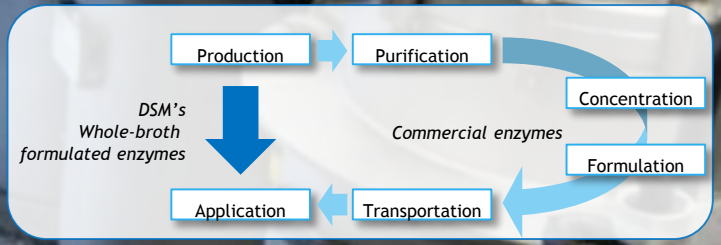
On-Site Manufacturing of DSM Cellulotic enzyms



DSM cellulolytic enzymes package, EC200, is a most cost effective, whole-broth formulated cocktail of cellulases and hemi-cellulases, which is produced by and at the ethanol production plant

- Tailor produced on local feedstock: Higher quality
- Integrated production, whole broth, No DSP, no logistics, thermostable enzymes: Lower OPEX
- Enzymes production on site: Reduced risks
- Additional value flows to plant: Higher returns

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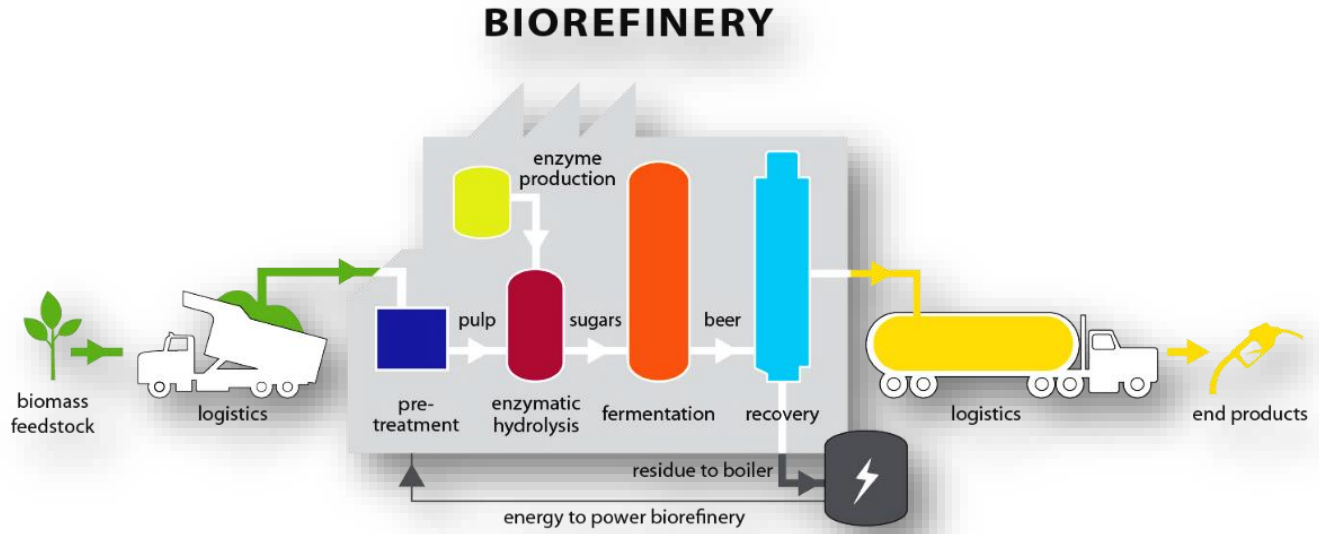
Break through technology package to make cellulosic biofuels a reality



- POET-DSM JV Project Liberty
- First commercial scale cellulosic biofuel plant of POET-DSM JV
- Shared infrastructure with existing grain ethanol plant in Emmetsburg Iowa

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Key success factors for advanced biofuels

