

Enhance adhesion : New polymer structures and coating applications

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Based on silicon and oxygen backbone, silicones are known for their outstanding performances and their great versatility in uses. With their resistance to extreme temperature, low degree of toxicity and low surface energy, Silicones are widely used in release coating and textile coating applications. These coating markets are facing new demands, such as fast running speed, cost saving, low temperature cure and/or sustainability. One challenge is thus to develop new materials that combine these new requirements together with an enhanced adhesion onto a wide range of substrates.

In this context, Elkem Silicones develops innovative functionalized silicones polymers as adhesion / anchorage additives. Some new functionalization's catalysts were identified either showing a better compromise between reactivity, stability and selectivity or being more environmentally friendly ^{1, 2, 3, 4}. A special emphasis will be given on the performances of these catalysts and on the synthesis of these new structures. Some examples of the resulting adhesion properties in final coating applications will be presented.

- [1] (a) A. M. Tondreau, C. H. Atienza, K. J., Weller, S. A. Nye, K. M. Lewis, J. G. P. Delis, P. J. Chirik, *Science*, **2012**, 335, 567. (b) C. H. Atienza, T. Diao, K. J., Weller, S. A. Nye, K. M. Lewis, J. G. P. Delis, J. L. Boyer, A. J. Roy, P. J. Chirik, *J. Am. Chem. Soc.*, **2014**, 136, 12108.
- [2] V. Monteil, J. Raynaud, D. Crozet, M. Bousquie, S. Marrot, WO 2016071652 / WO 2016071654 / WO 2016071651.
- [3] (a) A. Baceiredo, T. Kato, R. Rodriguez, A. Prades, S. Marrot, L. Saint-Jalmes, WO2015004396
(b) A. Baceiredo, T. Kato, R. Rodriguez, N. Nakata, S. Marrot, L. Saint-Jalmes, WO2015004397.
- [4] C. Maliverney, WO2017/005993