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CIRCULAR ECONOMY BY DESIGN: NIAGA[®], AN ABSOLUTE BREAKTHROUGH IN CARPET PRODUCTION AND RECYCLING

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For more than 60 years much of the commercial carpeting has been made the same way. They are composed of a complex array of chemicals, including Latex and PVC, rendering the carpet materials unrecoverable at the end of the products use. Traditionally, when a carpet reaches the end of its life there are two stark choices: bury it or burn it. The consequence is that a large amount of valuable material is lost. The alternative to burying old carpet is to burn it. Most industrial incinerators operate at temperatures of 850° C or higher. Aside from causing huge carbon emissions they can release potentially harmful dioxins, while requiring intensive management and safety procedures. The DSM-Niaga concept involves a rethought of the way we make the products by only using clean materials. The Niaga[®] Technology for carpet production is based on using a simple set of clean materials enabling 100% recycling in new carpets after use. The glue that holds the whole concept together comes from DSM in the form of an engineered adhesive. It binds the fiber (top) of the carpet and the backing together, replacing latex, which is heavy, takes a lot of energy to cross-link (join with other materials), and makes the carpet prone to stains and burning. The benefits of this new technology comprise full recyclability; reduces water and energy consumption in production; eliminates volatile organic compound (VOC) emissions and improves indoor air quality. Although Niaga[®] is initially focused on the carpet industry, the technology has intriguing potential. In fact, virtually any product manufactured from man-made materials like polyesters and polyamides from diapers to car mats could employ Niaga Technology. US based company Mohawk, the world's second largest carpet company, is launching the first product based on this technology on the market under the name Airo.

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Carpet material flow with Niaga[®]