

Welcome to Agroferm



# Location of Agroferm

## Road network of Hungary

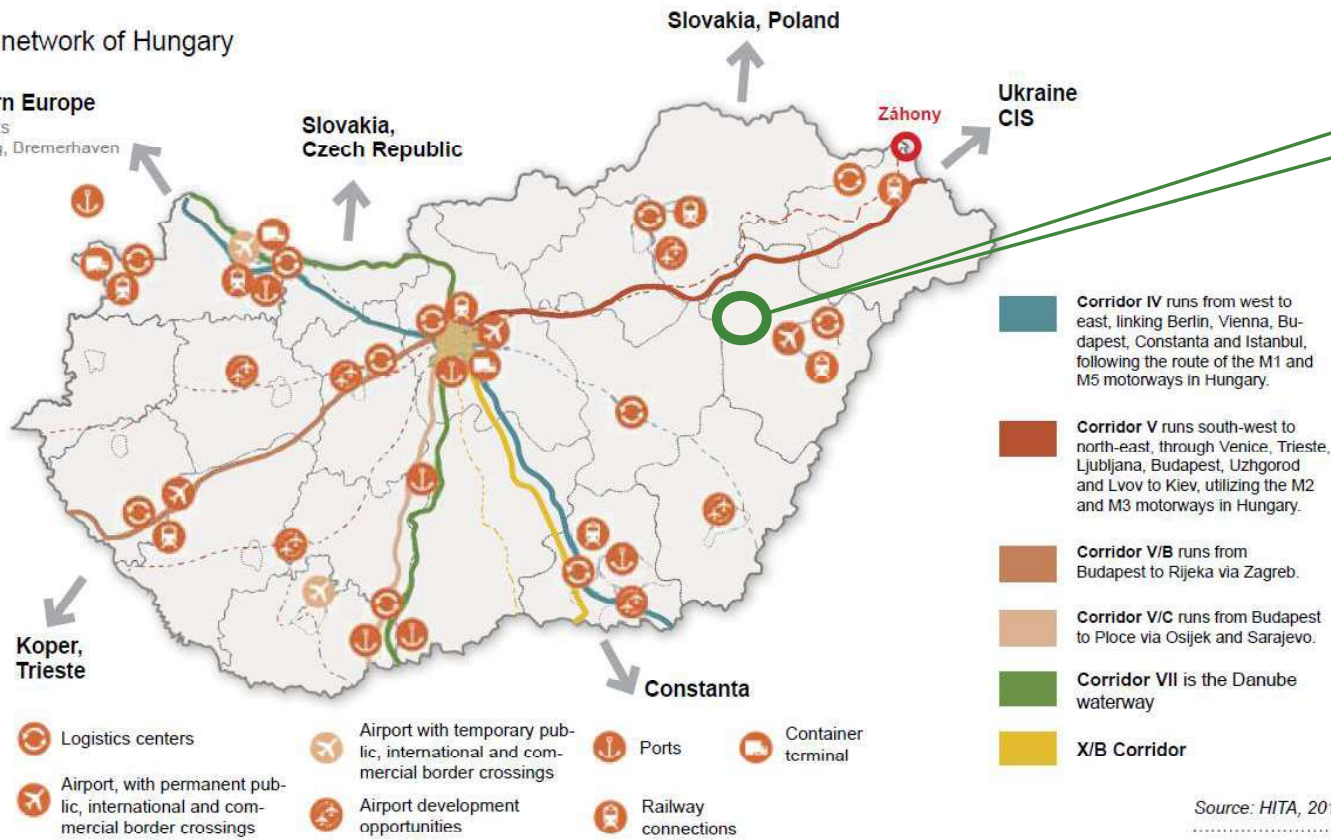
**Western Europe**  
ARA ports  
Hamburg, Bremerhaven

Slovakia,  
Czech Republic

Slovakia, Poland

Ukraine  
CIS

Agroferm



# Brief history of Agroferm (1)



Ownership taken over by Japanese Kyowa Hakko (10 kt/year)

First commercial quantities of L-lysine (5 kt/year)

Starting of construction of L-lysine production plant

Foundation of Hungarian Japanese Joint Venture for L-lysine production



1987

1988

1991

1997

# Brief history of Agroferm (2)



Acquisition of Agroferm by Degussa



Switching to L-threonine production (6kt/year)



Upgrading investment of plant, and start-up of L-threonine production (20kt/year)



Expansion to current 30 kt/year capacity



2004

2005

2007

2013

2019 – Ownership was changed to the current one in September

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# Site layout



## Supporting activities



- Railway and road connection for smooth transportation of raw materials and products
- External power supply lines (22kV, 2 ground cables)
- External natural gas connection
- 2 water wells for technology
- Surface water for cooling and technology
- Biological wastewater treatment plant
- Steam generation on site 2x (10 bar, 5-20 t/h, max. 21.8 MW), 2x (22 bar, max. 6 t/h, max. 6.6 MW)
- Process air supply (3 compressors, 40,000 Nm<sup>3</sup>/h)
- 55 employees

