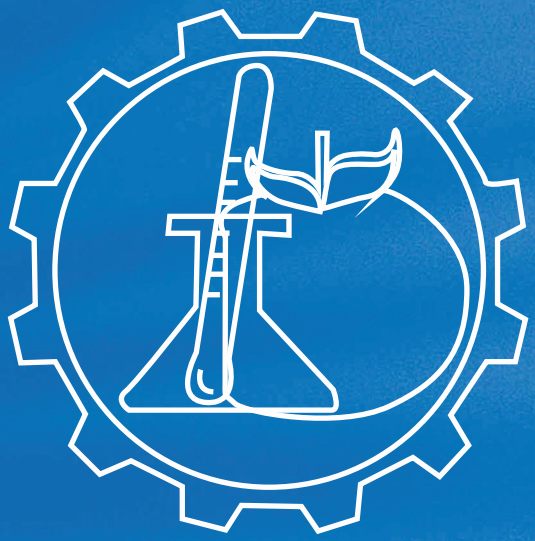
Summarized
Catalogue

five (5)



12. Food & Water Technologies

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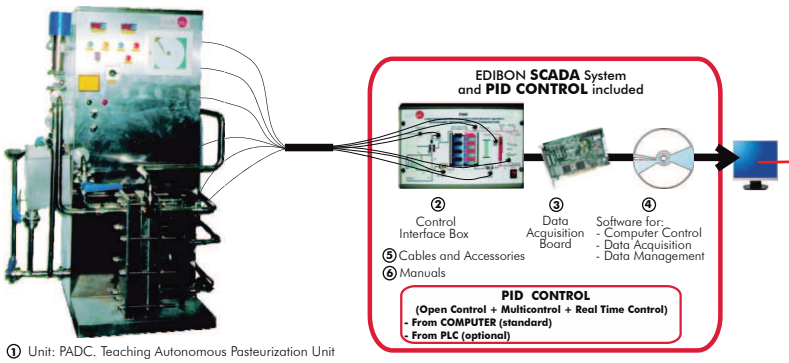
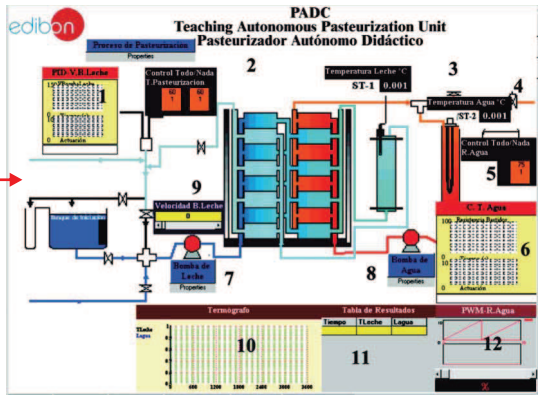
Equipment list

PADC. Computer Controlled **Teaching Autonomous Pasteurization Unit**



① Unit: PADC. Teaching Autonomous Pasteurization Unit



SPECIFICATIONS SUMMARY

Items supplied as standard

① PADC. Unit:

Metallic structure. Pasteurization capacity: 250 l./h. Water flow in the exchange section: 750 l./h. Thermal Cycle: 4-56-72-20 °C. Retention time: 20 seconds at 250 l./h. of milk. Water temperature in the heating section: 79°C. Plates in the regeneration section: 17. Plates in the pasteurization process: 9. Start tank. Heat exchanger. Milk pump, computer controlled. Water pump, computer controlled. Water tank with heating element, computer controlled. Retention milk tank. Expansion water tank. Water temperature sensor. Milk temperature sensor. Milk inlet valve. On/Off valves. Defective valve 250/500 l. Water fill valve. Purge valve. Safety valve. Pneumatic valve.

② PADC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PADC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 1250 x 850 x 1550 mm. Weight: 120 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/PADC.pdf

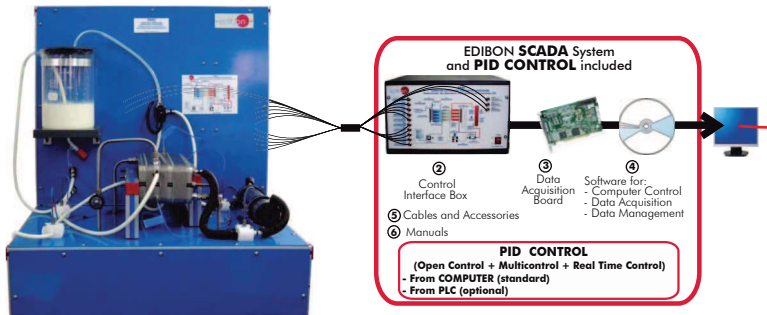
PRACTICAL POSSIBILITIES

1.- Setting up; filling of the circuit of water.
2.- Set up of the pasteurization plant; operation with water.
3.- Determination of the relation between the heating water temperature in function of the liquid flow to pasteurize.
4.- Determination of the survival curve for the different bacterial floras.
5.- Determination of the threshold temperature for a constant warning time of the milk.
6.- Determination of the necessary time to obtain a desired sterility volume.
7.- Determination of the thermal reduction time curve.
8.- Cleaning of the unit with sodium hydroxide.
9.- Cleaning of the unit with nitric acid.
10.- Manual cleaning of the heat exchanger.

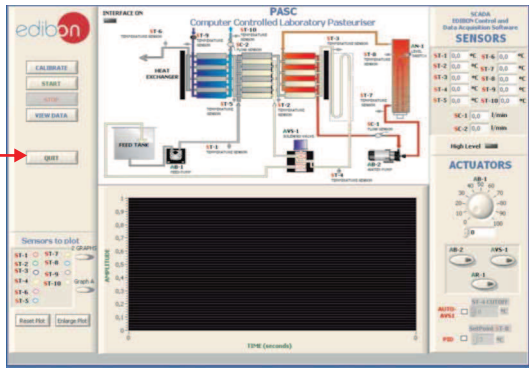
Other possible practices:

11.- Sensors calibration.
12.- Method for direct count with a Microscope.
13.- Method for direct count in Agar plates.
14-32.- Practices with PLC.

PASC. Computer Controlled **Laboratory Pasteuriser**



① Unit: PASC. Laboratory Pasteuriser



SPECIFICATIONS SUMMARY

Items supplied as standard

① PASC. Unit:

The PASC unit is a small scale continuous pasteurizer developed. It utilizes the process known as HTST (High Temperature Short Time) pasteurization, which simulates conditions of a real plant and allows pasteurization of small product quantities in a short time.

Pasteurisation capacity: 30 l./h. Feed tank of 5 l. of capacity. Dosing feed pump, computer controlled.

Water heating system, composed of: centrifugal pump (computer controlled), heating element (computer controlled), stainless steel tank, PID control from the computer of the tank water temperature, flow sensor for the hot water, level switch to protect the heating element.

Plates heat exchanger divided in three sections: N° of plates in the interchanging section: 6, N° of plates in the pasteurisation section: 13, N° of plates in the cooling section: 6. Retention time: 20 seconds at 30 l./h. (approx. for milk).

It also has a product cooling stage for it conservation. Water refrigeration circuit. Flow sensor for the cooling water. Pasteurised Food Production Automatic System, composed of a three-way, solenoid electrovalve, computer controlled, which also makes easier the CIP (Clean In Place) process.

10 Temperature sensors measure the product temperature, hot and cold water, tank water temperature.

② PASC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PASC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 800 x 800 x 1000 mm. Weight: 100 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/PASC.pdf

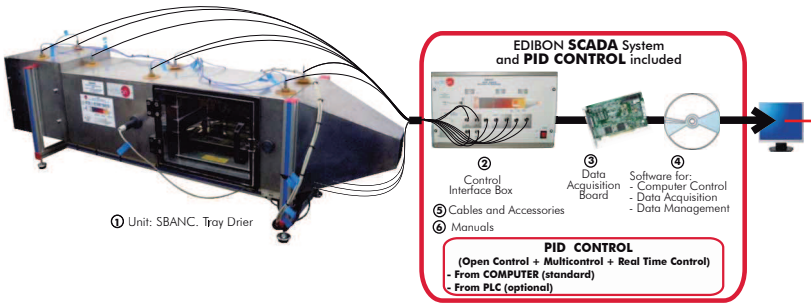
PRACTICAL POSSIBILITIES

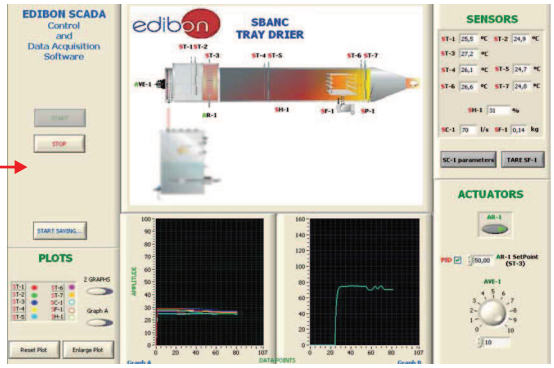
1.- Study of the HTST pasteurisation of alimentary products.
2.- Study of the destruction of damaging organisms.
3.- Calibration of the peristaltic feed pump.
4.- Start of the pasteurisation plant; operation with water.
5.- Determination of the relation between the heating water temperature according to the liquid flow to pasteurise.
6.- Determination of the survival curve for the different bacterial floras.
7.- Determination of the threshold temperature for a constant warming time of the product to treat.
8.- Determination of the necessary time to obtain a desired sterility volume.
9.- Determination of the thermal reduction time curve.
10.- Study and application of the CIP cleaning of the pasteuriser.
11.- Study of different chemical cleaning methods.

Other possible practices:

12.- Sensors calibration.
13-31.- Practices with PLC.

SBANC. Computer Controlled **Tray Drier**





SPECIFICATIONS SUMMARY

Items supplied as standard

① SBANC. Unit:

This unit has been designed to study fluid mechanics, surfaces chemistry, solid structures and substances and energy balances, related to the drying processes. Anodized aluminum and main metallic elements of stainless steel. Diagram in the front panel. Stainless steel rectangular conduct (1000 x 320 x 320 mm), which includes a support, a drying chamber with a door with transparent window and a tray holder for 4 trays, a square nozzle 300 mm long, whose side goes from 315 to 100 mm progressively. Fan, with speed control from computer (PC). Weighing system for following the changes in weight of the solid due the evaporation or vaporisation of moisture during operation. Load Cell-force sensor. 7 Temperature sensors: 2 temperature sensors of Dry and Wet Bulb before the heating element, 1 temperature sensor in the heating element, 2 temperature sensors of Dry and Wet Bulb after the heating element, 2 temperature sensors of Dry and Wet Bulb after the drying chamber. Air flow sensor. Humidity sensor. Electrical heater (heating element), computer controlled.

② SBANC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ SBANC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 2000 x 400 x 450 mm. Weight: 190 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/SBANC.pdf

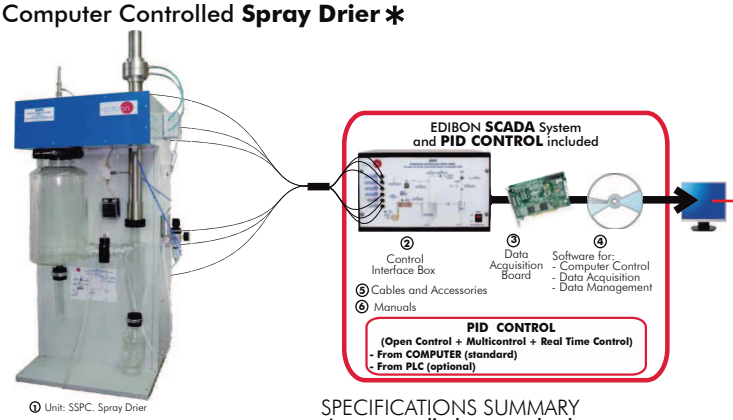
PRACTICAL POSSIBILITIES

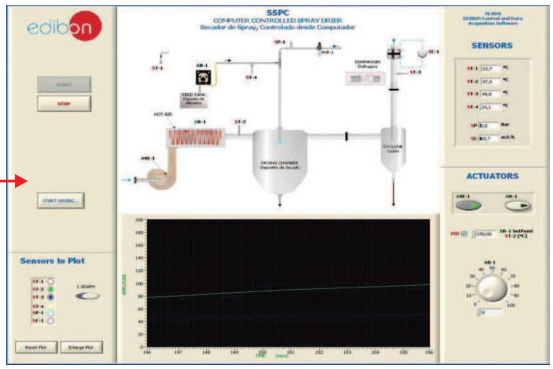
1.- Demonstration of drying rate regimens.
2.- Determination of the efficiency of the warm-up resistance.
3.- Effect of the warm-up in a drying installation.
4.- Heat and mass transfer analogies.
5.- Obtaining of drying curves.
6.- Influence of the particle size.
7.- Influence of the air speed.
8.- Influence of the air temperature.
9.- Application of the psychometry in the drying.