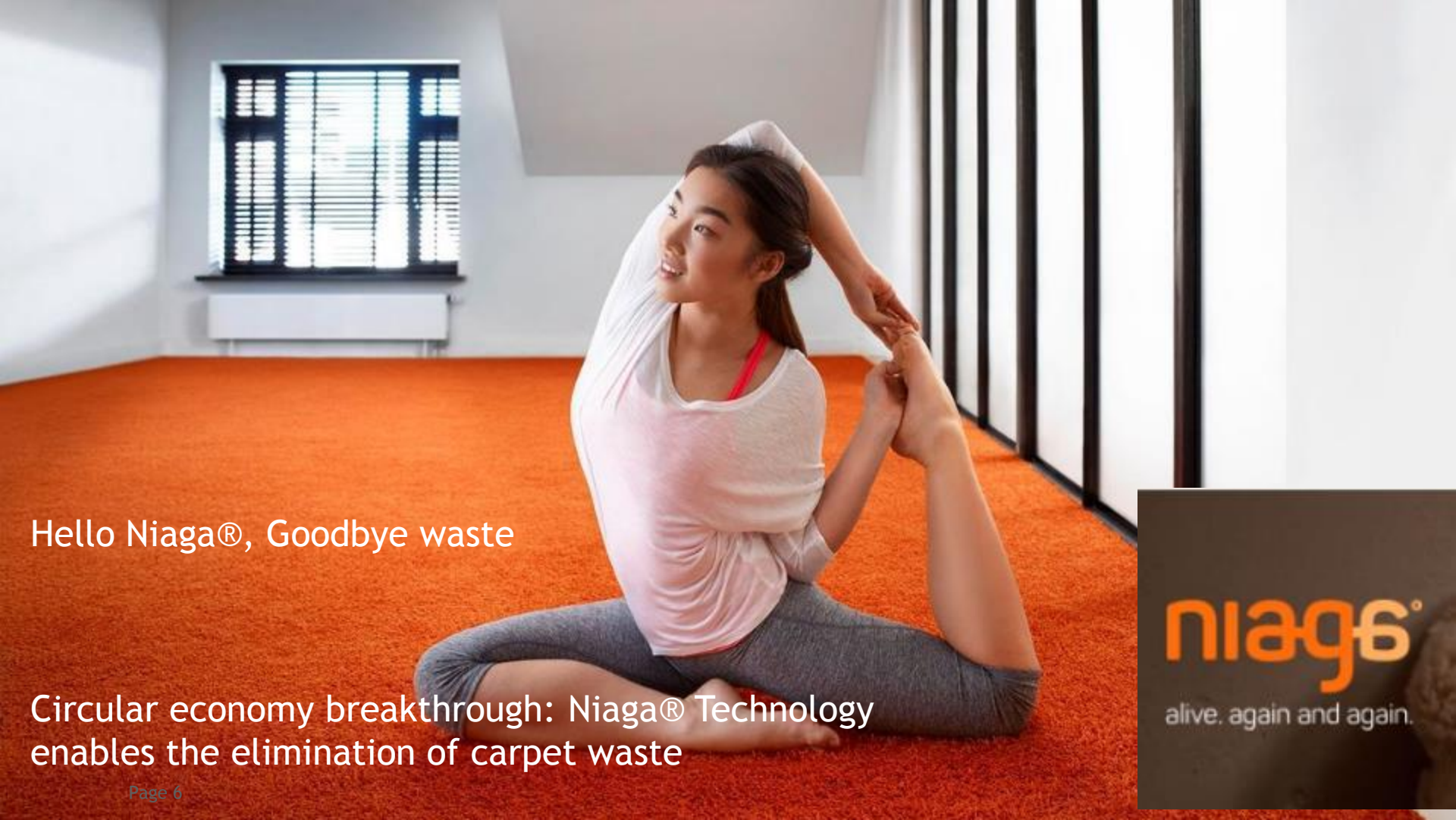
- Long-term partnering: strong collaboration with the committed partner
  - to ensure effective technology transfer and optimize value creation & sharing
- Technology valorization: requires commitment for multi-plant roll-out
  - to support extensive investments and manage IP
- Timely regulatory approvals for Advanced Yeasts and Enzymes
  - to expedite access to improved biofuel solutions (potential to leverage US MCAN/GRAS for Asia to expedite)
- Consistent regulatory framework for biofuels
  - to ensure stable demand and thus support long-term investment and development

Other Innovations
- Circular & Bio-based Economy -

- Niaga: 100% recycle carpet
- Veramaris: high value omega-3 fatty acid products rich in EPA and DHA for animal nutrition produced from natural marine algae

- Climate Change-

- Anti-reflection/soiling coating and backsheet for Solar Panel
- Cleancow: Reducing Methane Emission from Cattle


Hello Niaga®, Goodbye waste
Circular economy breakthrough: Niaga® Technology enables the elimination of carpet waste
niaga
alive. again and again.

Algae based Animal Nutrition

DSM and Evonik establish joint venture for omega-3 fatty acids from natural marine algae for animal nutrition