Turning waste into value
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Business areas

“Platform technology”

- Organic materials
  - PHA-process
    - Bioplastic
    - Feed

- Feathers
  - Fibers
  - Feed

- Other applications
PHA
(Bioplastic)
**PHA - production**

- **Organic material**
- **Fermentation**
- **Bio extraction**
  - Patent-pending method for PHA extraction
- **PHA granules**
  - Potential replacement for 70% of all plastics

Hydrolyzed single cell protein – represents 10-50% of total production output.

**Microbial PHA-production**
Bioextrax extraction method reduces the production cost significantly

Environmentally friendly process (no chemicals, little energy)

Produces PHA granules with intact molecular weights
Feathers
- feed
- microfibers
Valorizing feathers

Chicken meat production generates more than five million tons of chicken feathers every year.

Fraction utilized today

<5%

Global poultry production
90M tons / year => 5M tons feathers

Hydrolyzed Protein
Protein supplement for feed/food

10-90%

Microfibres
Additives, reinforcements, textiles

10-75%

Valorizing feathers
Hydrolysis of feathers

Keratin microfibers
- Plastic reinforcements, textiles, insulation

Protein for feed

- Hollow
- 30-200 µm long, 2-6 µm wide

- +90% protein
- H2O soluble
- 99.7% digestability