GRAPE MARC DISTILLATION PILOT PLANT

Manual vers. mod. UDV-M/EV
Computer-aided vers. mod. UDV/EV

INTRODUCTION

The end product of grape marc distillation is ethyl alcohol mixed, in different concentrations, with water and with several volatile constituents that enrich the alcoholic beverage with its typical odour and taste going well with the particular sensation of alcohol.

The process being carried out is steam distillation of grape marc, but also indirect steam distillation can be carried out: vapours are condensed and the resulting mixture is distilled to obtain the end product.

This plant can also distil binary mixtures.

If users are not interested in process control issues, it is better to purchase the manual version mod. UDV-M/EV.

TRAINING PROGRAM

This unit enables to deepen the following issues:

- Mass balance
- Energy balance
- Analysis of the end product versus the following operating parameters:
  - steam flow rate
  - characteristics of raw material
- End product analysis:
  - determination of alcoholic strength
  - determination of methyl alcohol
  - determination of total acidity
  - determination of higher alcohols
  - determination of aldehydes

TECHNICAL SPECIFICATION

- Wheeled framework of AISI 304 stainless steel
- Batch dealcholization column of AISI 304 stainless steel, provided with toroidal steam distributor and outer jacket for indirect steam heating, capacity of 25 l
- Fractionating column of AISI 304 stainless steel
- Head condenser of borosilicate glass, with exchange surface of 0.3 m^2
- Electronic flowmeter for measuring steam flow rate to dealcoholization column, range of 0 to 20 kg/h
- Electronic indicator of steam flow rate
- Reflux head of borosilicate glass
- Flowmeter for the water feeding the condenser, range of 20 to 300 l/h
- Alcoholometer inserted in the line
- Pneumatic valve of AISI 316 stainless steel, Cv = 0.32, DN 10, for controlling steam flow rate
- Tank of borosilicate glass for collecting distillate, with capacity of 5 l
- Reboiler of borosilicate glass, with capacity of 3 l
- Distillation column of borosilicate glass, DN 50
- Head condenser of borosilicate glass, with exchange surface of 0.3 m^2
- Reflux head of borosilicate glass, provided with electromagnetic valve for distillate extraction and control of reflux ratio
- Quartz-sheathed electric heater, P = 1.6 kW
- Flowmeter for measuring the water feeding the head condenser, range of 20 to 250 l/h
- Feed metering pump, programmable from 0 to 8 l/h
- 12 Pt100 double thermoresistances with sheath of AISI 316 stainless steel
- 12 electronic temperature indicators, range of 0 to 200 °C
- 2 tanks of borosilicate glass for collecting distillate and residuum, with capacity of 2 l and 3 l
- 2 timers for the control of reflux ratio and distillate extraction
- Thyristor unit of 0 to 1,6 kW/ 4 to 20 mA
- Connecting lines and valves of AISI 304 and 316 stainless steel
- Switchboard with protection degree IP55 complying with EC standards and including a differential circuit breaker and a schematic diagram of the plant
- Vacuum circuit
- Variable-area electronic indicator transmitter of flow rate for the water feeding the head condenser, made of AISI 304 stainless steel, range of 20 to 250 l/h, output signal of 4 to 20 mA (only for mod. UDV/EV)
- Pneumatic valve of AISI 316 stainless steel, Cv = 0.32, for controlling the flow rate of water feeding the head condenser (only for mod. UDV/EV)
- Vacuum pump with oil-bath lubricated vanes (only for mod. UDV/EV)
- Electronic transmitter of residual pressure, with cell of AISI 316 stainless steel, range of 0 to 1000 mbar, output signal of 4 to 20 mA (only for mod. UDV/EV)
- Pneumatic control valve of AISI 316 stainless steel, Cv = 0.32 (only for mod. UDV/EV)
- 2 electropneumatic converters of 4 to 20 mA / 0.2 to 1 bar (only for mod. UDV/EV)
- Microprocessor PID controller (only for mod. UDV/EV)
- Supervision software mod. SW-UDV/EV: this software runs in Windows and it is designed to control ON-OFF signals, analog signals coming from the controller, real-time trend and historical trend (only for mod. UDV/EV)

Dimensions: 2600 × 720 × 2020 mm
Weight: 165 kg

SUITABLE FOR PROCESSING:

MILK (table top)	MILK (on castors)	FRUIT	TOMATO	CITRUS	OLIVE	OLEAGINOUS SEED	GRAPE	BREWING	SEAFOOD	LIQUEURS
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REQUIRED

UTILITIES (PROVIDED BY THE CUSTOMER)

- Power supply: 400 Vac 50 Hz three-phase - 2,5 kVA (Other voltage and frequency on request)
- Compressed air: 2 Nm^3/h, P = 6 bar
- Water: 500 l/h
- Steam: 20 kg/h a 4 bar
- Floor drain

ACCESSORIES (NOT INCLUDED)

- Steam generator mod. SCT04/EV (if the plant is not included in a line) or mod. SCT03/EV

SUPPLIED WITH

THEORETICAL – PRACTICAL – EXPERIMENTAL HANDBOOK