and the Russian president, Vladimir Putin. The color comes from BASF.

Since September 2010, production at the Hyundai/Kia plant in St. Petersburg, Russia, has primarily focused on the Solaris, a compact car specifically developed for the Russian market, and Kia Rio. The cars are coated with paints from BASF. In order to support Hyundai with the coating process and to ensure it goes without a hitch, three Russian BASF colleagues, Igor Nosov, Anton Rodignov and Artem Spirin, work at the plant day in and day out supported by Jae-Hyoung An, who is the technology manager for Hyundai/Kia Europe. Together, they make a perfect Russian/Korean team for the Asian customer at the Neva River.

Jae-Hyoung An makes his rounds of the paintlines. He talks with the Hyundai employees and uses his trained eye to examine the quality of the coating. “It’s a good day for me when the ‘okay’ rate is high. Which is the case on most days with more than 90 percent,” said Jae-Hyoung An, smiling. A high rate means that many bodies have been coated perfectly. The Korean technician has 13 years of coating expertise under his belt. Since the plant launched operations, he has worked for BASF in St. Petersburg. He finds international work particularly fascinating. “We also cooperate closely with the colleagues in Würzburg and Münster. For that reason, I speak fifty percent Korean and fifty percent English on the job.” And he is doing his job with one hundred percent commitment.
Jin Hur has been a group director at Hyundai for years. From the very beginning, he has headed the paintshop in St. Petersburg. He has also been working with BASF at the plant from day one.

**How do you feel about working with BASF?**
BASF is a good partner, because the company understands what we need. The start-up here in St. Petersburg was still a bit bumpy, and we first had to get used to the technology and the work together. In the meantime, everything has worked out.

**What is so special about BASF?**
The service performed by the employees is very good. The team members are international, like we are, and have a high level of expertise. And BASF’s excellent reliability builds on this. Also the long-term competence in the field of water-based paints is important for us – sustainability is becoming increasingly important. I’m seeing constant refinement.

**What exactly do you mean?**
BASF quickly understood how we tick. In response, technologies were adapted, the process was modified, and the colors were refined.

... and contributed to the fact that Solaris became the car of the year?
And not just that. The quality of the application is very high. We rarely have off-quality jobs and we are the benchmark in the Hyundai Group. In the end, quality and reliability are always key factors. With BASF, we have a good partner in this respect.
New basecoat plant in China

BASF is investing in a new basecoat plant at the Shanghai Chemical Industry Park in China.

The investment represents an important step to strengthen BASF’s position as a leading coatings supplier to the automotive industry in China. Basecoat gives color to the car and determines its visual impression.

The new coatings plant is planned to start production in the first half of 2014. It will be designed according to the latest and most environmentally friendly manufacturing processes and technologies. BASF Shanghai Coatings Company Limited is a joint venture with 15 years of successful partnership between BASF and Shanghai Coatings Company Ltd. The joint venture is already running a production facility in the district of Minhang in Shanghai.

“In China, BASF has been reliably supplying coatings to international and domestic car makers for more than 15 years. As a long-term partner, we have witnessed how China has become a world leader in automotive production,” said Peter Fischer, Senior Vice President, Coatings Solutions Asia Pacific at BASF. “Our investment in additional local coatings production facilities reflects our commitment to address the current and future needs of our automotive customers in this dynamic market.”

“With our latest technologies, innovative coatings solutions and processes, we will continue to invest in strengthening our infrastructure to support the growing automotive industry in China,” Fischer continued.

BASF is the coatings supplier who introduced waterborne basecoats to China in 2005. It is also the world’s number one chemical supplier to the automotive industry. The company offers a wide range of products for use in the automotive industry throughout the value chain, for automotive manufacturers and suppliers and in customer service.
Eco-efficiency plays an increasingly important role

Dr. Thierry Herning, responsible for BASF’s automotive OEM coatings business in Greater China, talks about the development of the Chinese market.

Mr. Herning, how do you assess the development of the automotive OEM coatings industry in China?

China is the largest car production market in the world. We expect close to 10% growth in the Chinese automotive OEM market in 2013 and we are confident about the development of the Chinese market in the following years. The market size for automotive coatings is reflected in the development of the automotive industry. With our latest technologies, innovative coatings solutions and processes, we will continue to invest in strengthening our infrastructure to support the growing automotive industry in China.

What are the specifics for the Chinese market?

