



Product News

Distillation and Concentration
Systems for liquids from Production flows

BIOPHARMA - PHARMA COSMETICS

Back to our Roots...

People are becoming more and more interested in remedies of natural origin and relying on herbal and plant based ingredients. The Biopharma Industry has set itself the task to optimise millennia-old healing methods and making them available to mankind. We are able to provide production techniques that can support this industry.

Brief overview of the effects of natural healing therapies

Phyto pharmaceuticals

- **Salvia leaves**
 - astringent, digestive, antimicrobial, antiperspirant, mildly anticonvulsant, anti-inflammatory, stimulating and invigorating.
- **Ginkgo leaves** (Japan / China)
 - Inhibition of traumatic or toxic cerebral edema, reduction of retinal edema and retinal cell lesions Increase of memory and learning ability, compensation of balance disorders, inactivation of toxic oxygen radicals and a neuroprotective effect.

Pharma Cosmetics

- **Birchbark**
 - effective against a variety of tumors, acceleration of wound healing process, ameliorated diet-induced obesity, decreased the lipid content in serum and tissues, increasing of insulin sensitivity.
In the meanwhile also available as an orphan drug.
- **Thermal spring salt**
 - effective against psoriasis and neurodermatitis, easing redness, intense itching and wheal formation, skin desquamation and inflamed sore skin.

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Phyto pharmaceutical production

Concentration of Natural Ingredients

Assignment

Tinctures of different phyto drugs ingredients needs to be concentrated and separated from the extraction solvent using an environmental and economically friendly method.

Quality analysing devices and additional agitated Tanks are required.

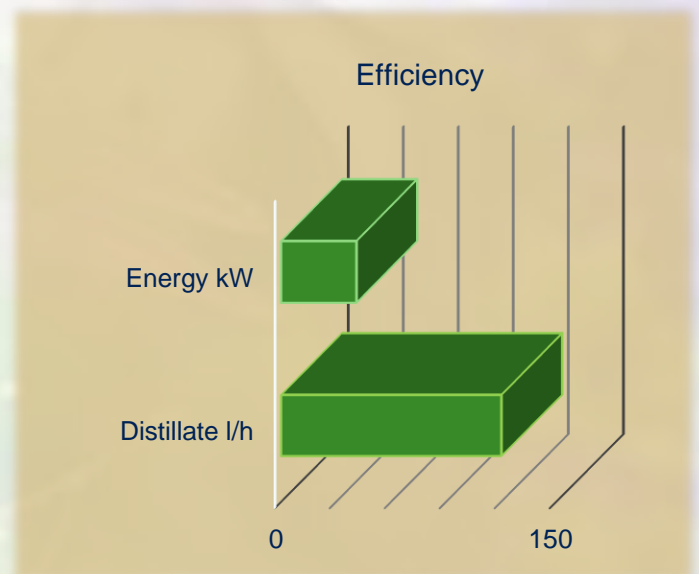
The Tincture is foamy, viscose and sticky and should be considered in the design of heat transfer and performance.

Performance and Execution

- Low energy consumption through Special Technology

Feed capacity:	120	l/h
Energy consumption kW:	11.5	kW
Efficiency Distillate:	0.1	kWh/l
Operation temperature:	< 40	°C

Location: SWITZERLAND



System example



Pilot plant concentration unit for phyto pharmaceutical extracts

Assignment

Tinctures of different herbal ingredients need to be concentrated and separated from the extraction solvent using an environmentally friendly and economical method.

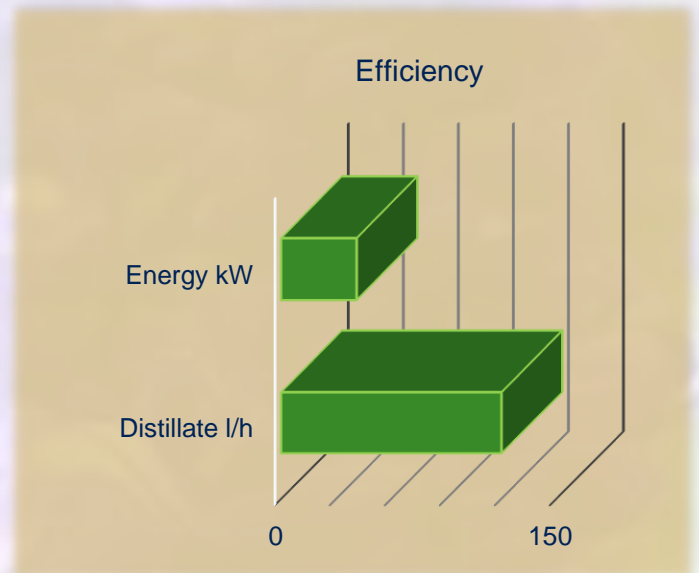
A rental pilot plant for the production is needed to compensate the flow of the production flow.

