

*Ultrafiltration (UF) and Nanofiltration (NF) systems enable the **selective enrichment** of target ingredients, whilst allowing water, salts and un-wanted micro-molecules to pass the membrane.*

The *UF/NF* systems from **MMS** can enrich plant extract solutions by removing micro-molecules, salts and water whilst selectively retaining your target molecules.



The **MMS SwissFlow** UF/NF can retain molecules with molecular weights ranging from 100 Da – 100'000 Da. By using a diafiltration step the MMS system can exchange your carrying solutions whilst performing the enrichment process.

#### Additional **MMS** plant extract Equipment

- **Microfiltration** for extract clarification
- **Ultrafiltration** for macro-molecule concentration, fractionation and de-salting.
- **Nanofiltration** for small molecule concentration and de-salting.
- **Reverse osmosis** for concentration of extracts using low to moderate temperature

#### Benefits

- Physical means of concentration
- No additives, flocculating agents required
- No solvents required
- Low operating temperatures
- Low energy requirements

#### Features

- Fully automated systems
- Supported by specialists
- CIP system included
- Complete solutions including tanks, post and pre-treatment

#### Options

- Diafiltration for higher product purity
- Pre-treatment with microfiltration
- On-line control of total solids
- On-line pH adjustment
- Remote access for system support and rapid troubleshooting
- Additional polishing step of permeate
- Scalable for more capacity



**MMS** produce a range of **UF/NF** systems capable of handling feed rates from 10 L/h – 25'000 l/h. Our systems apply a range of membrane types and modules which best match your product and the process environment. Both ceramic and polymer based membranes can be used. With our specialists we will enable you to select the correct membrane and system for your product and processing requirements.



**MMS** enable a process from the conceptual phase to be developed, designed, constructed, installed and implemented by our customers, *successfully*.



Concentration and de-salting 2000 L/h

#### Other Extract Applications

- Aloe Vera clarification and concentration
- Algae extract de-salting and concentration
- Chocolate extract clarification
- Herbal extract concentration
- Soya milk de-bittering
- Polyphenolics fractionation and concentration

*MMS supports customers during the develop of their membrane process.*

*Our infrastructure allows for the screening of membranes and scale-up of processes using out pilot systems.*



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