Other possible practices:

10.- Example of the determination of the properties of the air.
11.- Use of a psychometric map.
12.- Determination of the air flow.
13.- Dynamic simulation of the control systems.
14.- Sensors calibration.
15-33.- Practices with PLC.

SSPC. Computer Controlled **Spray Drier** ✱





SPECIFICATIONS SUMMARY

Items supplied as standard

① SSPC. Unit:

Spray drier for processing aqueous emulsions, solutions, suspensions and colloids. This unit is suitable for aqueous solutions only. Diagram in the front panel. Downward co-current operation (a fine jet of the product is brought into contact with a hot air stream). The unit components are made of glass with gasket free ground glass flanges. Characteristics: max. drying capacity: 1000 ml/h. approx., temperature range: 40-200°C (temperature at inlet), dry air volume range: 0.2-0.65 m^3/min., feed pump volume range: 102-1800 ml/h. approx. Fan, computer controlled. Heating element, computer controlled. Temperature sensor, located at the inlet of the drying chamber, works with the PID controller to maintain the desired air temperature at the inlet of the drying chamber. Drying chamber. Feed peristaltic pump, with variable speed, computer controlled. Cyclone. Sample collection bottle. Exhaust tube. Filter/air regulator located between the compressor (not included) and the unit to ensure that the drying air does not include contaminants. 4 Sensors to measure: environmental temperature, air inlet temperature in the drying chamber, exhaust air temperature, feeding temperature. Differential pressure sensor to measure, together with the diaphragm with orifice plate, the flow of exhaust air. Pressure sensor at the compressed air inlet. 1 glass vessel.

② SSPC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ SSPC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 500 x 500 x 1500 mm. Weight: 80 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/SSPC.pdf

PRACTICAL POSSIBILITIES

1.- Operation principle of a spray drier.
2.- Effect of the drop size on the drying process.
3.- Effect of the air input temperature on the drying process.
4.- Effect of the feed flow of the product on the drying process.
5.- Mass balance of a spray drier.
6.- Spray drier efficiency.

Additional practical possibilities:

7.- Sensors calibration.
8.- Energy balance of a spray drier.

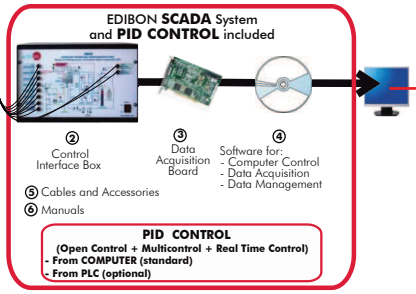
Other possible practices:

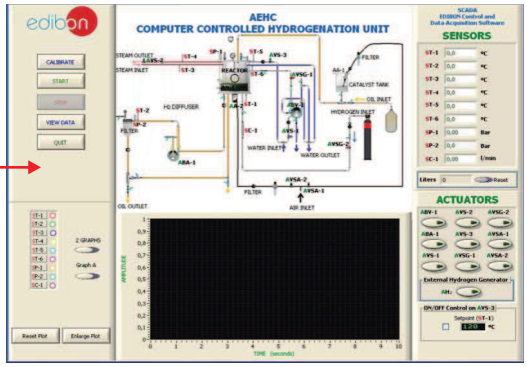
9-27.- Practices with PLC.

✱ Non computer controlled version available too.

AEHC. Computer Controlled **Hydrogenation Unit**

① Unit: AEHC. Hydrogenation Unit





SPECIFICATIONS SUMMARY

Items supplied as standard

① AEHC. Unit:
This Hydrogenation Unit is a batch processing vessel, which is used to adjust the degree of saturation of 22 l. batches of edible oils.
Anodized aluminum structure and panels of painted steel. Diagram in the front panel. All equipment in contact with the process fluid in stainless steel.
Stainless steel hydrogenation vessel (reactor): total volume: 30 l., working volume: 22 l., minimum working volume: 14 l., heating coil, cooling coil, stainless steel hydrogen diffuser, level switch, exhaust valve, rupture disc.
Variable speed agitator for the hydrogenation vessel. Stainless steel catalyst tank of 6.5 l. Variable speed agitator for the catalyst tank. Liquid ring vacuum pump. Oil pump, centrifugal type. Filter. Security H_2 detector.
Sensors: 6 temperature sensors, 2 pressure sensors, flow sensor. 3 Manometers.
Gas, water and air solenoid valves. Security valves. Flameproof electrical equipment. Safe zone controls. Accurate control of hydrogen addition.

② AEHC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ AEHC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 1400 x 1100 x 2000 mm. Weight: 360 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/AEHC.pdf

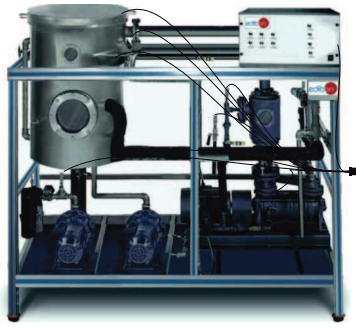
PRACTICAL POSSIBILITIES

1.- Study of the effect of process temperature.
2.- Study of the effect of degree of agitation.
3.- Study of the effect of hydrogen gas pressure.
4.- Operation of small scale version of the industrial hydrogenation process.
5.- To determine the optimum catalyst dosage.
6.- To demonstrate the operation of the filter for catalyst recovery.
7.- Study of the effect of catalyst type.

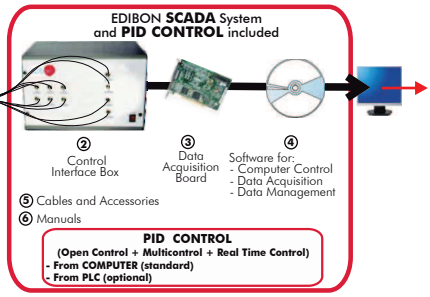
Other possible practices:

8.- Sensors calibration.
9-27.- Practices with PLC.

AEDC. Computer Controlled **Deodorising Unit**



① Unit: AEDC. Deodorising Unit



SPECIFICATIONS SUMMARY

Items supplied as standard

① AEDC. Unit:
Unit suitable for teaching/training and research into the principles of steam stripping of fatty acids from edible oils. This is a floor-standing batch processing vessel.
Stainless steel and anodized aluminum support structure. Diagram in the front panel.
Deodoriser vessel: 60 l. overall volume, 25 l. working volume, product maximum temperature: 250°C, electrical heating element (computer controlled), cooling water coil for reducing the oil temperature, steam distribution tube (which allows the steam/oil mixing required).
Multi-stage vacuum system, incorporating: steam ejector, condenser, vacuum pump (computer controlled).
Discharge pump. Polishing filter to remove any remaining particles in the finished oil.
Sensors of: temperature, level and pressure.
Sample collecting.
Modes of operation: Deodorising and polishing.

② AEDC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ AEDC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 1300 x 700 x 1600 mm. Weight: 300 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/AEDC.pdf

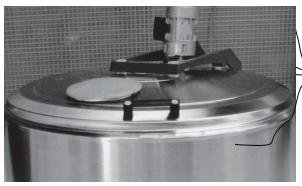
PRACTICAL POSSIBILITIES

1.- Study of the operation of small scale version of the industrial process.
2.- To determinate the optimum process conditions for different oil types.
3.- Effect of variation of process pressure.
4.- Effect of variation process temperature.
5.- Effect of variation of quantity of direct steam added.
6.- Effect of variation of overall process time.

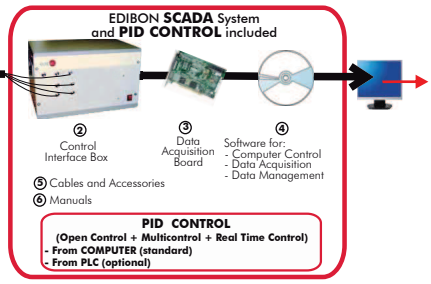
Other possible practices:

7.- Sensors calibration.
8-26.- Practices with PLC.

TFDC. Computer Controlled **Teaching Frigorific Tank**



① Unit: TFDC. Teaching Frigorific Tank



SPECIFICATIONS SUMMARY

Items supplied as standard

① TFDC. Unit:

Tank, covers and lining built in stainless steel. Also all the surfaces in contact with the milk are made of stainless steel, with a degree of refined appropriate polishing. Printed bottom with evaporator that assures the maximum efficiency and minimum consumption (1,5 KW/100 L, 1, 8 KW/100L). Effective isolation by means of injected polyurethane to increase, increments of temperature in the milk. Inclination of the bottom to achieve a quick casting. Started anti-air the milk to archive the volume measurement, in the tank. Automatic operation of the cooling group and the stirrer to assure a good homogenization of the milk. Coolant. Adjustable legs. Volume measurement of the milk. Compensated hinge. Sensors: Temperature sensors and level sensor.

② TFDC/CIB. Control Interface Box:

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ TFDC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

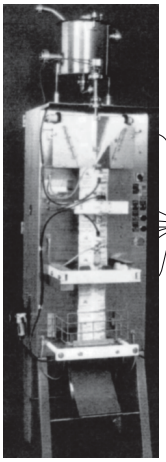
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

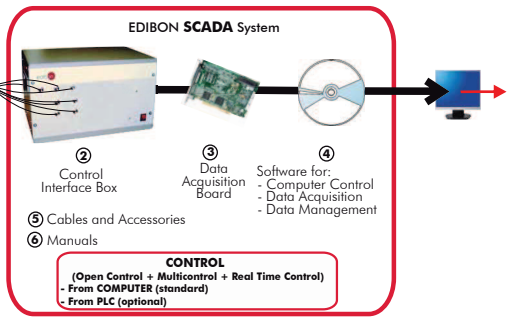
⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/TFDC.pdf

EDLC. Computer Controlled **Teaching Machine for Putting in Plastic Packing Liquids**





① Unit: EDLC. Teaching Machine for Putting in Plastic Packing Liquids

SPECIFICATIONS SUMMARY

Items supplied as standard

① EDLC. Unit:

Main metallic elements in stainless steel. Starting from a virgin polyethylene roll the machine give forms, it put in the amount and fill the bags. They are adapted for all type of liquid milk, juices, etc. Fill 1/8 to 1 l. All parts in contact with the milk, done by stainless steel. Unroll system with step of the film. Vertical chuck with date engraving. Horizontal chuck. Dosage system for the liquid. Control board. Automatism for the manual control. Heating with two impulse generators. It needs 100 l./h of cooling water. It needs 6 bars compressed air.

② EDLC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the PC keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ EDLC/CCSOF. Computer Control+Data Acquisition+Data Management Software:

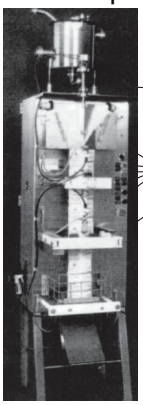
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

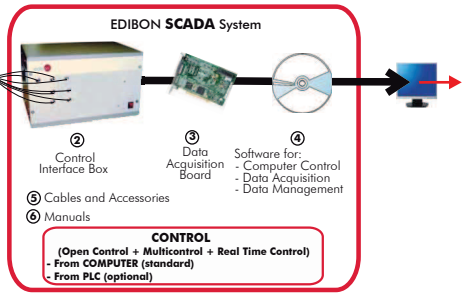
⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/EDLC.pdf

EDSC. Computer Controlled **Teaching Machine for Putting into a Container Solids**





①Unit: EDSC. Teaching Machine for Putting into a Container Solids

SPECIFICATIONS SUMMARY

Items supplied as standard

① EDSC. Unit:
Main metallic elements in stainless steel. Dose time programming. With possibility of creating a small aspiration after each dose, to avoid leakages. Possibility of adjusting the doses directly on the front keyboard. Possibility of working in continuous. Possibility of working in automatic way with regulation of the time of stop among almost dose. Cadence settles down. Possibility of working in manual, by means of switch of button. Possibility of programming certain quantity of dose with systematic counts of the doses. Dose accountant. Capability of 10 memories to establish the parameters of the doses or memorization of the regulations of the doser for 10 products and different volumes. Possibility of dosing liquids, and mash products of different densities, auxiliary coupling and discoupling elements as the product needs (Yoghurt, butter, sauces patés, juices, etc.).

