WHY TOLLING **DISTILLATION AND PURIFICATION ?**

- ✓ Extra and outer production capacities
- ✓ Improvement of production parameters
- ✓ Scale-up of laboratory tests
- ✓ Technical performance verification before investment
- ✓ Business unit spirit
- ✓ Improvement of production parameters
- ✓ Testing of new products
- ✓ Financial auditing before investment

WHY TOLLING DISTILLATION AND **PURIFICATION AT LANOLINES STELLA ?**

- ✓ Family company - Dewavrin Cosmetics
- ✓ Customer focused
- ✓ Flexibility
- ✓ Ethical commitment
- ✓ Eco friendly company
- ✓ Service focused
- ✓ Traceability
- ✓ CSR compliance

Infrastruture & Equipments	Building dedicated	288 m² separated from the lanolin activities
	1 industrial Wiped Film Evaporator	WFE
	1 industrial Short Path Evaporator	SPE
	2 ovens	1 automated with temperature control loop
	2 Food Grade stirred reactors	Capacity 15 m3 each - Campaign size : from 1 ton to 13 tons - More : on request
	2 stirred reactors	Capacity 15 m3 each - Campaign size : from 1 ton to 13 tons - More : on request
	Connections to Heated IBC	Yes
	Connections to Iso-Containers	Yes
	Filtration of finished products	Yes, up to 5 mm
	1 laboratory distillation plan	SPE - Campaign size : Up to 30 kg More : on request

Analysis and R&D laboratory equipments	Laboratory mass balances	+/- 0,0001g
	Laboratory muffle furnace	up to 950°C
	Automatic dropping point system	For automatic dropping point determination
	Manual dropping point system	Ubbelohde dropping point determination
	Laboratory ovens	
	CPG-FID, alcohols	Gaz chromatography for Cholesterols analysis
	CPG-FID, Sterols	Gaz chromatography for Sterols analysis
	CPG-FID, BHT	Gaz chromatography for BHT analysis
	CPG ECD	Gaz chromatography for pesticides analysis (Pyrethroïds, Organochlorine)
	CPG NPD	Gaz chromatography for pesticides analysis (Organophosphate)
	Penetrometer	Tenderness measurement
	Gardner and Lovibond colorimeter	Colour measurement
	Others	Ash content, Saponification value, Iodine value, Hydroxyl value, WSOS, WSAA, FFA, Acid value, Moisture, Peroxyde value, Parafins, Water absorption …

Extras	Finished products analysis	Filling	1 calibrated weight balance	Wastes treatment
	Yes, according to the laboratory equipment list	Possible under reserves	until 1500 kg	Possible under reserves

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	TOLLING PLANTS	LABORATORY DISTILLATION UNIT	INDUSTRIAL DISTILLATION UNIT	
	Type of Evaporator	Laboratory SPE	WFE	SPE
Performance	Achievable pressure	< 0,005 mbar	1 ... 15 mbar	0,005 ... 0,05 mbar
	Maximum distillation temperature	300 °C	50 ... 250 °C	50 ... 300 °C
	Maximum dropping point	120 °C	120 °C	120 °C
	Maximum viscosity at process temperature	15000 mPas	15000 mPas	15000 mPas
	Feed rate	0,1 ... 2 l/h	100 ... 150 kg/h	100 ... 150 kg/h
	Maximum feed rate	3,14 l/h	150 kg/h	150 kg/h
Technical designs	Evaporation surface	0,042 m^2	1 m^2	1,5 m^2
	Condenser surface	0,065 m^2	1 m^2	2,1 m^2
	Cold trap	Yes, 50 ml with Liq. N2	-	Yes, -30°C
	Condenser temperature	-20 °C - 150 °C	-50°C ...+200°C	+50°C ...+200°C
	Wiper system	Block wiper in PTFE/Graphite	Block wiper in Graphite	Block wiper in Graphite
	Construction materials (wetted with products)	Borosilicate glass / SS 1.4571	SS 1.4571	SS 1.4571
	Rotor speed	60 ... 500 rpm	0 ... 217 rpm	0 ... 164 rpm
	Control, datas registration	Manual	PLC	PLC
	Process supervision	-	Yes	Yes

Applications	Process development	Toll manufacturing - Toll processing - Toll distillation	
	Feasibility studies (qualities, yields,products behaviours etc...)	Industrial production - Large scale	
	Determination industrial of process parameters		
	Continuous distillation of small quantities		
	Existing process optimization		

Benefits	Robust and reliable tests	Versatile and flexible	
	Minimal thermal stress for the product		
	Gentle distillation		
	Observation of the product properties and behaviours	Degasser in front	Degasser & WFE in front
	Observation of foaming, fouling and film distribution	Wide temperature range - Pressure control loop - Monitored	
	Double-jacketed pipes, pumps, valves		
	Continuous process Continuous feed and continuous residue & distillate discharge		