



**The following presentations are available in the 2011 Fall Convention Proceedings package.**

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## **Monday, October 17**

### **An Update on Historical Activity on Crude C24, Butadiene Styrene and SBR Markets**

*Bill Hyde, Chemical Market Associates, Inc. (CMAI)*

Markets for base petrochemicals are experiencing unprecedented conditions. The butadiene supply chain in North America has been especially impacted by the current market conditions. This presentation will examine the reasons for the current market dynamics and present an outlook for the future of segments of the petrochemical markets of particular interest to the adhesives sector.

### **U.S. Ethylene, Riding the Shale Gas Wave**

*William Lemos, ICIS Chemical Business*

This presentation will focus on ample ethane supply is behind a wave of new cracker projects in the U.S. The outlook for ethylene points to more supply in the years ahead, but an expected increase in the cracking of light feedstocks could further restrict propylene and butadiene production.

### **Global Energy: A View from 50,000 Feet**

*David Hughes, Post Carbon Institute*

Notwithstanding the best of intentions to convert to renewable energy technologies, the world still depends on fossil fuels for 84% of its primary energy consumption – and this is not projected to change significantly out to 2035 at least. Oil tops the list, contributing 35% of world- and 39% of U.S.-energy. As a globally traded commodity, oil remains highly susceptible to geopolitics, supply disruptions and price volatility. The U.S., being the world's largest oil consumer, depends on imports for 60% of its consumption, and is therefore particularly vulnerable. Natural gas and coal are not viable large scale substitutes for oil, and have their own limitations. Renewable energy technologies, even if they are scaled several-fold over current levels, will still remain a relatively small component of the total energy picture. This presentation looks at the big picture of energy and some of the issues facing North America and the world going forward.

## ***Education Track 2: Technical and Government Regulations***

### ***Formulation & Sustainability Focus***

#### **How SBC's Can Help You Face Raw Materials Shortage in the Adhesives Market**

***Alejandro Esquivel de la Garza, Dynasol, LLC***

This paper will discuss options for full SIS substitution with alternate formulations. New Dynasol polymer grades have been found to be viable for full SIS substitution. These polymer grades are compatible with a wide range of tackifiers, so producers can avoid the use of low availability tackifiers like C5. This paper will also discuss the details of this substitution option.

#### **Arriving at Green Chemistry: A Case Study in Integrating Sustainability into a Construction Chemicals Company**

***Michael Schmeida, Tremco Commercial Sealants and Waterproofing***

Many organizations struggle with the challenge of integrating green chemistry into their business and products. However, many organizations are at least part way to being able to integrate the principles of green chemistry into their practices and may not even realize it. This is and can be further accomplished by the sustainability programs many companies are developing or already have in place. An examination of Tremco Commercial Sealants and Waterproofing (CSW) will serve as a case study and provide sample techniques and ideas based on what CSW is doing to answer today's green chemistry question.

#### **Novel Amine-Functional Dimer Technology Allowing New Chemistry for Sustainable Adhesives**

***William McNamee, Croda Inc.***

Dimerised fatty acids are used in coatings and adhesives, where the low Tg and hydrophobic nature induce flexibility, hydrolytic resistance and adhesion to a wide range of substrates. New bio-based, amine-functional building blocks were developed, extending the range of dimer acids, dimer diols and dimer-based polyester polyols. This new technology brings benefits in many applications.

#### **Next Generation Dibenzoate Plasticizer Blend for Waterborne Adhesive Applications**

***Bill Arendt, Emerald Kalama Chemical LLC***

This presentation will focus on the next generation blend of dibenzoates being developed to match the needs in the waterborne market. An adhesive evaluation has been conducted to illustrate the efficiency and effectiveness of the first product in this new blend strategy. The results of the evaluation will be presented.