② EDSC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the PC keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

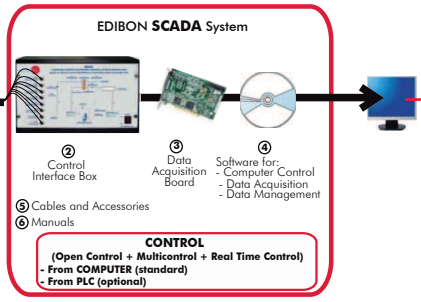
④ EDSC/CCSOF. Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

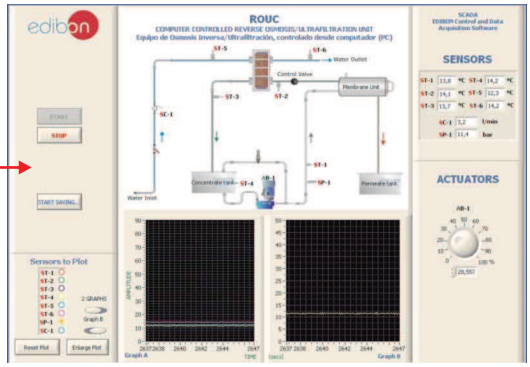
⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/EDSC.pdf

ROUC. Computer Controlled **Reverse Osmosis/Ultrafiltration Unit**





① Unit: ROUC. Reverse Osmosis/Ultrafiltration Unit

SPECIFICATIONS SUMMARY

Items supplied as standard

① ROUC. Unit:
Laboratory Scale Computer Controlled Reverse Osmosis/Ultrafiltration Unit designed to study and to provide practical training in these downstream processing techniques. As well as the processing of the whey, the membranes can be also used to demonstrate, for example: clarification and concentration of fruit juices, potabilization of water, pre-concentration of milk for cheese manufacturing, etc.
Anodized aluminum structure and panels of painted steel. Diagram in the front panel with similar distribution to the elements in the real unit. Stainless steel feed tank. Three head positive displacement feed pump, used to feed product to the membrane module, flow and pressure adjustable, variable speed control.
Frequency variator that controls the pump motor. Membrane module: two tubular membranes conected in series. Two regulation valves to control the water flow and the effluent flow. Plates heat exchanger for the concentrate. Permeate stainless steel collecting tank. 6 Temperature sensors, "J" type. Pressure sensor. Flow sensor (water inlet). Different models of membranes are supplied. Rapid changeover from Reverse Osmosis to Ultrafiltration and back.

② ROUC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the PC keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ ROUC/CCSOF. Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) =Unit: 800 x 800 x 1000 mm. Weight: 165 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/ROUC.pdf

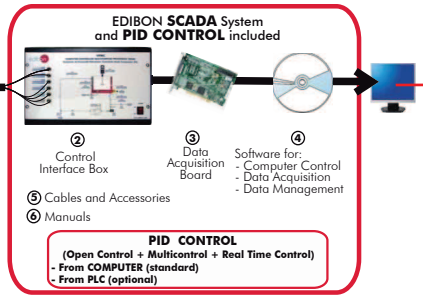
PRACTICAL POSSIBILITIES

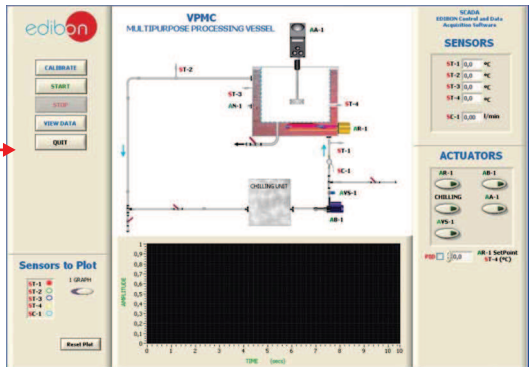
1.- Practical training in ultrafiltration an reverse osmosis processing techniques.
2.- Protein standardisation in the production of fermented milk products such as concentration of skimmed milk for yoghurt production.
3.- Pre-concentration of milk for cheese manufacture.
4.- Concentration of fruit juices.
5.- Clarification of fruit juices.
6.- Water potabilization.
7.- Demonstration of the effect of varying the following process parameters on separation performance:
- Process pressure.
- Product flow rate.
- Process temperature.

Additional practical possibilities:
8.- Sensors calibration.
9.- Applications of concentration, clarification, fractionation and standardization of milk, fruit juices, vegetables juices, etc.
10.- Treatment of effluent.
11.- Membrane cleaning and maintenance.
12.- Enzime, antibiotics and organic acids recovery in permeate.
Other possible practices:
13-31.- Practices with PLC.

VPMC. Computer Controlled **Multipurpose Processing Vessel**

① Unit:VPMC. Multipurpose Processing Vessel





SPECIFICATIONS SUMMARY

Items supplied as standard

① VPMC. Unit:

The VPMC unit is a type batch equipment, suitable to demonstrate the different mixing processes in the alimentary industry. As it is a multiprocess vessel, several mixing tasks will be able to be carried out. Furthermore, it has a temperature control necessary to make easier the mixing tasks which require it, such as the help to carry out the complex emulsion tasks. The VPMC unit has all the necessary to: mix, emulsify, heat, pasteurise, incubate, cool, chill, cure. As well as the preparation of food products for further processing, it allows to produce finished products in batch sizes from 5 up to 30 l. maximum.

Anodized aluminum structure and panels of painted steel. Diagram in the front panel.

Stainless steel jacketed process vessel, capacity: 30 l. Batch sizes: from 5 up to 30 l. (depending on the mixture being processed). Max. vessel contents temperature: 85° C. Heating element, computer controlled. Emulsifier/Mixer unit of high speed with DC motor, this emulsifier is computer controlled. 4 Different emulsifier heads are supplied. Chilled water circulation system: chilling unit with compressor motor and water recirculating centrifugal pump, computer controlled. PID control of the temperature of the product into the process vessel. 4 Sensors to measure: products temperature in the vessel, temperatures for controlling the water temperature. Flow rate of cold or chilled water is controlled. Level switch in the process vessel to protect the heating element.

② VPMC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ VPMC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Manuals: This unit is supplied with 8 manuals.

⑥ Cables and Accessories, for normal operation.

Dimensions (approx.) =Unit: 800 x 800 x 1250 mm. Weight: 150 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/VPMC.pdf

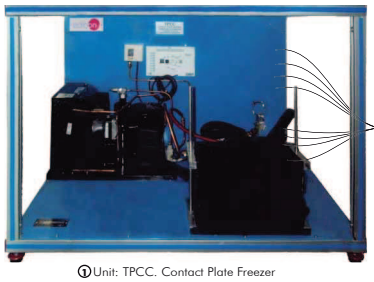
PRACTICAL POSSIBILITIES

1.- Study of different process, with their adequate instrumentation, using heating and cooling systems.
2.- General emulsion study.
3.- Batch pasteurization of milk.
4.- Processing of fermented milk products.
5.- Yogurt production.
6.- Preparation and curing of ice cream mix.
7.- Preparation of margarine and soft spread emulsions.
8.- Heat transfer measurement.
9.- Heat transfer calculations.
10.- Study of general heating, cooling and chilling.

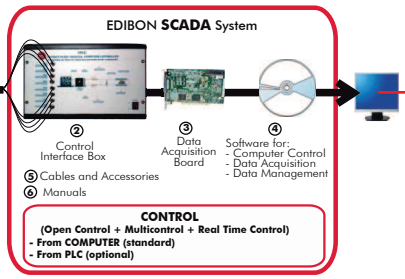
Other possible practices:

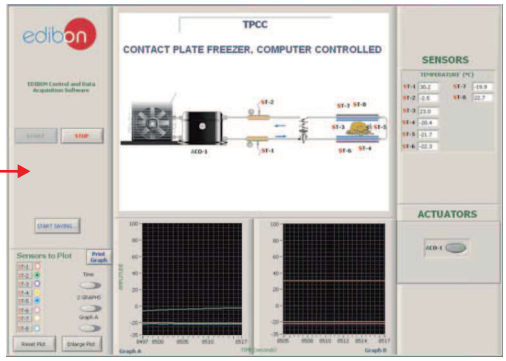
11.- Sensors calibration.
12-30.- Practices with PLC.

TPCC. Computer Controlled **Contact Plate Freezer**



①Unit: TPCC. Contact Plate Freezer





SPECIFICATIONS SUMMARY

Items supplied as standard

① TPCC. Unit:

The TPCC unit has as aim to introduce the students to quick freezing processes, to their advantages compared with conventional freezing processes, as well as to proceed to the study of the thermodynamic process, through which such freezing is obtained. Basically, this unit is made up of a refrigeration circuit. The unit has been designed to observe the thermodynamic changes occured during the process, for a given coolant, allowing the study of the refrigeration cycle.

Anodized aluminum structure and panels of painted steel. Diagram in the front panel with similar distribution to the elements in the real unit. Coolant compressor, computer controlled. Air condenser. High pressure control. Coolant accumulation tank. Expansion valve. Four-way valve. Evaporator-freezer, with two freezing plates of 180 mm x 280 mm. Plate temperature (both plates): <-35°C. 8 Temperature sensors: 2 Sensors (temperature measurement of the coolant) and 6 sensors (temperature measurement of the food). 2 Manometers.

② TPCC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the computer of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ TPCC /CCSOF. Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) =Unit: 900 x 600 x 500 mm. Weight: 90 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/TPCC.pdf

PRACTICAL POSSIBILITIES

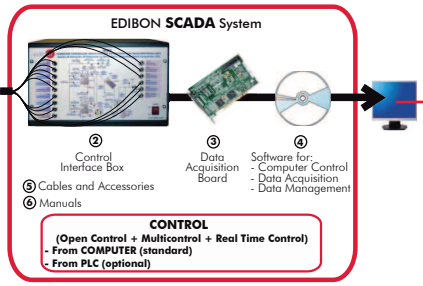
1.- Study of industrial freezing process.
2.- Study of food preservation.
3.- Study the effect of freezing on food.
4.- Investigate the effect on the freezing process of parameters such as the shape of the product, portion size, the packaging, etc.
5.- To evaluate the difference between fast freezing and domestic freezing.
6.- Freezing rates.
7.- Study of fast freezing vs slow freezing.
8.- Temperature sensing.
9.- Taste and texture assessments.
10.- Study of the deep-freezing process effect: structural.
11.- Study of the deep-freezing process effect: compositional.
12.- Study of the deep-freezing process effect: sensorial.
13.- Study of the thermal process.
14.- Study the effect of the temperature on bacteria.
15.- Quality control.
16.- Quality assurance.
17.- Freezing curves analysis.
18.- Links with Physics (refrigeration) and with Biology(food structure).

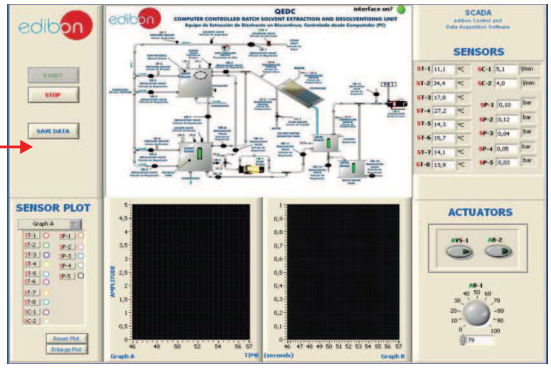
Other possible practices:

19.- Sensors calibration.
20-38.- Practices with PLC.

QEDC. Computer Controlled **Batch Solvent Extraction and Desolventising Unit**

① Unit: QEDC. Batch Solvent Extraction and Desolventising Unit





SPECIFICATIONS SUMMARY

Items supplied as standard

① QEDC. Unit:

The Solvent Extraction and Desolventising Unit (QEDC) is a batch process unit able to perform different solid/liquid extractions. It is especially suitable for extracting oil from oily seeds and to remove the solvent both from the extracted solids and mixtures. Furthermore, several factors that influence the extraction process can be studied with this unit.

Metallic structure and panels of painted steel.

Diagram in the front panel with similar distribution to the elements in the real unit.

Extractor tank:

Cylindrical vessel of stainless steel, with a hinged lid and equipped with an indirect steam chest for process heating and a sight glass of neoceram.

The vessel has a base inclined slightly towards a port for discharging the extracted and desolventised meal and a perforated plate covered with a fine woven mesh so solvent may drain through to the miscella tank whilst retaining the solids.

