



**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 m<sup>3</sup> 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 m<sup>3</sup>/h
- **DEIONIZED WATER:** 1 m<sup>3</sup>/h + 5 m<sup>3</sup> 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 <sup>3</sup>	Anchor (5-20rev/min) Rotor/ stator mixer (0-3000 rev/min)	5-95	
Vessel	4 m <sup>3</sup>	1 turbine (50-160 rev/min)	5-95	-
Vessel	12 m <sup>3</sup>	2 turbines	5-95	-
Vessel	15 m <sup>3</sup>	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 <sup>3</sup>	1 turbine	5-95	-
2 Tanks*	5 m <sup>3</sup>	2 blades	5-80	Yes
Bottom filter vessel **	2.7 m <sup>3</sup>	"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 m<sup>2</sup>

## PURIFICATION

### MEMBRANES:

- 28 cm<sup>2</sup> Labcell unit for organic membranes screening
- 0.15 m<sup>2</sup> unit for ceramic membranes screening
- 7.5 m<sup>2</sup> skid fitted with mineral membranes (15, 50, 150,300 kDa, 0.8 µm)
- 33 m<sup>2</sup> skid fitted with mineral membranes (15, 150 kDa)
- 7 to 15 m<sup>2</sup> skid fitted with organic membranes (from micro ultrafiltration)
- 2.5 to 100 m<sup>2</sup> skid for nanofiltration or reverse osmosis (organic membranes)
- 3.2 m<sup>2</sup> microfiltration
- 2 plate filters

### 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 m<sup>2</sup>)
- Pilot skid EUR6B (cell surface 2.24 m<sup>2</sup>)

### 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