## ***Education Track 3: New Technology and Application***

### ***DIY/Big Box Focus***

#### **DIY Market for Adhesives and Sealants**

***Dave Nick, DPNA International, Inc.***

This presentation provides an overview of the market trends for adhesive and sealant products in the DIY market segment. Included is the market size by technology, product application and distribution channel.

#### **Who has the Competitive Advantage in an Online versus Big Box World?**

***Flora Delaney, Delaney Consulting***

Trends in online shopping will affect every industry. How will commercial customers and end consumers shop in the future for construction materials? How will big box retailers attract and retain customers? Which niches are most ripe for online dominance? Where should manufacturers and product marketers place their bets in a competitive world and gain market share across all channels? Retail consultant, Flora Delaney will forecast trends and how they will affect ASC members in the short and long-term.

## ***Education Track 1: Business Development and Market Trends***

### ***Alternative Energy Focus***

#### **Global Opportunities in Photovoltaic: Market Drivers and Segmentation**

***Reese Tisdale, IHS Emerging Energy Research***

The presentation addresses these key factors and the extent to which they are driving solar adoption. The analysis covers overarching regulatory mandates, developing cost trends, global solar landscape, and the economic environment impacting project build-out in the near- to medium-term.

#### **Photovoltaic (PV) Material Safety Certification Requirements**

***Crystal Vanderpan, Underwriters Laboratories Inc.***

Polymeric materials play an important role in the safety performance of PV modules. PV material compliance with established standards is essential for manufacturers who aim to have their modules certified by Underwriters Laboratories. Learn about the UL and IEC requirements for polymeric materials in PV modules, the preselection program, and more, which will help you get your PV polymeric materials to market faster.

#### **Future Trends of Roof-Mounted PV**

***Rob Haddock, Metal Roof Advisory Group, Ltd.***

PV is no longer just a fad. It is a burgeoning industry with falling prices, rising efficiencies, public policies and financial incentives that ensure a steep growth curve. The next several years will see these new technologies refined for cost-effectiveness and durability. This means that interface with rooftops will become a science that is increasingly sustainable for both PV and rooftop, increasing focus on the compatibility and real service life of both PV and roof. PV design will drive decisions in roofing types. What PV technologies really “fit” for rooftop arrays and why? What roofing technologies really “fit” for solar rooftops and why? How will these factors change the way rooftop PV systems are deployed?

#### **Adhesive & Sealant Application Technologies to Reduce Costs of Photovoltaic (PV) Module Assembly**

***Dave Deibel, Nordson Corporation***

This presentation will review and update developments since our original ASC solar technology presentation in fall 2008 regarding application technologies for adhesives and sealants to meet the challenge of reducing production costs for photovoltaic (PV) modules. Various assembly applications will be examined – encapsulation, glass-to-glass bonding, edge sealing, junction box attachment, framing – as well as automated means to enable applied materials more creatively, precisely, efficiently and cost-effectively. As has been experienced in other industries, an evolving assembly process that implements lower cost, bulk quantities of various adhesives and sealants utilizing more automated application technologies will further the goal to make solar energy use more affordable.

#### **PV Industry Trends and New Encapsulation Technology**

***John Naumovitz, Dow Chemical Company***

The PV Industry has experienced tremendous growth in recent years and is expected to achieve 25% CAGR in the future. Industry trends will be reviewed and several technology drivers for the industry will be discussed. Lastly, a new polyolefin-based encapsulant film for use in Photovoltaic Modules enabling improved performance will be discussed.