Direct steam and solvent are injected through two distribution pipe.

Direct steam: 0 - 0.9 bar.

Indirect steam: 0-3.5 bar.

Miscella tank:

Cylindrical vessel of stainless steel, equipped with an indirect steam chest for process heating and a level viewer. The vessel has a base inclined slightly towards a port for discharging the extracted and solvent.

Direct steam is injected through a distribution pipe.

Direct steam: 0 - 0.9 bar.

Indirect steam: 0 -3.5 bar.

Solvent condenser:

Condensing capacity: 2.5kW.

Condensing area: 2.5m^2.

Cooling medium: water.

Cooling water flow range: 0 - 22 l./min.

Maximum working pressure: 1.0 bar.

Solvent water separator tank:

Cylindrical vessel of stainless steel equipped with a level viewer.

Volume of separator section: 16 l.

Volume of solvent store: 16 l.

Waste water tank:

Cylindrical vessel of stainless steel equipped with a level viewer. Volume: 15 l.

Solvent pump.

Vacuum pump.

8 Temperature sensors.

5 Pressure sensors.

2 Flow sensors.

The inlet of vapour incorporates a safety valve to limit the working pressure to 4.0 bar, and the extractor/desolventiser tank and the miscella tank incorporate two safety valves to limit the working pressure to 0.9 bar.

An electronic solenoid valve and a pressure switch (4 bar).

Modes of operation:

Extraction by washing with clean solvent.

Extraction by recirculating miscella.

Desolventising extracted material.

Desolventising miscella.

② QEDC/CIB. Control Interface Box

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the PC keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ QEDC/CCSOF. Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 1750 x 1000 x 2000 mm. Weight: 850 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/QEDC.pdf

PRACTICAL POSSIBILITIES

1.- Operation of small scale version of industrial processes.

2.- Effect of degree of pretreatment of solid material on extraction efficiency.

3.- Effect of extraction time.

4.- Effect of drain time.

5.- Effect of solvent type.

6.- Effect of solvent percolation rate.

7.- Effect of process temperature.

8.- Effect of process pressure.

9.- Method of solvent recovery.

10.- Degree of solvent recovery.

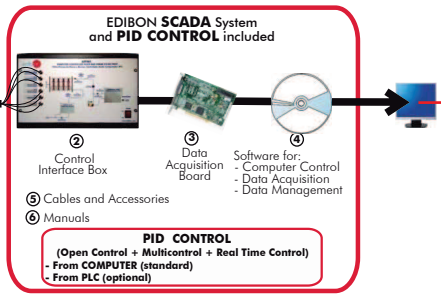
Other possible practices:

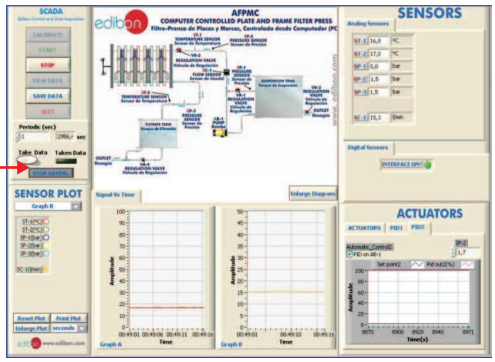
11.- Sensors calibration.

12- 30.- Practices with PLC.

AFPMC. Computer Controlled **Plate and Frame Filter Press**

① Unit: AFPMC. Plate and Frame Filter Press





SPECIFICATIONS SUMMARY
Items supplied as standard

① AFPMC. Unit:

The Computer Controlled Plate and Frame Filter Press (AFPMC) has been designed to demonstrate the filtration and clarification processes suitable for chemical, pharmaceutical, food and beverage industries, etc.

Anodized aluminum structure and panels of painted steel.

Diagram in the front panel with similar distribution to the elements in the real unit.

Tank to produce the suspension, of 250 l. approx.

Centrifugal pump, computer controlled, to deliver the suspension to the plate and frame filter press.

A PID control enables constant flow rate, and a PID control enables constant pressure operation by controlling the speed of the pump (from computer).

A plate and filter press:

Filter area: 0.76 m^2, max. working pressure: 2.5bar.

A tank for filtrate of 140 l. approx.

3 Pressure sensors.

2 Temperature sensor.

Magnetic-inductive flow sensor.

Portable turbidity meter.

Four grades of filter media are supplied, suitable for: pre-coat filtration, coarse clarifying, polishing and sterilisation.

② AFPMC/CIB. Control Interface Box:

With process diagram in the front panel.

The unit control elements are permanently computer controlled.

Simultaneous visualization in the PC of all parameters involved in the process.

Calibration of all sensors involved in the process.

Real time curves representation.

All the actuators' values can be changed at any time from the keyboard.

Shield and filtered signals to avoid external interferences.

Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process.

Open control allowing modifications, at any moment and in real time, of parameters involved in the process.

3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot.

16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ AFPMC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software.

Management, processing, comparison and storage of data.

Sampling velocity up to 250 KS/s (kilo samples per second).

It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 2000 x 1100 x 1300 mm. Weight: 200 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologybasic/AFPMC.pdf

PRACTICAL POSSIBILITIES

1.- Learning the fundamental principle and operation method of a plate and frame filter press.

2.- Study of filtration and clarification processes.

3.- Demonstration of pre-coat filtration, coarse clarifying, polishing and sterilisation.

4.- Production of a suspension.

5.- Formation of a cake.

6.- Fundamentals of cake filtration. Demonstration of Darcy's Law.

7.- Turbidity versus concentration calibration straight line.

8.- Study of the plate and frame filter press at constant pressure.

9.- Study of the plate and frame filter press at constant flow.

10.- Variation in time of filtrate quantity and solid concentration in filtrate.

11.- Mass of filter cake in function of filtrate quantity.

12.- Determination of medium and cake resistance.

13.- Filter cake washing and dewatering.

Additional practical possibilities:

14.- Sensors calibration.

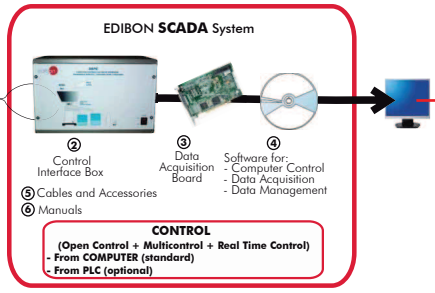
15.- Influence of the number of frames and filters in the filtration process.

Other possible practices:

16-34.- Practices with PLC.

DSNC. Computer Controlled **Teaching Cream Separator** ✱

① Unit: DSNC. Teaching Cream Separator



SPECIFICATIONS SUMMARY

Items supplied as standard

① DNSC. Unit:
This unit is designed to provide a practical training in the technique of separating the different phases existing in a liquid, in accordance with the density of each one of the parts. We take the separation of the cream from the milk, reaching efficiency of 125 l./h.
Anodized aluminum structure and panels of painted steel. Diagram in the front panel.
Throughputs up to 125 l. per hour can be obtained depending on degree of separation. Feed vessel (10 l. capacity) of anodized aluminium which can be replenished as necessary. Collectors for cream and skimmed milk with exit openings (outlets). Separator bowl incorporates 19 dics (plates). Motor. Speed control from the computer (PC). Speed sensor. Force sensor. Accessories included: stop clock, glass graduated vessels (for product collecting), etc.
The unit can be easily dismantled. Materials in contact with the process fluid are anodised aluminum, stainless steel, rubber and polypropylene.

② DNSC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the computer of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ DNSC/CCSOF. Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) =Unit: 500 x 500 x 500 mm. Weight: 40 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/DSNC.pdf

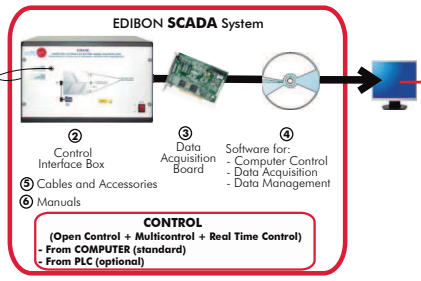
PRACTICAL POSSIBILITIES

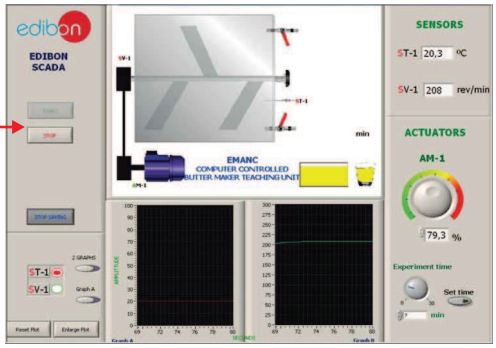
1.- Contribution to a better understanding of the industrial process, by means of operating a scale system.
2.- Study of the separation of different density liquids.
3.- Production of different types of cream by using milks with different greasy matter contents, 11% to 55%.
4.- Production of a range of skimmed milks with different contents of greasy matter.
5.- To demonstrate the effect of the temperature and the speed in the separating process.
6.- To show the importance of cleanness and hygiene in food processing.
7.- Understanding the mode of operation of this type of centrifuge, using instructive diagrams and ease of strip down the component parts.

Other possible practices:
8.- Sensors calibration.
9-27.- Practices with PLC.

EMANC. Computer Controlled **Butter Maker Teaching Unit** ✱

① Unit: EMANC. Butter Maker Teaching Unit





SPECIFICATIONS SUMMARY

Items supplied as standard

①EMANC. Unit:
This unit has been designed to provide practical training in butter making.
The main structure of EMANC is a 25 l. stainless steel tank. On the upper part, a (stainless steel)lid with four braces (two on each side) seals the tank. There is a round window to visualize the state of the inner product. Within the tank, a set of blades churn the product.
The motor is the most important element of the unit, since it makes the blades roll. It is controlled by two switches, one to start and other to stop. Besides these switches, the process can be controlled by the computer through the interface.
A security system (magnetic sensor) blocks the blades while the lid is not in place. The blades can be removed thanks to a releasing knob, what helps cleaning the interior.
There exist two valves, the upper valve allows the inlet of fresh water for washing the butter, the lower valve has a draining function for both the water and buttermilk.
Up to 13 l. of cream may be used on a single batch. Approx. 0.5 kg of butter produced out of 1.5 kg of cream.
Computer controlled electric motor and agitator. Temperature sensor. Speed sensor.

②EMANC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the computer of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④EMANC/CCSOF. Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 550 x 470 x 410 mm. Weight: 30 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/EMANC.pdf

PRACTICAL POSSIBILITIES

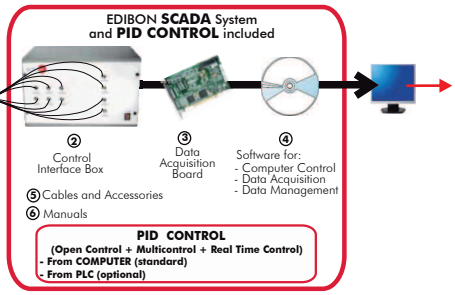
1.- Production of butter from different types of liquid cream.
2.- Production of butter by different methods with analytical and qualitative resolutions.
3.- Temperature study and agitation during the process.
4.- "Phase inversion" of the oil/water emulsion which occurs in churning.
5.- Thermodynamic evolution analysis of the butter production process.
6.- Duration influence study of the final product process.
7.- Influence study of the turning speed in the final product quality.

Other possible practices:
8.- Sensors calibration.
9-27.- Practices with PLC.

✱ Non computer controlled version available too.

AUHTC. Computer Controlled **UHT Unit**

① Unit: AUHTC. UHT Unit



SPECIFICATIONS SUMMARY

Items supplied as standard

① AUHTC. Unit:
UHT processing unit employing the direct fluid into steam heating method. This liquid into steam batch process unit will accept feedstock batch sizes up to 0.5 l. Main elements in contact with process fluids in stainless steel. Feed vessel (2 l. capacity). Steam heating vessel with atomiser spray head. Vacuum vessel with vapour/liquid separator. Recessed water bath with cooling coil. Max. temp.: 150° C. Vacuum pump with variable vacuum. Steam drying and air and steam sterilizing filters. Control valves. Sample size: up to 0.5 l. Pressure sensors. Temperature sensors. Control and temporization of holding, process and drain times.

② AUHTC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ AUHTC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) =Unit: 1000 x 600 x 1700 mm. Weight: 200 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/AUHTC.pdf

PRACTICAL POSSIBILITIES

1.- To demonstrate the infusion type UHT process.

