COMPANY STRUCTURE

AGRANA Beteiligungs-Aktiengesellschaft

100%

AGRANA Research & Innovation Center GmbH

Innovation Center for whole AGRANA group

SEGMENT SUGAR
AGRANA Zucker GmbH

SEGMENT STARCH
AGRANA Stärke GmbH

SEGMENT FRUIT
AGRANA Fruit Division Austria JUICE
RESOURCES & AIMS

PERSONNEL

75 EMPLOYEES
1/3 UNIVERSITY GRADUATES

PREMISIS: TOTAL 3900M²

LABORATORY AREA APPROX. 2/3
PILOT PLANT AREA APPROX. 1/3

BUSINESS OBJECTIVE

R&D OF SUSTAINABLE MATERIALS FROM
BEET, POTATO, CORN, WHEAT, FRUIT
TO FINAL PRODUCTS IN THE AREA OF

CARBOHYDRATES
PROTEINS
FIBER
FRUIT PREPARATIONS
AGRANA RESEARCH & INNOVATION CENTER

R & D ACTIVITIES

R&D Management

R&D Field SUGAR

Sugar Technology
Process Optimisation
Cost optimisation
Natural Antibacterials
Sugar Beet Quality
Sugar Analytics

R&D Field STARCH

Starch Food/Non-Food Product Development
New Applications
Application Technique
Analytics (Mycotoxins)
Pilot Plant Stations

Microbiology
Fermentation
qPCR-analytics
Bioethanol
Process Optimisation
Strain Collection

R&D Field FRUIT

Fruit Preparations
1st Transformation
2nd Transformation
Aseptic Processes
Line Design
Decontamination

Accredited Testing Unit for Yield and Quality Evaluation of Sugar Beets
**Laboratory**

- Development & testing of recipes
- Analysis of products
- Testing of new technologies & modification in small scale

**Pilot trials**

- Scale-up of laboratory recipes
- Production of samples

**Production**

- Creation of production instructions
- Attendance of production trials
**PROCESS OPTIMIZATION**

**DEPARTMENT STARCH FOOD / NON FOOD**

Improvement of current processes for starch separation & modification

- Slurry- & paste modifications
- Spray drying
- Drum drying
- Extrusion
  - Bioplastics
- Pilot plant for starch separation
  - New kinds of starch raw materials

Development of new technologies

- Spray cooking: baby & children food
- Physical modification of starch (Clean Label)
- Enzymatically modified starches (EMS)
STARCH IN

BIOPLASTICS
STARCH IN BIOPLASTICS

PRODUCTION OF THERMOPLASTIC STARCH (TPS)

**Starch**
- native or modified
- e.g. corn starch

**Plasticiser(s)**
- H-bonding interactions
- e.g. glycerol

**Additives**
- as required
- e.g. processing aids

**Destructuring & plasticizing**
(e.g. extrusion)

**Thermoplastic starch**
- amorphous or semi-crystalline
- melts when subjected to heat & shear forces
STARCH IN BIOPLASTICS

PROCESSING

Starch → Extrusion → TPS → Blending Process → TPS-Blends → Blowing → Finished Product
ANALYSIS AND CHARACTERIZATION @ ARIC

SEM Microscopy: Compatibility, morphology

HP-SEC: Molar mass distribution

DSC: Glass transition, melting, gelatinization

Rheology: Melt viscosity, flow behavior

HPLC, HPIC, GC-FID: Analysis of modification, Composition of additives

FTIR: Analysis of modification, Composition of additives
ZUSAMMENFASSUNG

• ARIC ist das zentrale F&E Headquarter der AGRANA Gruppe
• Erweiterung + Adaptierung bietet State of the Art Rahmenbedingungen für F&E Mitarbeiter
• Verstärkte Vernetzung innerhalb der Gruppe + verstärkte Kooperation mit externen Forschungseinrichtungen
• Nutzung von Synergien bei Personal, Labors und Technikum
• Innovationen sind Schlüssel für AGRANA’s Erfolg und Wettbewerbsfähigkeit in Zukunft

Thank you for your attention!

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