## ***Education Track 2: Technical and Government Regulations***

### ***Sustainability, Code and Testing Focus***

#### **NPE Surfactants - How Safe is Safe Enough?**

***Barbara Losey, Alkylphenols & Ethoxylates Research Council***

Nonylphenol ethoxylates (NPEs) are highly effective surfactants that have been used in adhesives and sealants for 50 years. Hundreds of studies have been conducted on NPEs and their breakdown products with mammals, fish and other aquatic species; the weight of the scientific evidence continues to support their safety to people and the environment at the concentrations that have been measured both in human tissues and environmental media. Despite this, the US Environmental Protection Agency (EPA) issued a Chemical Action Plan for NPEs and their breakdown product, nonylphenol (NP). The US EPA Design for environment program also plans to initiate an alternative assessment process to determine what constitutes a “safer” alternative to NPEs. The implications of US EPA addressing NPEs - and other adhesive and sealant raw materials - under the Chemical Action Plan and Design for Environment programs will be discussed.

#### **Trends and Solutions for Alkylphenol Ethoxylate (APEO)**

***Ben Radtke, Dow Chemical Company***

Alkylphenol Ethoxylate (APEO) surfactants face increasing global public and regulatory pressures towards their restriction or elimination in commerce. Despite these pressures, the fact remains that APEO chemistries uniquely enable a variety of commercial applications, which have proven to be avoid adverse impacts to human health and the environment. This presentation will highlight some of these public and regulatory pressures, and propose some solutions in these high-value, specialized applications.

#### **The Role of Service Life Prediction in Sustainability Determinations**

***Chris White, National Institute of Standards and Technology***

Sustainability calculations are based on assumptions about the energy required to produce, transport and install in-service items. A critical component of these calculations is the expected service life of the material, component or system. Estimates of the actual in-service performance are not based on scientifically validated methods or procedures. The resulting estimates have significant uncertainty because they are based on past performance or best guess estimates. Here we will detail the economic outcomes of typical choices on a new construction building joint sealant job based on available choices. Following this examination, we will detail the barriers and progress toward achieving a scientifically validated prediction of the in-service performance.

#### **Is Green Label Certification Relevant?**

***Jason Grengs, Pace Analytical Labs***

Market research has shown that even in a down economy, consumers continue to support products and services that demonstrate environmental sustainability and social responsibility and are looking for certification programs and labels that validate environmental credentials. Which green certifications are relevant to the adhesives and sealants industry?

## ***Education Track 3: New Technology and Application***

### ***Building & Construction, Spray Applied Systems Focus***

#### **What New Products are Changing the Rules, and What Products are likely going to be needed in the Future?**

##### ***Joe Lstibruek, Building Science Corporation***

We now have low density spray foams, high density spray foams, trowelled on air barriers, spray applied vapor retarders, gypsum sheathings that are faced and unfaced, tapes and sealants that are both happy and unhappy in cold weather and hot weather. With all of this new stuff still have fluffy stuff in steel stud cavities and tar paper. What is going on? What is working? What are some game changers? What is coming?

#### **The Emergence of Fluid Applied Membranes for the Building Envelope: Applications, Properties, and Standards**

##### ***Jim Katsaros, DuPont Building Innovations***

While the use of fluid applied membranes for air and water infiltration protection has been in place for many years, particularly for cementitious & masonry wall systems, technology enhancements have enabled broader, more efficient use of these products. This includes fluid applied membranes with high moisture vapor permeability, lower application temperatures, lower shrinkage, damp surface application, and enhanced elasticity to bridge cracks due to building movement. As a result, new applications for these products have emerged that are in line with commonly accepted Building Science principles. To elaborate, this presentation will report on new standards that have been developed for fluid applied flashing for the direct applied stucco / surface barrier CMU wall system, common to the coastal southeastern US region.

#### **Global Market Applications and Advancements in Blowing Agents**

##### ***Xuaco Pascual & Mary Bogdan, Honeywell- Specialty Materials***

Honeywell is a leading global supplier of blowing agents. In thermal insulation applications, blowing agents are used to create a cellular structure that provides superior performance characteristics. This talk will focus on the use of fluorocarbon blowing agents in the global insulating market. It will include a discussion of the technology currently being used around the globe and the next generation technology designed to meet changing global environmental requirements.