2.- Study of the effects of the process on quality value of the product.

3.- Study of the effects of the process on nutritional value of the product.

4.- Variation of temperatures and holding times.

5.- Study of the degree of destruction of microorganisms such as mesophilic and thermophilic spores.

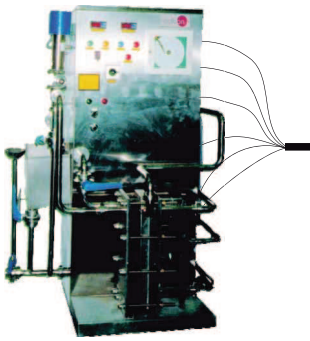
6.- Processing of several small batches consecutively.

Other possible practices:

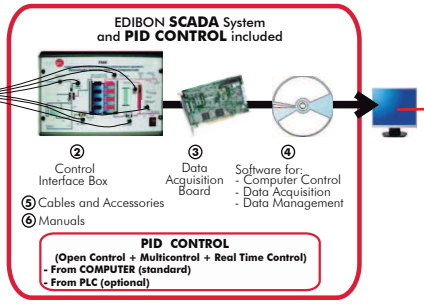
7.- Sensors calibration.

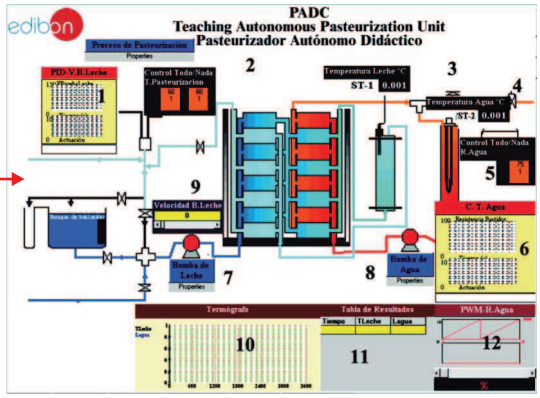
8-26.- Practices with PLC.

PADC. Computer Controlled **Teaching Autonomous Pasteurization Unit**



① Unit: PADC. Teaching Autonomous Pasteurization Unit





SPECIFICATIONS SUMMARY

Items supplied as standard

① PADC. Unit:
Metallic structure. Pasteurization capacity: 250 l./h. Water flow in the exchange section: 750 l./h. Thermal Cycle: 4-56-72-20 °C. Retention time: 20 seconds at 250 l./h. of milk. Water temperature in the heating section: 79°C. Plates in the regeneration section: 17. Plates in the pasteurization process: 9. Start tank. Heat exchanger. Milk pump, computer controlled. Water pump, computer controlled. Water tank with heating element, computer controlled. Retention milk tank. Expansion water tank. Water temperature sensor. Milk temperature sensor. Milk inlet valve. On/Off valves. Defective valve 250/500 l. Water fill valve. Purge valve. Safety valve. Pneumatic valve.

② PADC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PADC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 1250 x 850 x 1550 mm. Weight: 120 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/PADC.pdf

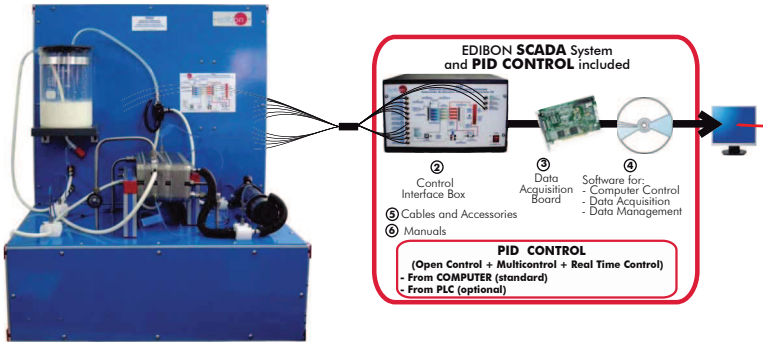
PRACTICAL POSSIBILITIES

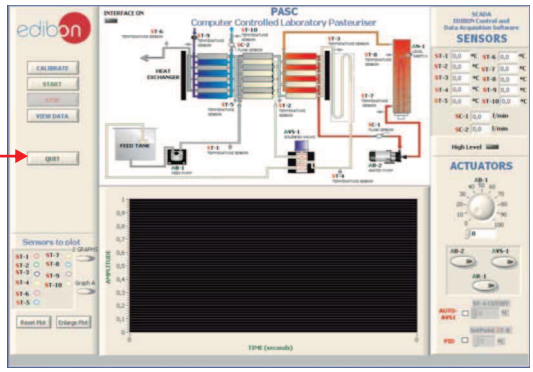
1.- Setting up; filling of the circuit of water.
2.- Set up of the pasteurization plant; operation with water.
3.- Determination of the relation between the heating water temperature in function of the liquid flow to pasteurize.
4.- Determination of the survival curve for the different bacterial floras.
5.- Determination of the threshold temperature for a constant warning time of the milk.
6.- Determination of the necessary time to obtain a desired sterility volume.
7.- Determination of the thermal reduction time curve.
8.- Cleaning of the unit with sodium hydroxide.
9.- Cleaning of the unit with nitric acid.
10.- Manual cleaning of the heat exchanger.

Other possible practices:

11.- Sensors calibration.
12.- Method for direct count with a Microscope.
13.- Method for direct count with Agar plates.
14-32.- Practices with PLC.

PASC. Computer Controlled **Laboratory Pasteuriser**





①Unit: PASC. Laboratory Pasteuriser

SPECIFICATIONS SUMMARY

Items supplied as standard

① PASC. Unit:

The PASC unit is a small scale continuous pasteurizer developed. It utilizes the process known as HTST (High Temperature Short Time) pasteurization, which simulates conditions of a real plant and allows pasteurization of small product quantities in a short time.

Pasteurisation capacity: 30 l./h. Feed tank of 5 l. of capacity. Dosing feed pump, computer controlled.

Water heating system, composed of: centrifugal pump (computer controlled), heating element (computer controlled), stainless steel tank, PID control from the computer of the tank water temperature, flow sensor for the hot water, level switch to protect the heating element.

Plates heat exchanger divided in three sections: N° of plates in the interchanging section: 6, N° of plates in the pasteurisation section: 13, N° of plates in the cooling section: 6. Retention time: 20 seconds at 30 l./h. (approx. for milk).

It also has a product cooling stage for it conservation. Water refrigeration circuit. Flow sensor for the cooling water. Pasteurised Food Production Automatic System, composed of a three-way, solenoid electrovalve, computer controlled, which also makes easier the CIP (Clean In Place) process.

10 Temperature sensors measure the product temperature, hot and cold water, tank water temperature.

② PASC/CIB. Control Interface Box :

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PASC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.)= Unit: 800 x 800 x 1000 mm. Weight: 100 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/PASC.pdf

PRACTICAL POSSIBILITIES

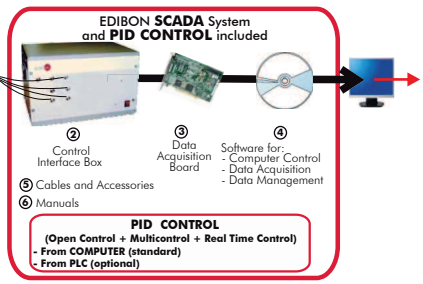
1.- Study of the HTST pasteurisation of alimentary products.
2.- Study of the destruction of damaging organisms.
3.- Calibration of the peristaltic feed pump.
4.- Start of the pasteurisation plant; operation with water.
5.- Determination of the relation between the heating water temperature according to the liquid flow to pasteurise.
6.- Determination of the survival curve for the different bacterial floras.
7.- Determination of the threshold temperature for a constant warming time of the product to treat.
8.- Determination of the necessary time to obtain a desired sterility volume.
9.- Determination of the thermal reduction time curve.
10.- Study and application of the CIP cleaning of the pasteuriser.
11.- Study of different chemical cleaning methods.

Other possible practices:

12.- Sensors calibration.

13-31.- Practices with PLC.

CCDC. Computer Controlled **Teaching Curdled Tank**



①Unit: CCDC. Teaching Curdled Tank

SPECIFICATIONS SUMMARY

Items supplied as standard

① CCDC. Unit:

Diagram in the front panel with similar distribution to the elements in the real unit. Dutch model. Rectangular with semicircular ends. Made in stainless steel.

Speed controlled. Temperature control for water and milk. Combined court liras and stirrer. Coil of stainless steel, for heating the water shirt, using water or steam in closed circuit. Adjustable legs. Capacity: 500 l. Sensors of: temperature and speed.

② CCDC/CIB. Control Interface Box:

With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ CCDC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:

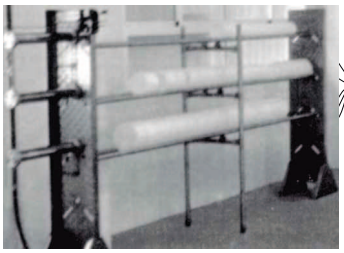
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

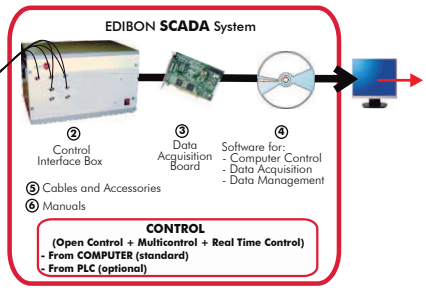
⑥ Manuals: This unit is supplied with 8 manuals.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/CCDC.pdf

PVQC. Computer Controlled **Teaching Cheese Vertical Press**



① Unit: PVQC. Teaching Cheese Vertical Press



SPECIFICATIONS SUMMARY

Items supplied as standard

① PVQC. Unit:
Diagram in the front panel with similar distribution to the elements in the real unit. Built in stainless steel. Compression by spring. 12 molds approximate capacity.

② PVQC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time control with flexibility of modifications from the PC keyboard of the parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PVQC/CCSOF. Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

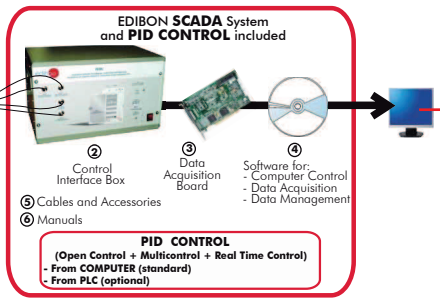
⑤ Cables and Accessories, for normal operation.

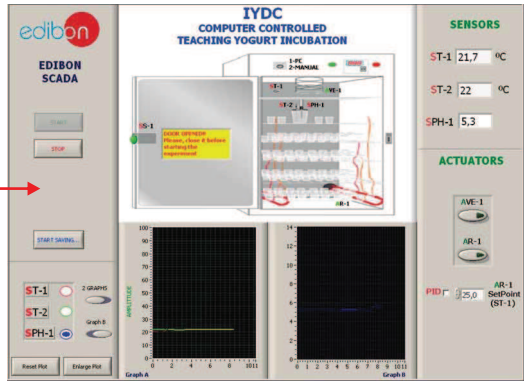
⑥ Manuals: This unit is supplied with 8 manuals.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/PVQC.pdf

IYDC. Computer Controlled **Teaching Yogurt Incubator**

① Unit: IYDC. Teaching Yogurt Incubator





SPECIFICATIONS SUMMARY

Items supplied as standard

① IYDC. Unit:
The objective of this unit is to teach to the students, in the most visual way as possible, the production of yoghurt, as well as the physical parameters that can be measured with this unit. This unit is designed as yogurt maker or yogurt heater. The yogurt maker consists of a series of shelves where the containers, in which the yoghurt will be formed, will placed. It has a heating element to control the process of heating needed for making yoghurt, an a fan that avoids that the unit overheats. A temperature sensor has been added to the unit, so the temperature of the unit can be computer controlled in any moment through the interface. Also, it has incorporated and electrode connected to the interface to control the proper pH to make yoghurt. Unit with enameled chassis and with reinforced isolation. Stainless steel main body. Heating element, computer controlled. 2 Temperature sensors. pH sensor with electrolyte solution. Fan. 250 ml vessel. Several mobile grills. Safety switch (alarm open door). Temperature digital controller with sensor. Manual or Computer Control switch. Unit on/off switch. Unit on/off indicator led. Safety indicator led (alarm open door). Heating element on/off indicator led.

