

Addressing the Emerging Environmental and Performance Challenges of Tomorrow with Multifunctional Additives and Ingredients

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ABSTRACT

The unique multifunctionality of amino alcohols has been proven to provide extraordinary versatility and value, as well as environmental and performance improvements in a multitude of applications.

In industrial water-based direct-to-metal (DTM) formulations, AMP-95™ and DMAP-80™ multifunctional additives are used as a stabilizing agent. Through their multitude of interactions with different coating ingredients. Both enhance storage stability, provide pH control, and enable better dispersion of pigments. Their strong interactions with pigment particles allow them to be very efficient co-dispersants in controlling pigment particle size and stability, in turn improving optical, mechanical, and rheological properties of finished coating formulations.

The high-efficiency co-dispersancy properties of both additives can be used to improve hiding, gloss retention, and corrosion resistance and to optimize the performance of DTM protective coatings by reducing the number and level of other coating ingredients. ANGUS amino alcohols can help reduce agglomeration and improve overall particle size distribution of organic pigments and optimize the levels of pigments and primary dispersants. This results in an enhancement of color development tinting systems and finished coatings formulations.

In solvent-based long and medium-oil alkyds paints, AMP-95 can be used to reduce the volatile organic compound (VOC) content and overall formulation costs while improving the environmental profile by substituting part of the solvent with water (up to 15%wt). In such industrial coatings, AMP-95 improves the performance of the coatings by providing excellent in-can corrosion resistance, stable rheology, freeze-thaw stability, excellent gloss retention, good resistance to yellowing and corrosion and good adhesion to metal.

ANGUS multifunctional additives can also be used to help improve interior air quality improvement, by creating low- and zero-VOC waterborne formulations, as well as low-emission coatings that qualify for green label certifications. In addition, certain ANGUS chemistries can be added to existing architectural paint formulations and air filtration applications to create functional coatings that improve indoor air quality.

Key-Words: Amino alcohols, Multifunctional Additives, Water-based, Direct-To Metal (DTM), Organic pigments, Alkyd, Solvent-based, Indoor air quality improvement.