

TROUBLESHOOTING COATINGS DEFECTS

Presented by METROPOLITAN NEW YORK COATINGS ASSOCIATION

ABSTRACTS

DAVID A. HURWITZ, EDICA-GARNETT PARTNERS, LLC **BRAVE NEW WORLD IN PAINT & COATINGS, *MORE OF THE SAME ONLY DIFFERENT***

ABSTRACT: In recent years the NA/US paint and coatings industry has endured a significant economic downturn from which recovery is still an uncertain outcome. Some segments of the market have seen real and likely permanent contraction in their demand while others are simply waiting for the turnaround to gain traction and bring about a recovery in volume and revenue. Through all of this the standard mantra of VOC regulations, technology evolution, industry restructuring and consolidation continues unabated. The opening line of most industry articles since the mid-1970s, VOC regulations are driving change in the industry, still applies but it is not the whole story. Brave New World - *More of the Same, Only Different* will outline the key issues for the paint and coatings industry in North America, within what is an increasingly global industry, discuss a new market outlook and explore a pathway forward that suggests that "there might be a light at the end of the tunnel!"

ROBERT YAGER, RATIONAL THINKING, INC. **TROUBLE SHOOTING DIFFICULT OEM COATINGS**

ABSTRACT: Many problems that arise in the manufacture and application of coatings are quickly solved. Chemists, technicians, supervisors and operators are often very familiar with the possible causes of defects and can locate the specific cause of a problem quickly. When the cause is not immediately obvious, solving the problem can be much more difficult. Several possible causes may be investigated before the true cause is found. In the worst case scenario, a totally new or very rare and unknown cause is involved. In these cases money is lost and company reputations suffer before the cause is finally determined. These tough investigations can go much more smoothly if a process of standardized questions called, "Facts Analysis", is used to gather and evaluate all of the pertinent facts. On the surface some of these facts seem unlikely to point to the cause. In actual practice, seemingly insignificant facts can be surprisingly powerful in pointing to the cause of the problem. We'll show you, with real life examples how a simple, practical set of ten predetermined questions can lead to effective and efficient resolution of your problem. Finally, we offer our question list that can be easily customized to your individual situation.

JADEL BAPTISTA, COLORTREND USA, LLC **NEW ADVANCES IN SOLVENT BORNE COLORANTS TECHNOLOGY**

ABSTRACT: The coatings market is facing sustainability challenges due to tightening of VOC regulations. With the movement to "environmentally friendly" materials, coating formulators are evaluating their formulations and adapting them to meet new regulations by using "green" raw materials. In order to comply with market requirements for industrial solventborne coatings, lower VOC colorants were developed. These colorants will allow formulation of tinted coating that meets the required VOC regulations without compromising coating performance.

These lower VOC colorants are volumetrically and gravimetrically dispensable for both in-plant and depot tinting of high performance industrial coatings, i.e. acrylics, alkyds, cellulosic lacquers, chlorinated rubber, epoxies, polyesters, polyurethanes, melamine formaldehyde and vinyl paints. Their VOC is below 250g/L, allowing industrial coatings to be formulated at a reduced VOC level, while maintaining performance as compared to the industry standard. The state of the art pigments were selected to provide broad color space, good durability, lightfastness and chemical resistance, with tinting strength controlled to +/- 2% by volume and DE=0.5.

In this presentation the impact of these lower VOC colorants, compared to the industry standard in different industrial coating chemistries, will be discussed.

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DR. ROMESH KUMAR, CLARIANT CORP.

COLORED PIGMENTS: CHEMISTRY & PERFORMANCE – A TECHNICAL PRESENTATION

ABSTRACT: Pigments are chemicals that absorb and scatter visible radiations, and are generally dispersed in a medium to create an appearance, known as color. There are over 800 commercially available pigments, about 90% organic (based on C, H, N, type elements) and the rest inorganic (based on metals like Fe, Ni, Cd, Pb, Cr, Bi etc), which offer a number of choices in shades, cost of use, and other properties. Formulator's common dilemma is, organic pigments, what is good for what application?

Organic pigments offer high chroma, bright hues, and a variety of opacity, durability and other key properties which determine their suitability in specific applications. Inorganic pigments on the other hand are opaque, have relatively dull hues and lower tinting strength, but good resistance to chemicals, and weathering properties. A combination of key organic and inorganic pigments is very important to achieve a most cost effective color recipe for the given application.