The automotive market in China is developing steadily. Local car manufacturers are gaining importance. At the same time, the demands of the automotive OEM industry are growing in terms of quality and innovative eco-efficient technologies. In addition to the brand and the engine power, color is becoming increasingly important for car owners. It provides an identity, individuality and, as a result, character. This is also reflected in the growing popularity of SUVs (sports utility vehicles) in China. We have regional and local design teams working together on defining the automotive color trends of the Chinese market.

How important is the topic “sustainability” in Asia, especially in China?

Eco-efficiency plays an increasingly important role. Starting 2012, the Chinese government has put waterborne primer and waterborne basecoat as a mandatory requirement for new sedan manufacturing. Regulations and emissions standards will continue to tighten. New automotive OEM plants work primarily with integrated, short processes which help to save energy and improve productivity. Here we are very well-positioned with our Integrated Process II (IP II) that enables customers to operate processes with higher energy efficiency.

Our Coatings Division recently conducted a comprehensive Eco-Efficiency Analysis of the application process and looked at the environmental impact in proportion to a product’s cost-effectiveness. This allows us to provide our customers the best possible advice to identify further potential for improvement. The Eco-Efficiency Analysis helps us to contribute to sustainable development, quantify it and visualize it. Together with our customers, we support our strategy “We create chemistry for a sustainable future”.

How will BASF ensure safety and sustainability at the new site?

BASF globally follows the Responsible Care® protocol and has a dedicated strategy to support sustainable development. The new plant follows the strategy by implementing BASF’s high global standards of environmental protection technology.
“Restoring classic cars is an adventure that calls for the right partners”

As the world’s largest car museum, the French national car museum Cité de l’Automobile – Collection Schlumpf in Mulhouse, Alsace, contains over 500 historic luxury and racing cars. Within the scope of a cooperation, Glasurit®, BASF’s premium paint brand, is supporting the museum with the restoration of the vehicles. Glasurit brand manager Ignacio Cabrera shares a passion for classic cars with Richard Keller, head curator of the Cité de l’Automobile.
Mr. Keller, what is your responsibility as the head curator of the museum?

**Keller:** Together with our restorers, I decide how we can best conserve our vintage cars. As a museum, we are bound to observe a certain set of ethics. It is crucial for us that our exhibits remain historically authentic. For this reason, the most important thing in my profession involves revealing the restoration history of the individual objects.

**What does that mean?**

**Keller:** For each car, we have to individually decide how we wish to proceed: Should we conserve the finish in its present condition, or should we re-create the original condition by means of restoration? In most cases, the questions outweigh the answers during this process.

**So the main objective is not to restore all cars to their original state?**

**Keller:** No, not at all. Take the Schlumpf brothers, for instance. They reworked a number of cars in their collection to reflect their own ideas and, in so doing, put their very personal touch on them. This “Schlumpfization” is now part of the car’s identity, and we want to retain it.

**What role does Glasurit play in this process?**

**Keller:** Restoring classic cars is an adventure that calls for the right partners, people who match our requirements and understand our high expectations. In order to conserve a vintage car, you need much more than just a supplier for the right paint; you need specialists with a great deal of expertise you can talk to about the background questions.

**Cabrera:** Glasurit is a long-established BASF brand. We have been working with the automotive industry for a long time. Glasurit has decades of experience, expertise and comprehensive databases for Classic Car Colors. This allows us to restore the visual appearance of the original coating exactly — and even improve the color.

**What do you mean?**

**Cabrera:** Our modern coatings are often significantly more robust than the original colors and protect the body better from rust and other environmental impacts. So we ensure that restored cars can be conserved for the future at the same time.

**How did the cooperation between Glasurit and Collection Schlumpf come about?**

**Cabrera:** We owe our contact to the colleagues at Glasurit in France and their good connections in the restoration scene. For the 100th anniversary of Bugatti in 2009, the Cité de l’Automobile wanted to restore several prototypes, but they had trouble finding the right color. The restoration expert involved in the project recommended Glasurit. The cooperation developed from this work together.

**Keller:** As part of the partnership, we are also planning to be involved in 2013 — together with Glasurit — in the “Sleeping Beauties of Former Times” exhibition in Kassel, Germany. Around 40 non-restored rare classic cars from the museum’s collection, previously
unseen by the public, will be exhibited to celebrate the 1100th anniversary of the city of Kassel.

**Mr. Cabrera, why are classic cars an interesting market for Glasurit?**

*Cabrera:* The topic of sustainability plays a major role for us and, in the broadest sense, that’s exactly the focus of the classic cars: preserving values and traditions. Many premium car manufacturers are represented in the classic car sector, and for us, it’s a unique opportunity to help our customers find the right solution for their car and create history together with these brands.

