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From land to brand, working across a complex value chain - overview of Covestro's latest developments in bio-based cross linkers

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Sustainability is increasingly impacting on the purchasing decisions of customers, brand owners and consumers. Therefore, Covestro has early decided to embark into bio-based materials and thus to develop a new bio-based diisocyanate, namely the pentamethylene diisocyanate (PDI). This is the first diisocyanate with a significant renewable content based on a raw material produced via a highly efficient fermentation process directly from biomass. Utilizing the cost and energy effective gas phase technology to produce the isocyanate results in a highly sustainable product with 70% bio-based content and double digit reduction of carbon foot print equivalent. Based on this new building block Covestro launched in 2015 the first bio-based polyisocyanate Desmodur® eco N 7300, a new solvent-free aliphatic polyisocyanate which is able to match the high performance requirements of automotive OEM coatings. In 2017 a further milestone has been achieved: the development of hydrophilic PDI-based polyisocyanate - the Bayhydur® eco 7190, will allow the formulation of 2K waterborne polyurethane coatings with increased renewable content and lower VOC. Both new developments allow increasing renewable content of solvent-borne and water-borne high performance polyurethane systems with low carbon footprint, satisfying current and future requirements from the coatings market. Covestro would like to provide the audience with a brief overview about our experiences with the launch of these new bio-based polyisocyanates.

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