#### **Building Endurance into Wall Design**

##### ***Paul Majka, Building Resource Services***

Understanding fundamental building physics is critical to wall systems that perform effectively. This talk will focus on understanding how energy efficiency in buildings impact building performance and product selection for components used to air seal and prevent water infiltration. Examples of real world failures and best practices will be shared to illustrate how the laws of nature interact with construction design that combines energy saving products and systems.

## **Tuesday, October 18**

#### **Managing Currency Risk in a Volatile World**

##### ***Paul Stafford, Director, Currency Risk Management, LLC***

Exchange rates affect all companies doing international business, especially during the current global debt crisis. Mr. Stafford will discuss the need for companies to have defensive strategies and tactics in place to protect their P&L and even enhance competitiveness in world markets.

## ***Education Track 1: Business Development and Market Trends***

### ***End User Trends/Requirements Focus***

#### **End User Digital Marketing Perceptions**

***Matt Croson, The Adhesive and Sealant Council, Inc.***

Croson will highlight the findings of ASC's first "End User Digital Marketing Perceptions" survey. The survey was designed to examine how end users gather information, the criteria and sources they use to evaluate products, and how they make buying decisions.

#### **How Curtain Wall Consultants Use Transition Materials and Sealants for the Continuity of the Air/Water and Vapor Barrier System**

***Michael Louis, Simpson Gumpertz & Heger***

The presenter will describe the various obstacles in obtaining the updated energy requirements for the continuity of the air/water and vapor barrier at the transition from the back up wall assembly to the perimeter of a curtain wall. The presenter will describe the appropriate transition details and the materials (sealants and sheet membranes) required to provide a durable, compatible system.

#### **Polymeric Systems Used for Concrete Repair and Remediation**

***Rick Jones, The Chemquest Group, Inc.***

Much has been written and published about the construction chemicals market – the bulk of which is comprised of concrete admixtures, cementitious grouts and one-component sealants. This presentation will instead take a closer look at polymeric systems used for in construction, repair and remediation of concrete – a fast-growing sub-segment within this industry. The fact that these systems are growing at two times GDP is due to the construction industry continually finding greater utility for these cost-effective systems to build and, more importantly, to repair, rehabilitate and restore commercial, industrial and civil structures. The fact that these systems can help avoid major reconstruction or demolition of older structures has a positive impact on the sustainability factor associated with these products.

#### **Sealant Validation Program Overview & What End Users Need from Sealant Manufacturers**

***Dan Cain, SWRI***

The Sealant Waterproofing and Restoration Institute represent contractors that use sealant and waterproofing products on an ongoing basis. This presentation includes feedback from the users of these products. What do the construction industry want, what do new need and what are we not getting. We will also discuss the value of SWRI Institute Validation Programs.

## ***Education Track 2: Technical and Government Regulations***

### ***Formulations Focus***

#### **A New High Diblock SBS for Hot Melt Adhesive Applications**

***Brian Witt, TSRC and Dexco Polymers, a TSRC Company***

TAIPOL TPE 4265 is a new high-diblock SBS product for hot melt adhesive applications. The basic properties and composition of the polymer will be described, along with adhesive formulations, properties, and applications. The results of an application study for low-temperature HMPSA's will also be presented.

#### **Ultra-Fast Structural Two-Component Adhesives: Scope and Limitations**

***Willi Schwotzer, Nolax Inc.***

The principles of polyurea-based adhesives will be summarized, some obstacles will be addressed which had to be overcome when reducing the systems to practice and potential applications of such systems will be outlined with the help of case studies.

## **Non-Isocyanate “Green Polyurethane™” - Could Adhesives & Sealants Be Next?**

*Darin Nellis, Nanotech Industries Inc.*

This talk will provide examples of non-isocyanate polyurethane technology and applications developed by Nanotech Industries for use in the coatings, sealants and adhesives market which boast high adhesion and durability properties, contain no toxic sensitivity components and can be made from carbonized soy beans or palm oil and laser cured. The presentation will include technical information on how this technology works, what replaces isocyanates, lab and field findings of performance related data, plus an analysis of the real value of lowering health and safety risks to end users, applicators and formulators.