**What does the “right” color mean for a classic car aficionado?**

*Keller:* The color tells the history of the car. The patina that forms over the years lends the car its identity. However, in contrast to the body, for example, the finish is much more exposed to damage and changes. All it takes is a brush and a can of paint to do damage through unprofessional paint application.

**How do you explain the fascination we continue to have with classic cars?**

*Keller:* These cars are an integral part of our history, and not just because they exemplify technical refinement. They stand for a certain historic moment, the ideas and visions of the society in which they were built.

*Cabrera:* That’s right. That’s why we connect classic cars with certain associations and emotions, and it’s important to maintain this connection.

**Do you own any classic cars yourself, Mr. Keller?**

*Keller:* No, I don’t. As a curator, I have excellent connections to the classic car sector and, as such, have a lot of insider knowledge about good prices. It wouldn’t be right to exploit this professional advantage for my personal pleasure. But that’s really okay, since during my day job, I actually have 600 vintage cars (laughs)!
The joy of experimenting

A new and unusual tinting base is now enhancing the waterborne Glasurit® 90 Line refinish system, which celebrated its 20th anniversary in 2012.
Car owners who value an extravagant appearance of their vehicle will love the new color by Glasurit, BASF’s premium brand: The lime yellow tinting base contains a highly pure, transparent greenish yellow pigment that gives shades of yellow a green undertone and green special-effect colors a yellow undertone both at face and side view. Customers who love to experiment will find that the possibilities are endless.

With the new Glasurit 90-A 155 lime yellow, bodyshops can obtain more accurate refinish colors, both for yellowish-green and greenish-yellow special-effect coatings. With this extraordinary color, Glasurit has once again expanded the range of one of the most successful basecoat systems worldwide.

In 1992, Glasurit celebrated the premiere of its waterborne paint system. Twenty years later, thanks to its ongoing development, it is the preferred waterborne basecoat system of most of the bodyshops worldwide.

Glasurit 90 Line has made automotive refinishing future-ready and environmentally friendly. “Thanks to the low solvent content, with 90 Line, bodyshops have no problems complying with the current VOC regulations,” explained Dr. Thomas Krüger, head of Technology Management for Automotive Refinish Coatings at BASF. 90 Line has always stood out for its color accuracy, which is due to the perfect interplay between basecoat system and color system.

The integrated Glasurit Color Profi System makes it possible to reproduce more than 164,000 colors, simply, quickly and reliably. Glasurit is developing the technology on an ongoing basis. “To ensure that 90 Line continues to meet our customers’ demands worldwide, Glasurit is constantly working on innovations and improvements,” said Krüger. “We continuously expand the range of mixing bases to enable precise matching of the latest solid, metallic and special-effect colors.” The new Glasurit 90-A 155 lime yellow is a perfect addition to the line.
New app: Color Online for smartphones

Color Online’s practical color search and calculation program is already available on the Internet. Now, a new app also makes it available via smartphone. The app allows refinishing solutions to be found at any time, even in remote areas of the bodyshop or enroute. With the easy-to-read user interface, it is possible to search by either the color code or the color name and to calculate the matching mixing formula in line with requirements.

You can download it directly from your Google PlayStore or AppStore – for free, of course. Just type in “Glasurit” in your search field.

New primer filler: Three good reasons

The new Glasurit® Primer Filler Pro can be applied directly to metal, which leads to shorter process times. In the past, spray-painters had to decide which primer filler property was more important: the outstanding corrosion protection of the epoxy technology or the excellent sandability of two-component HS primer fillers. Glasurit’s innovative technology has eliminated this difficult decision, since Glasurit 285-270 Primer Filler Pro and Glasurit 929-58 Filler Hardener Pro combine the two properties. In addition, you no longer need to perform priming beforehand. Here are three good reasons for using the new technology, which is available throughout Europe:

- **Efficiency**: The new primer filler can be applied directly to metal, which leads to shorter process times.
- **Corrosion protection**: The primer filler offers outstanding corrosion protection.
- **Sandability**: The primer filler provides excellent sandability.

Customer Support Platform

How can bodyshops work more successfully and stand out from the tough competition? In 2012, BASF and Glasurit distributors have hosted two successful customer conferences in Sydney and Melbourne themed “Change”. Apart from promoting a lively exchange about future challenges and opportunities for bodyshops, the events introduced the new Glasurit Customer Support Platform. “Our Glasurit Customer Support Platform can help bodyshops improve their business and profitability. The platform enables bodyshop owners to make informed decisions – from reviewing their product usage to training of their employees,” said Ian Wilkinson, business director for Coatings at BASF Australia.
COLOR YOUR LIFE

Individualization is an important trend in the paint market. Suvinil®, BASF’s leading brand for decorative paints in South America, offers innovative products that help customers to design their homes exactly the way they want it.