Organic pigments, although relatively large in number, can be classified in two main chimerical types, Azo, and Polycyclic chemistries, however offer a number of choices in physical and chemical properties. In each category, light and weather fastness properties vary from strictly interior, to very high end exterior durability applications. Same can be said about the heat stability, which determines the suitability for air drying to baking systems. Opacity varies from being close to inorganic pigments and similar to those of dyes. It is very important to understand the limitations, such as heat stability, solvent resistance, weather fastness, and opacity for proper selection of organic pigments for a given application.

In this presentation, discussion will focus on, basic chemistry, physical and chemical properties, and a comprehensive guide to selection of organic pigments for your applications. Only 15-20 pigments are necessary to achieve most formulations in most systems. Some important references are given below.

RICK CALDWELL, FORBO BONDING SYSTEMS

OPTIMIZING ENVIRONMENTALLY FRIENDLY VINYL ACETATE ETHYLENE BASED COATINGS USING DESIGN OF EXPERIMENTS

ABSTRACT: Forbo Bonding System has developed and is introducing a new ultra-low VOC, non-APEO vinyl acetate ethylene latex for the architectural coatings market. As part of the commercialization program, Forbo is actively evaluating different types of paint formulations and raw materials. The purpose is to be able to show customers how to develop the best paint formulations possible based on this new latex.

Statistical design of experiments is proving to be a very useful tool in this effort. This presentation will review statistical design – the thought process of setting up a project, whether to use a factorial or mix design, and how design software literally guides the user in both setting up the experiment and analyzing the data. Some common myths about DoE – glorified ladder study, the need for pinpoint experimental accuracy, too many samples, too complicated, extensive statistical background required - , will be discussed.

The second half of the presentation will show an application of design and experiments to optimize a satin finish coating based on Forbo's new state-of-the-art vinyl acetate ethylene latex technology. Four critical properties will be looked at: burnishing, color float, block resistance, and cleansibility. Results of this work, including identification of the optimum composition, will be presented.

The goals of the paper are to showcase Forbo's new VAE technology and to make the paint formulators more comfortable with design of experiments as a useful paint optimization and troubleshooting tool.

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THOMAS A. PAPASSO, EVONIK DEGUSSA CORP.
NOVEL MATTING AGENT FOR LOW GLOSS UV COATINGS

ABSTRACT: While many technical advances have been made to produce low gloss, radiation curable clear coatings, they still present a challenge for most UV coatings manufacturers. Matting agents have been developed where particle size, treatment and structure have been modified to achieve low gloss. In this development, the combination of specific amorphous, synthetic silica combined with a specific Polydimethylsiloxane surface treatment was found to improve efficacy. Based on this experience, a new product especially designed for low gloss, high transparency and low viscosity was developed for UV-Coatings.

This presentation will feature results comparing this new generation of matting agent to the matting technology considered "state of the art" in UV application. The focus will be on gloss vs. viscosity behavior. Photomicroscopy based on REM and TEM-Thin-Cut will be used to demonstrate the performance of this unique new technology.

DR. RAYMOND STEWART, BAYER MATERIAL SCIENCE, LLC
ONE COMPONENT WATERBORNE DISPERSIONS -- KEYS TO GOOD
FORMULATING PRACTICES

ABSTRACT: Paint film defects have long bedeviled formulators regardless of the technology. Today's presentation will deal with helpful hints for formulating one component ambient cure topcoats and primers based on waterborne dispersions. Specific examples will be cited to help formulators use their time productively in the lab and in other phases of product development and commercialization.

PATRICK LOWERY, MUNZING
NEVER ENDING ADDITIVE BATTLE - THE IMPACT OF FOAM AND DEFOAMER
SELECTION ON SURFACE DEFECTS

ABSTRACT: Choosing the right defoamer has become more and more complex in the coatings industry. There are an abundance of products that vary in both carrier and active chemistry available in the market place but there is no one universal product. Defoamers are inherently complex in the way that they are formulated to be both compatible and incompatible in the end system. The right balance must be achieved in order to eliminate foam and not cause surface defects in the final coating. Most defoamers are selected based on their ability to defoam during manufacturing, packaging and application. In many cases there are multiple defoamers in one coating formulation, which is due in part to the fact that defoamer performance can be greatly affected by the variety of shear forces found in each of these stages. By choosing the right defoamer, one can minimize the potential of both foam problems and side effects due to overdosing a defoamer.