## **Terpene Phenol Resins - Tackifiers that impart Enhanced Performance Properties to Hot Melt Adhesives**

*Mike Moran, Arizona Chemical Company*

Terpene phenol resins, which are co-polymers of a terpene and phenol, are normally associated with rigid packaging hot melt adhesives; but these tackifiers when used in pressure sensitive adhesives have been found to enhance tack and adhesion to difficult to bond surfaces. At the same time, terpene phenol resins offer improved performance in packaging adhesives, and they can also be used to improve ink distillate resistance in book-binding adhesives.

## ***Education Track 3: New Technology and Application***

### **Shape Memory Polymer Based High Performance Reversible Dry Adhesive Systems**

*Tao Xie, General Motors Research & Development Center*

Liquid based adhesives that require lengthy oven curing are commonly used in an industrial manufacturing environment. This is in sharp contrast to adhesion phenomena in nature for which adhesion is achieved without heating induced curing (e.g. gecko and burdock seeds). Inspired by nature, research has been ongoing towards developing synthetic reversible dry adhesives (RDA). While much progress has been made, typical approaches only lead to synthetic RDA with strength much lower than liquid based adhesives. Utilizing shape memory polymers, we have developed synthetic RDAs with superior reversibility and adhesion strength rivals that of liquid adhesives.

### **The Future of Coating and Adhesive Green Technology and Learning New Tricks from Nature**

*Niels Holten-Andersen, University of Chicago*

Incorporating properties such as high damage tolerance and self-healing into aqueous polymer adhesives and coatings is business as usual for certain organisms found in Nature. I will present some of the natural processing mechanisms that install such unique properties in the final material and show how Nature's 'tricks' are easily applied to synthetic polymers.

### **Non-phthalate multipurpose plasticizer for insulated glass and automotive sealant applications**

*Karl Billast, Ferro Belgium*

The presented novel plasticizer is compatible with a very wide range of resins and polymers like polyurethanes, polyacrylics, polysulphides, and polyvinylactates, and it offers a good toxicological profile. This presentation will cover compatibility, rheology, curing, adhesion, different substrates and other relevant sealant and adhesive properties. Insulated glass sealants and sound dampening automotive sealants will be discussed in more detail.

### **"What is next in Product Evaluation and Specification?"**

*Paul Bertram, Director, Environment and Sustainability, Kingspan Insulated Panels, Inc.*

Specifying “green” at the expense of functional performance and compliance and other properties required in comprehensive product evaluation and how it plays into product evaluation and specification considerations will be discussed. CSI's GreenFormat and how trade-offs are to be considered in specifications will also be presented.

## ***Education Track 1: Business Development and Market Trends***

### ***Legal Perspectives with A&S Focus***

#### **Legal Issues Attending the Marketing of Sustainable Packaging**

***Philip Moffat, Verdant Law, PLLC***

In the absence of universally accepted metrics and definitions, marketing “sustainable” packaging is fraught with legal risk. Consumers, competitors, and governments in the United States and elsewhere have numerous tools available to regulate green marketing claims, and they aren’t afraid to use them. Companies hoping to protect their brand, avoid noncompliance, and achieve market acceptance must understand the regulatory requirements. A short review of marketing and enforcement trends, and an analysis of key aspects of the Federal Trade Commission’s recently proposed revisions to the so-called “Green Guides,” will help conference attendees gain the insight necessary to avoid costly and embarrassing compliance errors.