② IYDC/CIB. Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ IYDC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

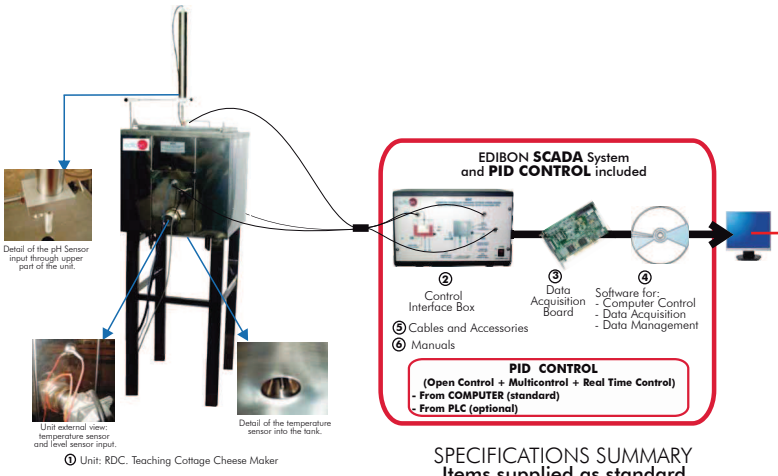
Dimensions (approx.) = Unit: 610 x 600 x 1400 mm. Weight: 100 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/IYDC.pdf

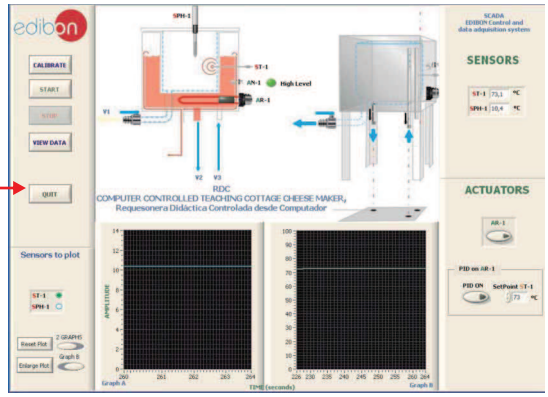
PRACTICAL POSSIBILITIES

1.- Making of yogurt.
2.- Obtained yogurt acidity measurements.
3.- Obtained yogurt viscocity measurements.
4.- Measurement of the two main bacteria used for making yogurt.
5.- Comparison of the results in function of the beaker placement inside of the yogurt incubator.
6.- Viscosity change in function of the yogurt pH.
7.- Differences in yoghurt when using whole milk or skim milk.
8.- Sensors calibration.
9-27.- Practices with PLC.

RDC. Computer Controlled **Teaching Cottage Cheese Maker**



① Unit: RDC. Teaching Cottage Cheese Maker



SPECIFICATIONS SUMMARY
Items supplied as standard

① RDC. Unit:
"RDC" Unit has the objective to introduce student the form more easy in the production of curd-cheese and to study of chemistry parameters. Structure and main metallic elements of stainless steel. Diagram in the front panel with similar distribution to the elements in the real unit.
Stainless steel tank (45 l. approx.), with water jacket. Electric heating element with protection, computer controlled. Temperature PID control from the computer (PC). Whey outlet valve. Water outlet valve. Water inlet valve. Drain pipe and vapour outlet. Required time for the process ≃45 min. Work temperature between 70-90°C. Thermostat. Sensors: pH sensor, level sensor, temperature sensor.

② RDC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ RDC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 700 x 700 x 1700 mm. Weight: 100 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/RDC.pdf

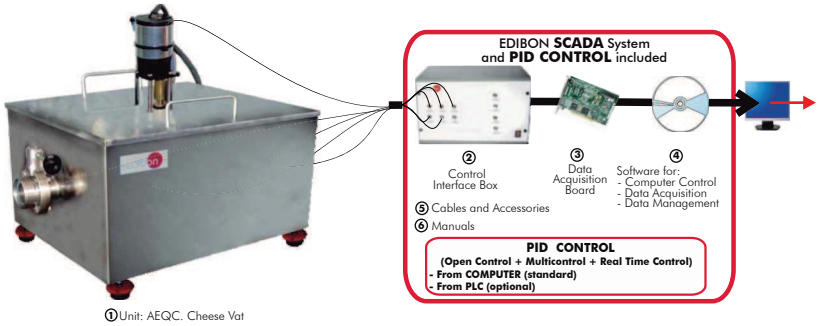
PRACTICAL POSSIBILITIES

1.- Lactowhey obtaining.
2.- Cottage cheese obtaining.
3.- Obtained cottage cheese acidity measurements.
4.- Obtained cottage cheese efficiency determinations.
5.- Cottage cheese by means the traditional process obtaining.
6.- Cottage cheese elaboration (no traditional processes).
7.- Acidity comparative studies in different cottage cheeses.
8.- Proteins concentration determination in function of the temperature.

Other possible practices:

9.- Sensors calibration.
10-28.- Practices with PLC.

AEQC. Computer Controlled **Cheese Vat** and AEQC-A. **Cheese Making Accessories**



①Unit: AEQC. Cheese Vat

SPECIFICATIONS SUMMARY
Items supplied as standard

① AEQC. Unit:
The Cheese Vat (AEQC) provides practical training in the production of cheese, and it can be an ideal unit for applied research. The vat is manufactured in stainless steel. Vat working capacity of 10 l. approx. Agitator, computer controlled. Perforated strainer fits into the vat outlet to facilitate efficient draining. Outlet valve. Heating element, computer controlled. Water is circulated through a vat jacket. Circulating pump, computer controlled. Over-temperature cut-out device. Sensors: pH sensor, temperature sensors.
Optional (not included in the standard supply):
AEQC-A. Cheese Making Accessories:
Designed to be used with the Computer Controlled Cheese Vat (AEQC).
All metallic elements in stainless steel.
Using these accessories operations as: curd cutting, cheedaring, pressing and pH determination (chemical) can be carry out.

② AEQC/CIB. Control Interface Box :
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process. 3 safety levels: mechanical in the unit, electronic in the control interface, and the third one in the control software.

③ DAB. Data Acquisition Board:
PCI Express Data acquisition National Instruments board to be placed in a computer slot. 16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ AEQC/CCSOF. PID Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

Dimensions (approx.) = Unit: 600 x 350 x 450 mm. Weight: 55 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologymilk/AEQC.pdf

PRACTICAL POSSIBILITIES

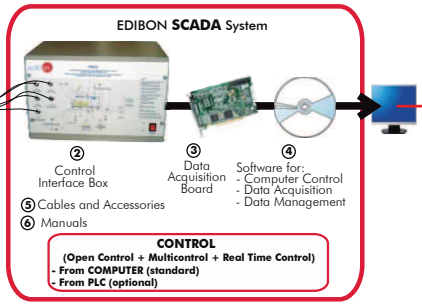
Study and investigation of the processes for the cheese production:
1.- Heating and agitating milk.
2.- Holding milk at exact temperature for addition of starter culture and rennet.
3.- Holding at temperature during coagulation.
4.- Cutting and heating the curd. Heating and agitating accurately to "scald" the curd.
5.- To maintain the higher temperature and agitating during more time.
6.- Settling the curd.
7.- To draw the whey.
8.- Milling.
9.- Addition of salt.
10.- Temperature control.
11.- pH control.
12.- Using the optional accessories: Cheese Making Accessories (AEQC-A), it is possible to carry out these operations: pressing, curd cutting, cheddaring, etc.

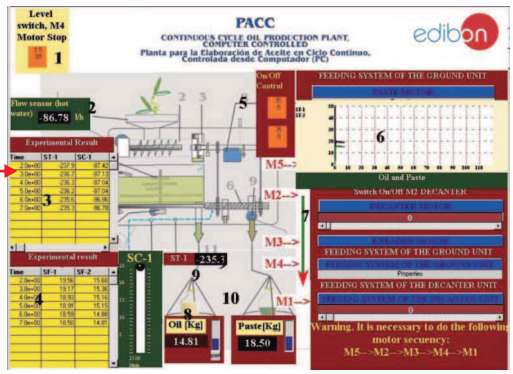
Other possible practices:

13.- Sensors calibration.
14-32.- Practices with PLC.

PACC. Computer Controlled **Continuous Cycle Oil Production Plant**

① Unit: PACC. Continuous Cycle Oil Production Plant





SPECIFICATIONS SUMMARY
Items supplied as standard

① PACC. Unit:

Unit in stainless steel.
Diagram in the front panel with similar distribution to the elements in the real unit.
Hopper (200 Kg capacity).
Grinding unit (6000 rpm).
Mixing unit (50 Kg capacity).
Decanter with two phases, one for oil separation and other for water + paste separation. The decanter has double speed: 6000 and 5700 rpm. The decanter has 6 screws to control the quantity of the extracted oil.
Two speed controllers, one for controlling the decanter speed and other for controlling the decanter feed speed.
Sensors: flow sensor, 2 load cells, force sensors and temperature sensor.
Level switch. Five motors, two of them with speed control.
Fixed protections in all parts with movement for avoiding any contact with the hands.
Grille of protection on the hopper with borings.
Electric blockage.
Electric protection for electric current overload.
Control board blockage with IP 54 protection class.
Components in contact with the food product in stainless steel.
Isolated structure.
Vibrations balancing system.
External unit, with anodized aluminum structure, for product collecting, with weighing system (2 Load Cells (50 Kg each one)). This unit has 2 stainless steel and aluminum tanks (capacity 50 l. each one).
Extraction speed: 50 kg/ hour.
Power: 3 KW.
Oil obtained has a temperature between 22-26°C and an acidity approx.: 0.4°.

② PACC/CIB. Control Interface Box :

With process diagram in the front panel.
The unit control elements are permanently computer controlled.
Simultaneous visualization in the computer of all parameters involved in the process.
Calibration of all sensors involved in the process.
Real time curves representation.
All the actuators' values can be changed at any time from the keyboard.
Shield and filtered signals to avoid external interferences.
Real time control with flexibility of modifications from the computer keyboard of the parameters, at any moment during the process.
Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
3 safety levels: mechanical in the unit, electronic in the control interface and the third one in the control software.

③ DAB. Data Acquisition Board:

PCI Express Data acquisition National Instruments board to be placed in a computer slot.
16 Analog inputs. Sampling rate up to: 250 KS/s. 2 Analog outputs. 24 Digital Inputs/Outputs.

④ PACC/CCSOF. Computer Control+Data Acquisition+Data Management Software:

Flexible, open and multicontrol software.
Management, processing, comparison and storage of data.
Sampling velocity up to 250 KS/s (kilo samples per second).
It allows the registration of the alarms state and the graphic representation in real time.

⑤ Cables and Accessories, for normal operation.

⑥ Manuals: This unit is supplied with 8 manuals.

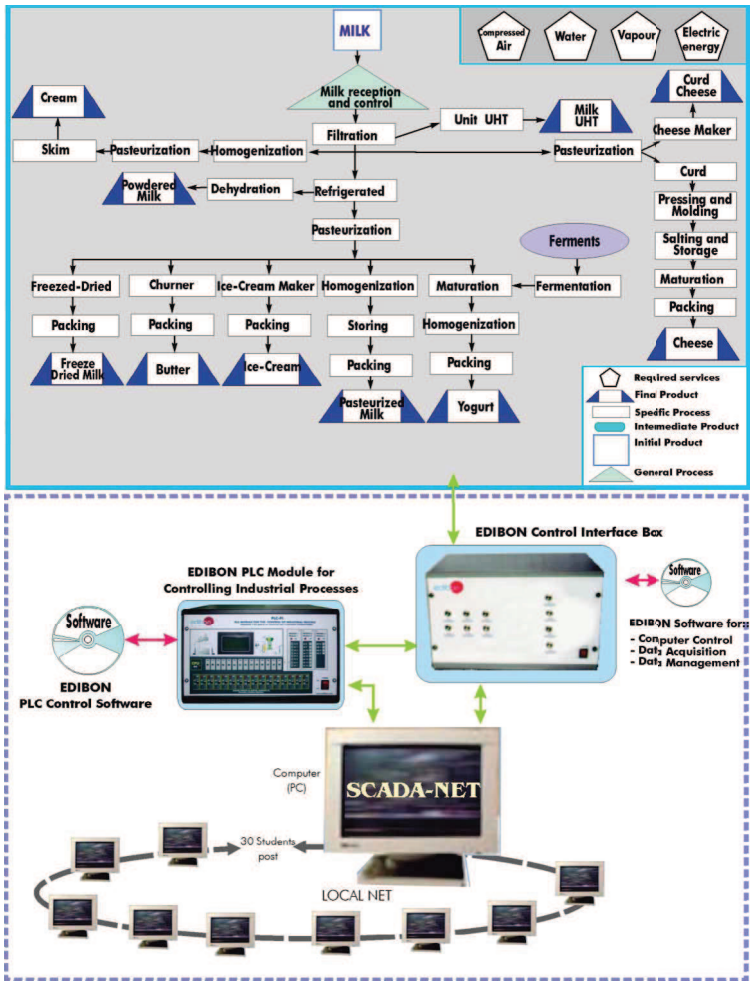
Dimensions (approx.)= Unit: 1500 x 800 x 1700 mm. Weight: 300 Kg. Control Interface Box: 490 x 330 x 310 mm. Weight: 10 Kg.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologyoil/PACC.pdf

PRACTICAL POSSIBILITIES

1.- Obtaining of Oil (olive, avocado, colza, sunflower).
2.- Obtained oil acidity measurement.
3.- Determination of the performance depending on the decanter centrifugation speed.
4.- Determination of performance depending on the type of food product used for oil production.
5.- Study of the influence of the collection time in the performance.
6.- Comparative study of the oil performance depending if the food product for its production has been just recollected or if previously it has been put in the sun to dry.
7.- Practice of cleaning the unit.
8.- Control System. Temperature Sensor Calibration.
9.- Control System. Flow Sensor Calibration.
10.-Flow Sensor Hysteresis Study.
11.-Load Cell SF-1 and SF-2 Calibration.
12.-Decanter Supply System Calibration.
13-31.- Practices with PLC.