Performance and Execution

- Low energy consumption through Special Technology

Feed capacity:	100	l/h
Energy consumption kW:	10	kW
Efficiency Distillate:	0.1	kWh/l
Operation temperature:	< 50	°C

Location: WORLDWIDE



Pilot plant



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Production plant for thermal spring salt

Assignment

Healing water won from a depth of about 1600m, should be crystallised using an environmentally friendly and economical method, to separate the healing salt. A complete production plant with a solid / liquid separation and tanks should be designed and set up.

Performance and Execution

- Low energy consumption via Special Technology

Thermal Water mass flow:	500	kg/h
Healing Salt mass flow:	20	kg/h
Energy consumption kW:	63	kW
Efficiency Distillate:	0.125	kWh/l
Operation temperature:	< 40	°C

Location: AUSTRIA



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Engineering of a Production Process for Betulin / Heptane Recovery Unit

Assignment

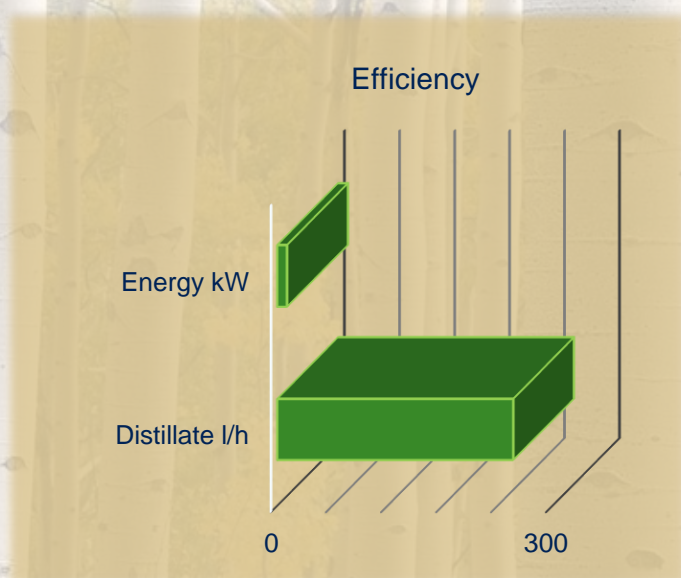
For an upscaling from a Pilot Plant into a Production Plant, engineering support was needed. Several process plants and tanks are required to extract and separate the active substance Betulin from the birchbark. Within the production of Betulin, a heptane solvent recovery system is necessary. The recovered n-heptane is reused in the process.

Performance and Execution

- Low energy consumption through Special Technology

Feed capacity:	285	l/h
Energy consumption kW:	10.5	kW
Efficiency Distillate:	0.04	kWh/l
Operation temperature:	< 40	°C

Location: GERMANY



System example



Every customer requirement is a unique task,
which has to be solved with customised solutions.

Special solutions for the Biopharma Industry

- High quality of recovered substances
- Low Energy Systems (LES) provided by special techniques
- Transparency and good accessibility
- Cleanable systems
- Modular options for further procedures, handling or customer requirements
- Foam handling without additional non product media

Certificates and Conformities

- CE declaration
- ATEX directive 2014/34/EU
- GMP (Good Manufacturing Production)
- Specialized company according to the German Federal Water Act
- Qualified for HSE Examination

Our Skills and Claims

- Plants and equipment specially designed for your needs
- Economically and sensibly designed solutions
- Good cooperation with your project team, e.g. by weekly reports on project status
- Hazard assessment - HAZOP - with your qualified personnel
- High degree of automation of the systems
- Integration in your existing process control technology
- Documentation according to customer requirements
- Qualified personnel and experts in Thermal Process Technology
- Commissioning and qualified personnel training
- Experienced After Sales Service

INDUSTRIES

Pharmaceutical, Biopharma,
Food, Cosmetics

Coatings, Pigments,
Paint and Dye

Petrochemical
Oil processing

Polymer

Chemical

Surface treatment

and more.....

EVAPORATION

Natural-/ Forced circulation
Falling-film
Multistage
Thin film
Vapour recompression
Heat pump

CRYSTALLISATION / DRYING

Evaporation crystalliser
Thin film dryer

RECTIFICATION / ABSORPTION

Packed column
Scrubber
Absorption column

LIQUID-LIQUID-EXTRACTION

Extraction column, agitated
Mixer-Settler
Multistage reaction column

Customised Solutions for Healthy Products

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