



EXTRACTIS

vos experts en bioraffinerie du végétal

MAIN EQUIPMENT LIST

RAW MATTER RECEPTION & PREPARATION

-
- **STORAGE:** positive cold = 15 pallets; room temperature = 180 pallets
- **LIQUIDS:** 2 x 5 m³ refrigerated tanks
- **GRINDING:**
 - Wet Grinder Urshell Comitrol 1700
 - Fryma MK pan grinder
 - Electra BC hammers grinder
 - Retsch SM300 cutting mill
- **DISPERSION:**
 - Silverson FX
 - Silverson Flash blend FLB20

UTILITIES

-
- **SOFTENED WATER:** 10 m³/h
- **DEIONIZED WATER:** 1 m³/h + 5 m³ tank

PRE-TREATMENT

-
- **ULTRASONIC SYSTEM:** 80-200 kg/h
- **HIGH PRESSURE HOMOGENIZER:** 80 kg/h, 1000 bar

EXTRACTION & SEPARATION

Type	Working volume	Stirring	Temperature range (°C)	Flame-proof
Vessel	1 m ³	Anchor (5-20rev/min) Rotor/ stator mixer (0-3000 rev/min)	5-95	
Vessel	4 m ³	1 turbine (50-160 rev/min)	5-95	-
Vessel	12 m ³	2 turbines	5-95	-
Vessel	15 m ³	2 turbines	5-95	-
Tank	200 L	1 anchor	5-95	-
Tank	250 L	1 anchor	5-95	-
Tank	800 L	1 blade	5-95	-
Tank	3 m ³	1 turbine	5-95	-
2 Tanks*	5 m ³	2 blades	5-80	Yes
Bottom filter vessel **	2.7 m ³	"S" anchor	5-100	Yes

* condenser ** reflux, vacuum, pressure

LIQUID/SOLID SEPARATION

-
- Lemitec MD 80 Decanter
- Z4D4 Flottweg Decanter
- Z23-4/401 Flottweg flameproof Decanter
- Z3E Flottweg Decanter
- Flottweg AC 1200 centrifuge (2 phases)
- Westfalia SC35 Clarifier (2 phases)
- Westfalia SaOH205 (3 phases)
- Rousselet RC60 Basket Centrifuge
- Rousselet RC50 Basket (flameproof)
- Orion 40 Platefilters : 4 & 8 m²

PURIFICATION

• MEMBRANES:

Organic membranes (for microfiltration, ultrafiltration, nanofiltration and reverse osmosis) :

- 28 cm² flat membrane for screening (no microfiltration)
- 1.8" spiral module (2 housings, 0.3 - 0.6 m²)
- 2.5" spiral module (4 housings, 2 to 10 m²)
- 3.8" spiral module (1 housing, 6-8 m²)
- 8" spiral module (3 housings, from 33 to 99 m², no microfiltration)

Ceramic membranes

- 1 unit 0.15 m² for membrane screening (up to 4 simultaneously, microfiltration and ultrafiltration)
- 1 1.6 or 3.2 m² microfiltration unit
- 1 ultrafiltration unit 7.8 m² (15, 50, 150 or 300 kDa)
- 1 ultrafiltration unit 33 m² (15, 50 or 150 kDa)

• RESINS:

- 4 lab scale columns (working volume 300 ml), broad range of resins
- 4 pilot scale columns (working volume 20 L), flameproof rated

• CONVENTIONAL & BIPOLAR ELECTRODIALYSIS:

- Lab scale skid EUR2B (cell surface 0.14 m²)
- Pilot skid EUR6B (cell surface 2.24 m²)

• EVAPORATION :

- Rotavap 1-10 L/h
- Evaporator 25 L
- Falling film evaporator 1000 L/h
- Falling film evaporator (flameproof rated) 300 L/h on ethanol
- 500 L crystallizer

• PASTEURIZATION: Pasteurizer ACTINI

• DRYING:

- 1 freeze dryer Buchi L-200, 6kg/24h
- 1 simple effect spraydryer, bifluid nozzle, evaporating capacity 2 to 5 L/h
- Simple effect spraydryer, bifluid nozzle, evaporating capacity 30/40 L/h
- Multiple effect spraydryer with fluidized bed, bifluid or high pressure nozzle, evaporating capacity 100 L/h, inlet air treatment (drying and filtration)

• PACKING: Grey room and clean room ISO8

ADDITIONAL EQUIPMENTS

- **KILOLAB** : Double jacket glass vessels 5/50 L, 25 L filter, 50 L decanter & 25 L washing column;

Flame proof rated room; operating temperature from - 40°C to 180°C.

CERTIFICATIONS

- ISO 9001 V 2015
- ECOCERT
- Kosher Orthodox Union
- HACCP approach
- FDA approval
- Authorised warehouse-keeper
- Certified Research Tax Credit

ANALYTICAL TOOLS

• CHROMATOGRAPHY:

- GC-FID
- HPLC (UV, diode array, refractometry)
- HPIC (conductimetry, amperometry)
- Karl Fisher, Kjeldahl, UV-visible spectrophotometer
- Brookfield, RVA,
- Laser particle size analyzer, Turbidity measurement, optical microscopy