TECHNICAL PROGRAM
Hyatt Regency
Phoenix, AZ
November 3, 2011

1:45 PM **Low Density HR MDI Based Foams**

Venkat Minnikanti
Dow Chemical Company

Abstract

Obtaining low density (less than 30Kg/m3) foams in all water blown MDI based foams without compromising mechanical performance (Tensile strength and Tear Strength) and compression sets has been a significant challenge for polyurethane foamers. While it is straight forward to make such foams with TDI, with MDI it becomes very difficult. This paper presents low density MDI based foams with Dow's proprietary technology.
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2:15 PM **New Chemical Technology for the Production of Super High Air Flow Flexible Foams**

Adona Marcum
Bayer MaterialScience

Abstract

New polyether polyol and formulating technology is being developed which enables the direct production of very high air flow foams comparable to those achieved in a reticulation process. This technology also helps to significantly enhance the air flow of low porosity foam types such as viscoelastic and even semi-rigid. In addition, the surface characteristics of the foams can be controlled through formulation or through coating processes; thus facilitating use in a wide range of prospective end-use applications including bedding, seating and other cushioning applications where air circulation and the transfer of moisture away from the body are desirable performance traits.

2:45 PM **Enabling Surfactant Technology for Flexible Slabstock Flame Retardant Polyurethane Foam**

Jane Kniss
Air Products & Chemicals

Abstract

As regulations on polyurethane foam manufacture continue to tighten, and the economy continues to be fraught with recovery delays, the flexible polyurethane foam (FPF) industry must find new methods of producing quality foams across a matrix of densities and hardness levels that also provide the specified combustion standards. These additional economic hurdles have accelerated the search for additives that allow the manufacturer to continue to produce high quality polyurethane flexible slabstock foam with the various mechanical processes employed today, while scrutinizing the level and type of flame retardant (FR) necessary to maintain product certification under current flammability statutes.

This paper reports on a surfactant which enables reduced FR use-levels at equal or lower burn length with halogenated or non-halogenated FR additives. The surfactant processes well across the wide range of foam densities and firmnesses, provides good nucleation, a high degree of emulsification, excellent froth stability, and good bulk stability. Several evaluations on commercial equipment have been conducted and foam properties were compared among current commercially available surfactants. The resulting foam's physical properties include fine, regular cell structure, substantial reduction of cell structure striations, and a smooth, velvety hand. FR performance, in addition to all of these desired properties, will be discussed in detail, along with several other benefits.

3:15 PM **Break**

3:30 PM **Modifications in CertiPUR-US® VOC Test Methods**

Doug Sullivan
Alliance for Flexible Polyurethane Foam, Inc.

Abstract

In response to a proposal to change the CertiPUR-US TVOC testing protocol from ASTM-5116 to the more specific ISO-16000-Parts 6, 9 & 11, as specified for CertiPUR in Europe, comparative testing was conducted. As part of the test method conversion process, the effect of increasing the chamber conditioning time for VOC analyses will be reported.

4:00 PM **Evaluation of New Additives to Maximize the Use and Processing Performance of NOPs in Conventional Slabstock Foam**

Roland Hubel
Evonik Goldschmidt

Abstract

Over the past decade, there has been increased interest within the polyurethane industry to use natural oil based polyols, either as a stand alone product or in conjunction with petroleum-based polyols. Compared to conventional polyether polyols, most natural oil based polyols (NOPs) have different solubility characteristics due to the presence of long hydrocarbon chains. As a result of this chemical structure, these polyols are much more non-polar, hydrophobic and oleophilic. Furthermore they show a different reactivity regarding the gelling reaction which is mainly related to the steric hindrance of the hydroxyl groups. Due to the different chemical nature of NOPs, their use in conventional slabstock formulations is often accompanied by undesired changes to the processing and physical properties of the final foam.

This paper provides an evaluation of how different types of additives can support the increased use of NOPs in conventional slabstock applications. In contrast to previous studies which focused more on emulsification aspects, this paper mainly investigates the impact on reaction conditions and kinetics when NOPs are added to a formulation. Different approaches are discussed to counteract the negative effect on foam physical properties when the use level of NOP is increased.

4:30 PM **Global Regulatory Changes and Antimicrobial Replacement Alternatives**

Tom Robitaille
Arch Chemicals, Inc.

Abstract

Regulatory changes are driving change around the world and altering the choices of antimicrobials allowed for use in polyurethanes. The most recent examples are the allowed use of OBPA (10,10'-oxybisphenoxarsine), tributyl tin compounds and triclosan, as antimicrobial agents in many polyurethane formulations.

In light of the recent lack of support for OBPA in the European Biocidal Product Directive process (BPD) users will need to find alternative means of protecting their finished goods from the growth of fungi and bacteria. This paper will characterize the antimicrobial performance and formulation compatibility of n-octyl-isothiazolinone (OIT) and 4,5-dichloro-2-n-octyl-4-isothiazoline-3-one (DCOIT), silyl quats, n-butyl 1,2 benzisothiazolin-3-one (BBIT), zinc pyrithione (ZPT) and combinations in polymer formulations as preferred alternatives.