Applexion
beyond purification

bonumose

DESIGN & BUILD
RUN & PERFORM
UPGRADE & REVAMP
EXPERTISE 4 YOU

CASE STUDY

Rare sugar purification: tagatose
Combining unique technologies & deep expertise

Technologies	Development stage	Scale	Project scope
Enzymatic conversion Sequential chromatographic separation	Complete lab development	Industrial demo plant for crystalline tagatose	Design & supply of a complete process line for crystalline tagatose production from maltodextrin powder

Highlights

- High yield enzymatic conversion from plant based source
- > 99.5% DS crystalline tagatose purity
- Complete process line development
- First rare sugar continuous production in a single process line
- Successful start-up exceeding target specs

Background

Tagatose is a rare sugar that is naturally present in some fruits and grains. It offers many benefits as a white sugar substitute: no-aftertaste flavor profile, a negligible glycemic index, 60% fewer calories than sucrose while keeping many of the essential functionalities of sugar.
It is a unique sucrose alternative, contributing to a healthier lifestyle.
Bonumose succeeded in producing tagatose using a plant based-starch and applying brand new enzymatic process. Achieved major key proof points for low cost, efficient production levels.
Partnering together with Bonumose, Applexion teams have worked to establish a suitable and sustainable rare sugar purification process.

The challenges

- Enhance the purity of tagatose after enzymatic conversion
- Feed: 92% DS, maltodextrin powder
- Raw material enzymatically converted into tagatose from starch by Bonumose exclusive process
- Tagatose enzymatic broth at highest concentration possible
- Final Product: >99.5% DS , crystalline tagatose

THE SOLUTIONS

Patented enzymatic conversion by Bonumose

the sequential chromatographic system optimized by Applexion to achieve final sugar purity.

has become the preferred tool in sugar purification as it bringing advantages:

- Efficiency - high purity fractions,
- Cost effectiveness - low operating costs,
- Productivity - fully continous operations,
- Low carbon impact - chemical free, energy savings and recycled fractions,

Key advantages of this process line are minimized production costs and fully continuous operating conditions. Treatments have been developed to boost further the efficiency of Applexion™ chromatographic tool.
An efficient combination of filtration and Ion exchange (upstream) and concentration (downstream) have been selected and designed.
Concentration & crystallization steps produce the final tagatose in the desired crystalline form.

THE OUTCOME

WANT TO LEARN MORE ?

Webinar recording | Explore the journey of a chromatography project from lab to industrial

Services throughout your equipment lifetime

From unit operations to process lines

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Contact our experts:
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