#### **Current Policy & Future Direction of Nano Technology**

***John Monica, Porter, Wright, Morris & Arthur LLP***

Nanotechnology has been billed as a disruptive technology which has the potential to spur the next industrial/technological revolution. At the same time, there is mounting evidence that some engineered nanoscale materials may cause adverse environmental, health, and safety (EHS) concerns in certain circumstances. Mr. Monica's presentation will briefly explain the basics of nanotechnology, its ongoing phases of commercialization, and the public policy and regulatory efforts being undertaken by federal and state governments to protect against unforeseen EHS risks. Particular attention will be given to examples pertinent to the coating, sealant, and adhesive industries.

#### **Keep It Secret Keep it Safe - Adhesive Formulas and Trade Secret Law**

***Paul Dalley, Dalley Patent Office***

Adhesive formula are traditionally protected by trade secret by adhesive manufacturers. However, trade secret law is especially weak in protecting the manufacturer’s interest. The protection is weak because federal patent law preempts state trade secret law, and thus limits the manufacturer’s protection to the exact recipe down to each raw material vendor. For example under patent law a grade TiO<sub>2</sub> from DuPont considered equivalent to a grade of TiO<sub>2</sub> from Kronos and would be protected. Under trade secret law the protection would fail. The manufacturer could not prevent manufacture or sale of the competing product. Moreover, the existence of a non-compete would have little or no affect. My presentation will explore this concept in more detail. Also I could cover law of trade secrets, unfair completion, and non-compete agreements.

## ***Education Track 2: Technical and Government Regulations***

### ***Regulatory and Safety Focus***

#### **TSCA – the Inside Story on What’s Really Happening**

***Mark Duvall, Beveridge & Diamond PC***

Legislation to amend the Toxic Substances Control Act (TSCA) may appear to be stalled, but important developments are occurring behind the scenes to influence how this law, critical to new product development, will eventually be rewritten. Meanwhile, EPA is pushing through significant administrative actions under the current TSCA related to chemicals in commerce. In addition, EPA plans to ratchet up its ongoing campaign to limit confidential business information claims. Learn the inside story on these important developments.

## **Proposed Regulatory Actions under the Toxic Substances Control Act (TSCA) for Diisocyanates**

***Katherine Sleasman, U.S. Environmental Protection Agency***

During this session, the U.S. Environmental Protection Agency will provide an overview of their existing Chemicals Action Plans for diisocyanates. The U.S. EPA will also provide a description of their upcoming regulations under sections 8(c), 8(d), and 4 of TSCA, as well as a description of their Significant New Use Rule (SNUR) under section 5 for toluene diisocyanates. This session will be followed by a brief question and answer period.

### ***Education Track 3: New Technology and Application***

#### ***Packaging Market Segment Focus***

### **Navigating Hot Melt Shortages**

***Gary Selph, Nordson Corporation***

Have shortages of hot melt adhesive base materials caused you to put end users on supply allocations? Are you concerned that they may look elsewhere to meet their current demands and future growth projections? This presentation will cover available technologies in specific market segments to help end users control their adhesive use to match allocated supply levels.

### **Realities of the Bioplastics Markets Food and Beverage Packaging**

***Jeff Timm, Jeff Timm Consulting***

Bioplastics are an integral part of many programs that transform a product or corporate move towards a more sustainable offering. Simply meeting performance property and cost requirements during the conversion from petro-based plastics to bio-based plastics is not enough. There is much that impacts this transformation that must be taken into consideration as initiation or conversion occurs through the cradle-to-cradle analysis. The impact on recycle streams, "truth in advertising" claims, matching the application to the method of the bioplastic's degradation process and much more are critical components to a successful market offering. This presentation will address the various bioplastic materials used in packaging applications and the impact these new offerings will have on the role of packaging adhesives.

### **Bio Based Hot Melt Adhesives**

***Blake Lindsey, Danimer Scientific***

Introduction of the world's first "bio based" renewable hot melt adhesive including an overview of DaniMer Scientific and its innovation strategy in the area of bio based materials. DaniMer will describe these new materials capabilities, share their market focus and value driven problem solving approach to product development.