What about a colorful, antibacterial paint for a healthy climate in the nursery and wipeable kitchen walls? And why not a touch of mat beige for the bathroom? People want more variety – and the market is responding by launching new, more customized products.

“You will see this trend for all kinds of products,” said Ana Pugina, marketing manager for Suvinil in Brazil. “For example, just think about margarine. A few years ago, a margarine brand would have offered just one taste in one size and the promise of a high-quality product. Today, the same brand has light products, flavored products, and sizes covering everything from single households to big families. This also holds true for soft drinks, mobile phones, cars and whatever you can think of.”

For Suvinil, this trend towards more individualization is an important motor for innovations – of course while also keeping in mind established quality standards. This is why during the development process, we always ask ourselves: How can a paint fulfill the customer’s wish for individualized colors and surfaces while at the same time offering a sustainable and high quality, easy application and a healthy home?

“The development of a new product is the result of merging many different factors,” explained Pugina. “We consider the customers’ wishes, the products already available on the market and the economic viability of our innovation. At the end, it is always great to see a new product leaving the blueprints and going to the paint stores – and to know that shortly after that, it embellishes the customer’s walls.”
With a robust economy showing over eight percent growth in the past two years and continuing strong domestic demand, Turkey is considered to be a booming and highly attractive market. Coil coatings applications for aluminum and steel panels are also becoming increasingly significant, both in the construction industry and in the “white goods” sector, i.e., the household appliance industry.

**BASF, whose coatings business has been present in Turkey for around four years with a site in Istanbul, has therefore become an important partner for the industrial coatings industry in Turkey itself and for the surrounding countries in the Balkans and the Middle East.** “We started by collaborating with our Turkish customer CoatCoil,” reported Dr. Thomas Brücken, account manager for Industrial Coatings and responsible for Turkey. BASF built a Pevicoat unit for CoatCoil, who needs to respond to the orders of the steel- and aluminum-processing industry quickly and flexibly. Today, this modern mixing unit allows the customer to mix paints independently on site. BASF supplies the intermediate products, remains responsible for maintaining the unit and also trains the employees. A second coil coating line with a state-of-the-art vertical oven was put in operation just over a year ago.
“This cooperation is a prime example of the excellent collaboration between BASF and a coil coater,” Brücken said. Other customers in Turkey are also increasingly choosing the professional cooperation with the world’s leading chemical company. BASF’s first appearance at the 2012 TURKEYBUILD building show in Istanbul also proved to be an important platform. The company teamed up with customers at the TURKEYBUILD. “The number of coil coating units in Turkey is growing rapidly. One reason for appearing at the TURKEYBUILD was to establish new contacts,” reported Mehmet Uzel, who works for the Industrial Coatings unit in Turkey. Uzel is pleased with the results, reporting that additional promising discussions with potential new customers had come about. “Our joint appearance at the show allowed us to profile our proximity to our customers, one of BASF’s particular strengths,” Uzel said.

Proximity to the customers was in fact one of the reasons behind BASF’s decision to distribute coatings produced in Europe exclusively via the regional center in Istanbul. “Order-processing and the entire logistics procedure now take place in Turkey,” Brücken said. And since the Turkish coil coating panel processors – not only in the construction industry – are operating on an increasingly global basis, including the Middle East, Central Asia and North Africa, this on-site work allows BASF to address the growing demand, also for high-quality polyester or PVDF coatings. The special climate conditions highlight the advantages of these extremely light-stable and weather-resistant products, making them particularly well-suited for use in these regions.

BASF solutions: New brochure on coil coatings

The range of applications for coated coils is immense, extending from refrigerators to roof coverings and even building façades. To present new information on this industrial coatings area, BASF has prepared the brochure “Coil Coatings – Solutions made by BASF” which is geared toward customers and users in the metal-working industry. For instance, in addition to the classic coating process of aluminum or steel coils, the brochure describes a new, shorter workflow in which pretreatment and priming with a waterborne pretreatment primer from BASF is implemented in a single step.

You can download the brochure free of charge at www.basf-coatings.com
BASF is the world’s leading chemical company: The Chemical Company. We use research and innovation to help our customers in nearly all industries meet society’s needs, both today and in the future. In the Coatings Division, BASF develops, produces and markets a comprehensive portfolio of high-quality automotive OEM, automotive refinish and industrial coatings as well as decorative paints. We have significant market positions in the regions of Europe, North and South America and Asia Pacific.