LE00. **Process Plant for Dairy Products with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① LE00. Process Plant for Dairy Products, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 11 to 300 l., to provide the use for teaching, the production and research.
- The following units have been designed for optimization of all process involved:
Plates Filter (Filtrade).
Refrigerated tank (Refrigeration).
Pasteurization unit (Pasteurization).
Homogenization unit (Homogenization).
Yogurt maker (Obtain yogur).
Cheese maket (Obtain curd).
Ice-cream maker (Obtain ice-cream).
Freeze dryer (Freeze dried).
Dehydratation unit (Dehydration).
Press unit (Obtain cheese).
Butter Maker unit (Obtain butter).
Cream Separator unit (Skim).
Tank to salting, storage and maturation (Salting and maduration).
Packing unit (Packing).
UHT unit(UHT process).
Bottling unit (Bottling).
- Analysis and quality control laboratory.

Dimensions = 14000 x 12000 x 3000 mm. approx. Weight: 3200 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/LE00.pdf

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

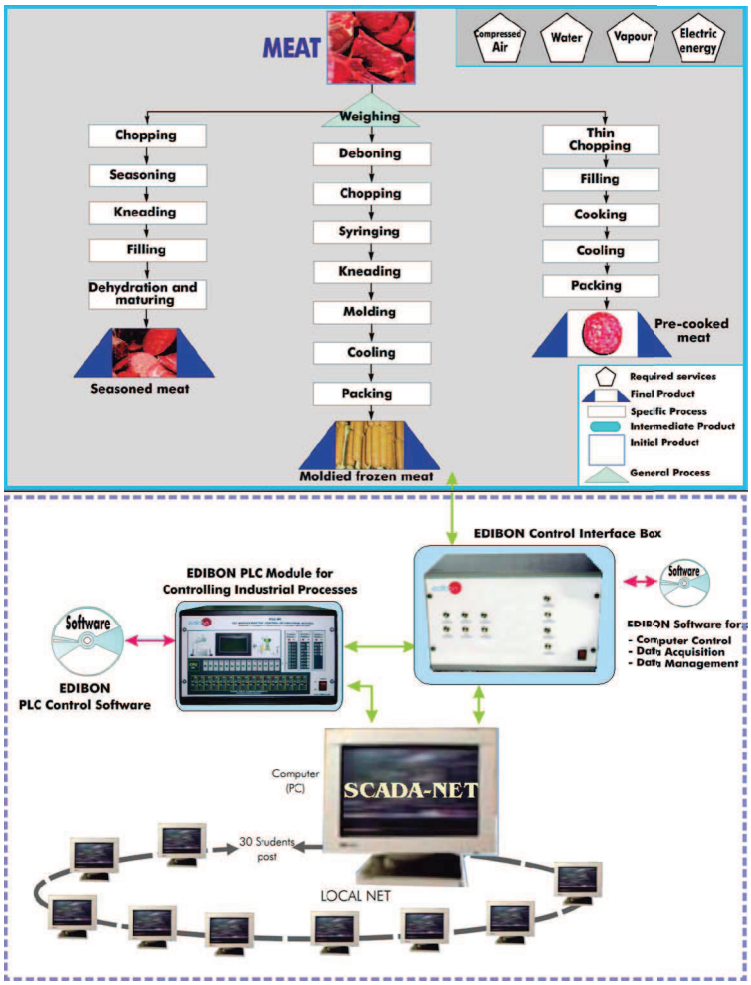
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

CA00. **Process Plant for Meat with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① CA00. Process Plant for Meat, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 200 kg, to provide the use for teaching, the production and research.
- The following units have been designed for optimization of all process involved:
  Standard Scale (Weighing).
  Cutter (Chopping).
  Tank to seasoning (Seasoning).
  Kneading unit (Kneading).
  Filling/Stuffing unit (Filling/Stuffing).
  Dehydration and Maturing unit (Dehydration and maturation).
  Deboing unit (Deboing).
  Syringing unit (Brine syringing).
  Moulding unit (Moulding).
  Cooling unit (Cooling).
  Packing unit(Packing).
  Cooking unit (Cooking).
- Analysis and quality control laboratory.

Dimensions= 12000 x 12000 x 3000 mm. approx. Weight: 3000 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/CA00.pdf

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

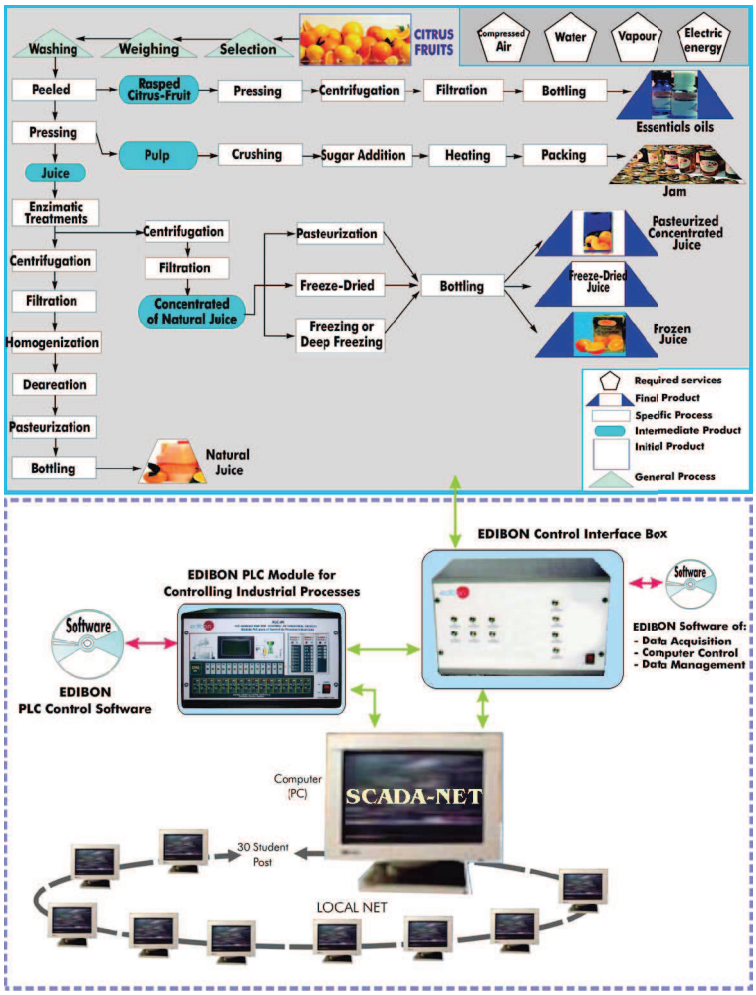
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

CI00. **Process Plant for Citrus Fruits with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① CI00. Process Plant for Citrus Fruits, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 300 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
Selector (Selection).
Standard scale (Weighing).
Washing bath (Washing).
Peeler Unit (Peeled).
Pressed unit (Pressed).
Plates Filter (Filtration).
Centrifugation unit (Centrifugation).
Pasteurization unit (Pasteurization).
Cutter (Size reduction).
Freeze Dryer (Freeze dried).
Stainless steel tank to enzymatic treatment (Enzymatic treatment).
Desaireation tank (Desaireation).
Tank with agitation and resistance (Warming).
Homogenization unit (Homogenization).
Stainless steel tank to sugar addiction (Sugar addiction):
Freezer (Frozen).
Bottling unit (Bottling).
Packing unit (Packing).
- Analysis and quality control laboratory.

Dimensions = 12000 x 12000 x 3000 mm. approx. Weight: 3000 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/CI00.pdf

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

-Analysis of ambient pollution problems caused by the presence of agro-industry.

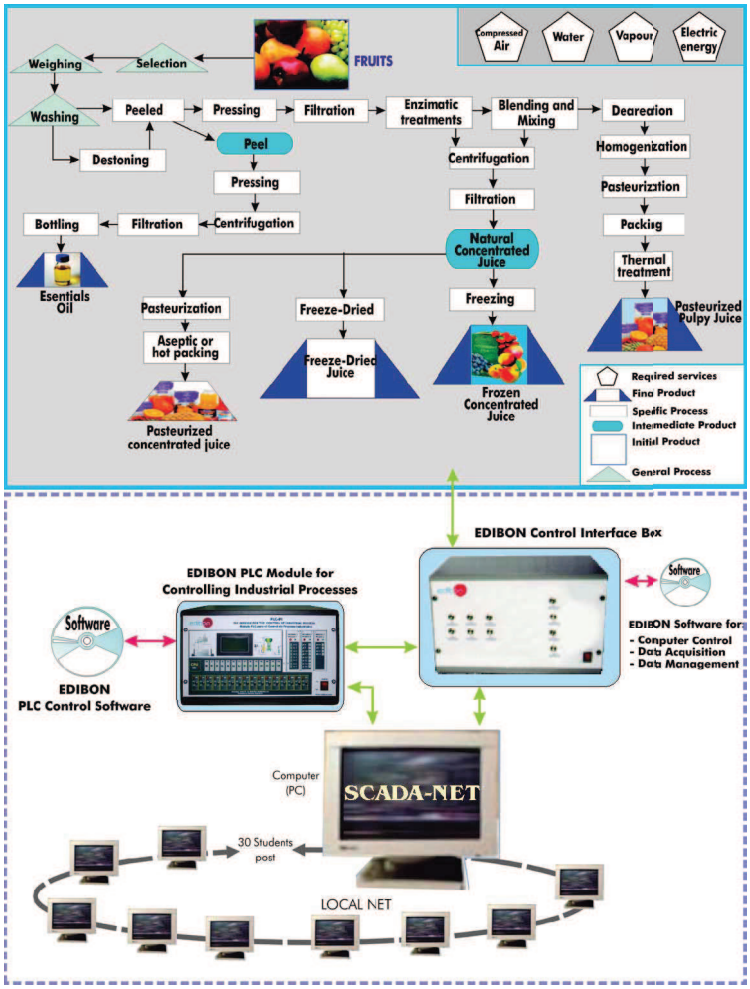
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

FR00. **Process Plant for Fruits with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① FR00. Process Plant for Fruits, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 300 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
Selector (Selection).
Standard scale (Weighing).
Washing bath (Washing).
Destoning unit (Destoning).
Peeled unit (Peeled).
Pressed unit (Extraction).
Plates Filter (Filtered).
Tank to Enzymatic Treatments (Enzimatic treatments).
Blending and Mixing unit (Blending and Mixing).
Centrifugation unit (Centrifugation).
Freezer (Frozen).
Freezer-dryer (Freezer dryer).
Pasteurization unit (Pasteurization).
Desaireation unit (Desaireation).
Homogenization unit (Homogenization).
Aseptic packing unit (Aseptic packing).
Bottling unit (Bottling).
Tank with resistance (Thermal treatment).
- Analysis and quality control laboratory.