# Analytical laboratory

## Equipped with classical analytical devices:

- HPLC & UHPLC
- GC
- Spectrophotometer
- NIR
- Density meter
- pH and conductivity meter
- Moisture analyzer
- Milli-Q bi-distillation system
- Nitrogen analyzer



## Microbiological activities

- Sterility check of
  - fermentation samples
  - water samples
- Phage monitoring test
- Microscopic tests
- Optical density (Shimadzu UV 1800 spectrophotometer)
- pH measuring
- PCR
- Different microbiological experiments



## Fermentation laboratory

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**2 liter** fermenters for raw material tests and process optimization trials

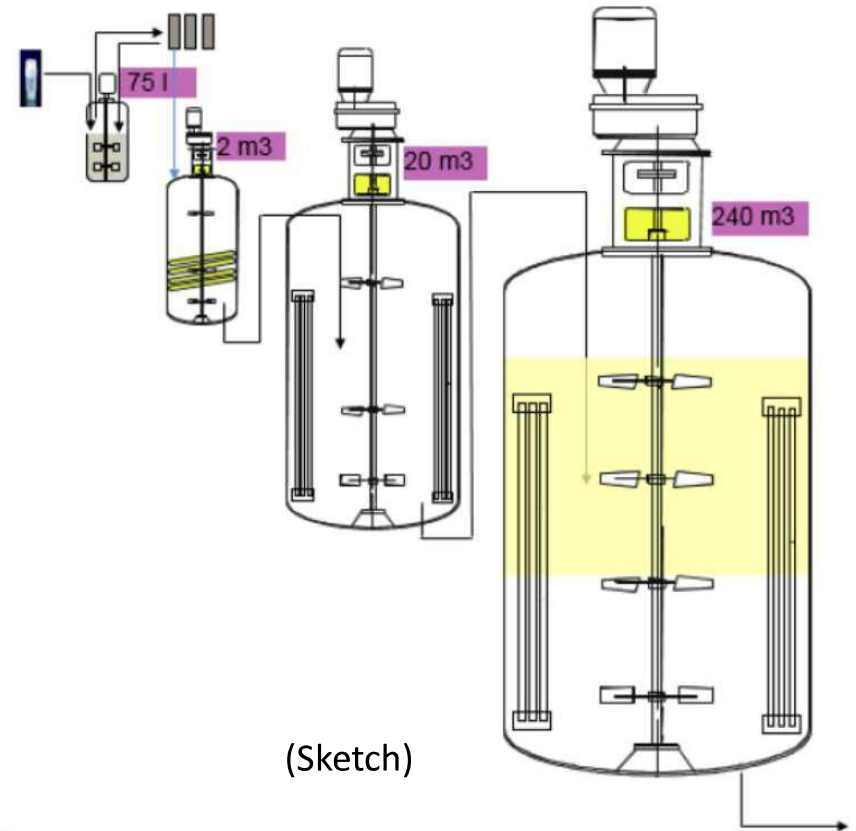


Inoculum fermentation for production in **75** and **150 liter** fermenters

# Fermentation plant

## List of fermenters

- 4x2 liter
- 1x75 liter
- 1x150 liter
- 3x2 m<sup>3</sup> (batch fermentation only)
- 3x20 m<sup>3</sup> (batch fermentation only)
- 5x240 m<sup>3</sup> (fed batch fermentation)

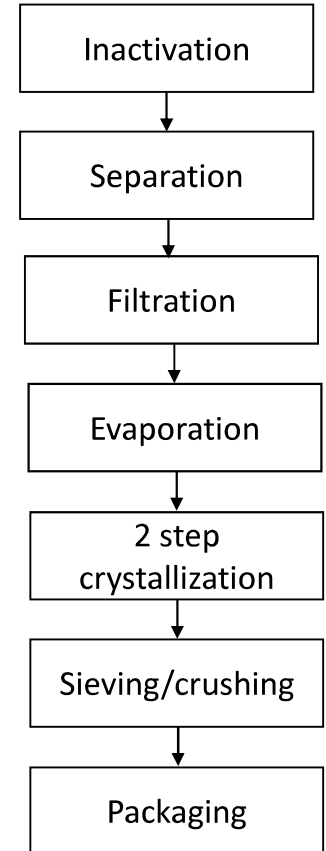


## Downstream processing

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### DSP unit list

- 1x disc stack separator
- 2x ceramic ultrafilter
- 1x spiral membrane ultrafilter
- 2x falling film evaporator
- 2x vacuum evaporation crystallization unit
- 2x cooling crystallization unit
- 2x turbo screen separator
- 1x decanter
- 1x fluidized bed dryer
- 1x spray dryer (granulator)
- 1x packaging unit for crystalline product



## ISO Certificates

Energy management system - **certified**

MSZ EN ISO 50001:2019

Quality management system

MSZ EN ISO 9001:2015

Environmental management system

MSZ EN ISO 14001:2015

Occupational health and safety management system

MSZ ISO 45001:2018



Integrated management system – IMS  
**Certification was done in December 2023**

Passion for nature and science

# Agroferm



Szenvedélyünk a természet és a tudomány