Dimensions = 12000 x 12000 x 3000 mm. approx. Weight: 3000 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/FR00.pdf

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

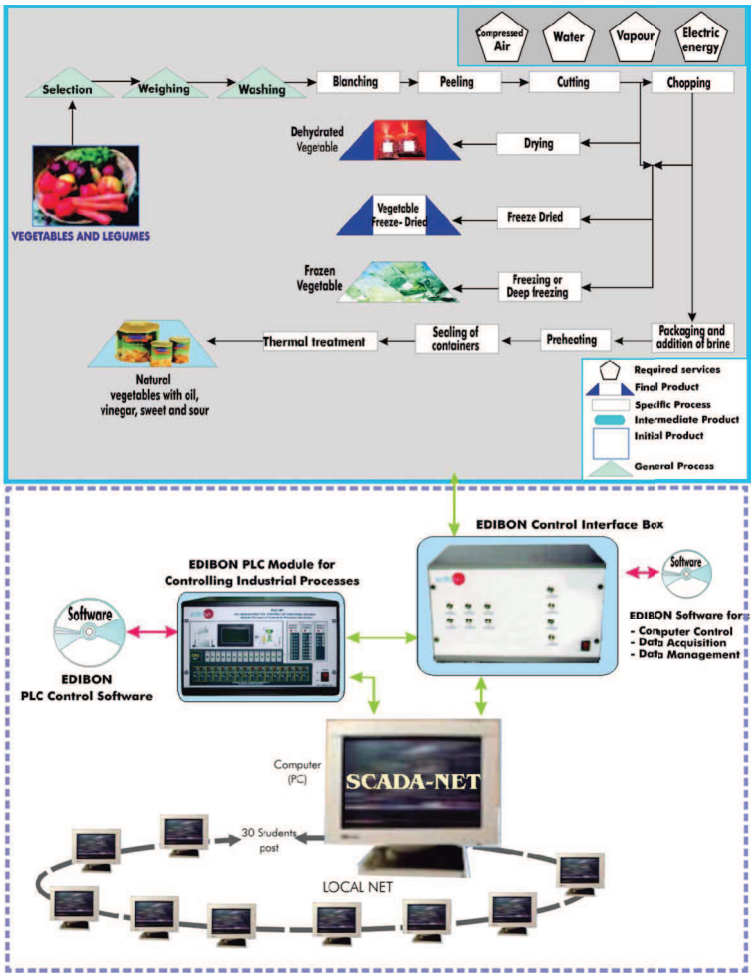
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

VE00. **Process Plant for Vegetables with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① VE00. Process Plant for Vegetables, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 800 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
  Selector (Selection).
  Standard Scale (Weighing).
  Washing Bath (Washing).
  Blanched unit (Blanching).
  Peeler (Peeled).
  Cutter (Cutting).
  Dehydrated unit (Dehydration).
  Freeze Dryer (Freeze dryed).
  Freezer (Frozen).
  Packing and adictional brine unit (Packing and brine adicttion).
  Stainless steel tank with resistance (Thermal Treatment).
- Analysis and quality control laboratory.

Dimensions = 15000 x 12000 x 3000 mm. approx. Weight: 3500 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/VE00.pdf

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

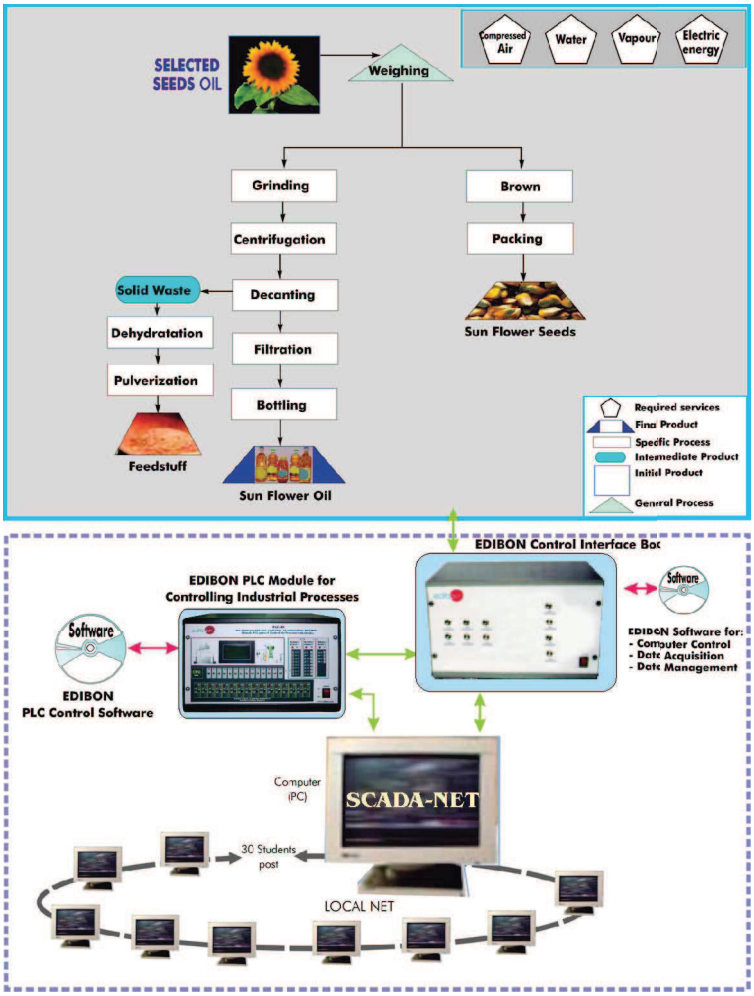
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

AS00. **Process Plant for Seeds Oil with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

Items included in the supply:

① AS00. Process Plant for Seeds Oil, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 380 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
  Standard Scale (Weighing).
  Oven (Brown of sunflower seed).
  Machine to crush, decant and centrifuge (Crushing, Centrifugation and Decantation).
  Dehydrate machine (Dehydration).
  Plates filter (Filtration).
  Pulverizer (Pulverization).
  Bottling unit (Bottling).
  Packaging Machine.
- Analysis and quality control laboratory.

Dimensions = 14000 x 12000 x 3000 mm. approx. Weight: 3200 Kg. approx.

PRACTICAL POSSIBILITIES

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

-Evaluation of technical, legal and administrative aspects concerning food adulteration.

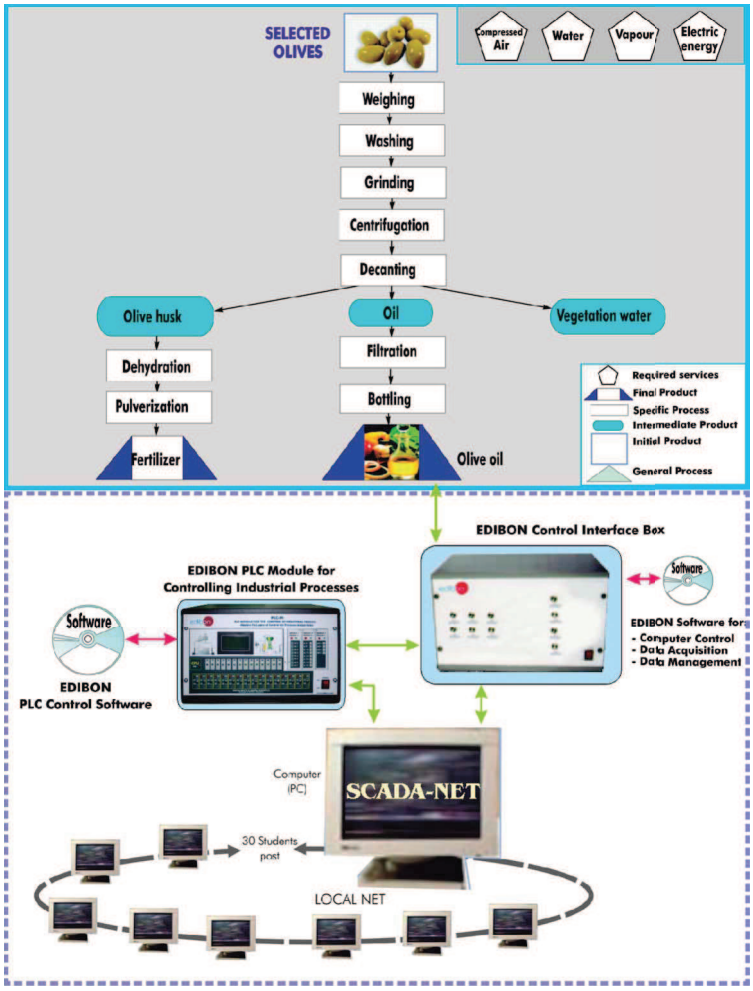
-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/AS00.pdf

AC00. **Process Plant for Olive Oil with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① AC00. Process Plant for Olive Oil, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 200 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
  Standard Scale (Weighing).
  Washing bath to olives (Washing).
  Unit to crush, decant and centrifuge (Crushing, Centrifugation and Decanting).
  Dehydration unit (Dehydration).
  Pulverization unit (Pulverization).
  Plates filter (Filtration).
  Bottling unit (Bottling).
- Analysis and quality control laboratory.

Dimensions = 14000 x 12000 x 3000 mm. approx. Weight: 3200 Kg. approx.

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

-Evaluation of technical, legal and administrative aspects concerning food adulteration.

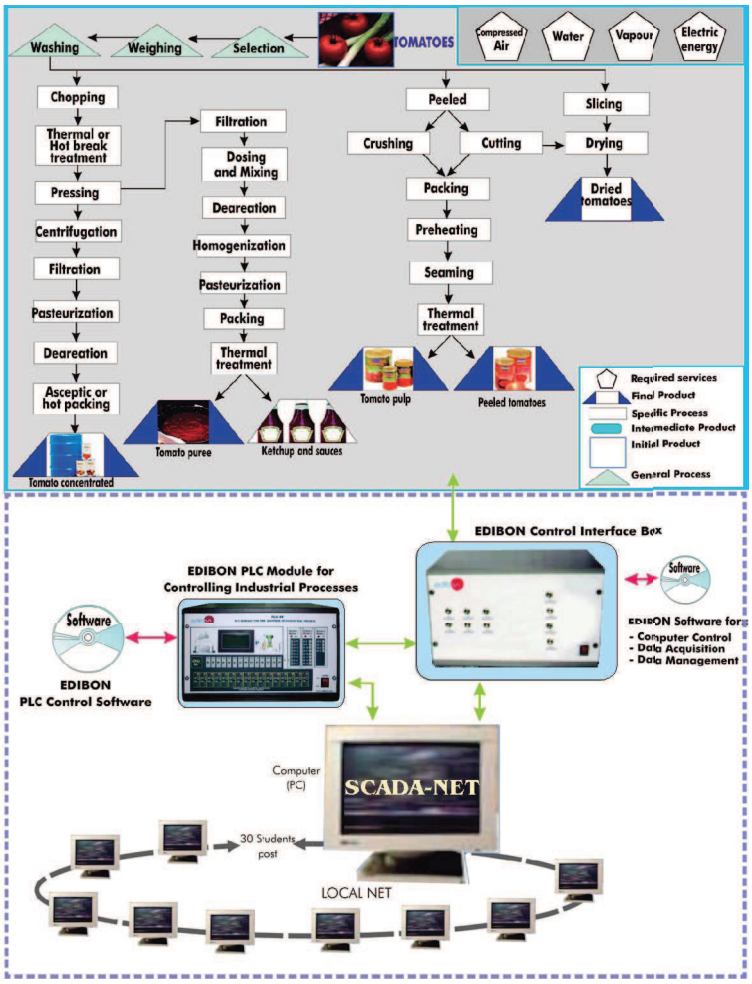
-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/AC00.pdf

TO00. **Process Plant for Tomatoes with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

Items included in the supply:

① TO00. Process Plant for Tomatoes, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 300 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
Selector (Selection).
Standard scale (Weighing).
Washing Bath (Washing).
Peeler unit (Peeled).
Crusher (Crusher).
Packing unit (Packing).
Seaming unit (Seaming).
Stainless steel tank to thermal treatment (Thermal treatment).
Plates Filter (Filtered).
Centrifugation unit (Centrifugation).
Pasteurization unit (Pasteurization).
Homogenization unit (Homogenization).
Drying unit (Drying).Aseptic packing unit (Aseptic packing)
Desaireation tank (Desaireation).
Press unit (Pressed).
Tank with resistance (Thermal treatment).
Packing unit (Bottling).
Mixing and Dosing unit (Mixing and Dosing).
Scalded unit (Scalded).
- Analysis and quality control laboratory.

Dimensions = 15000 x 12000 x 3000 mm. approx. Weight: 3500 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/TO00.pdf

PRACTICAL POSSIBILITIES

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

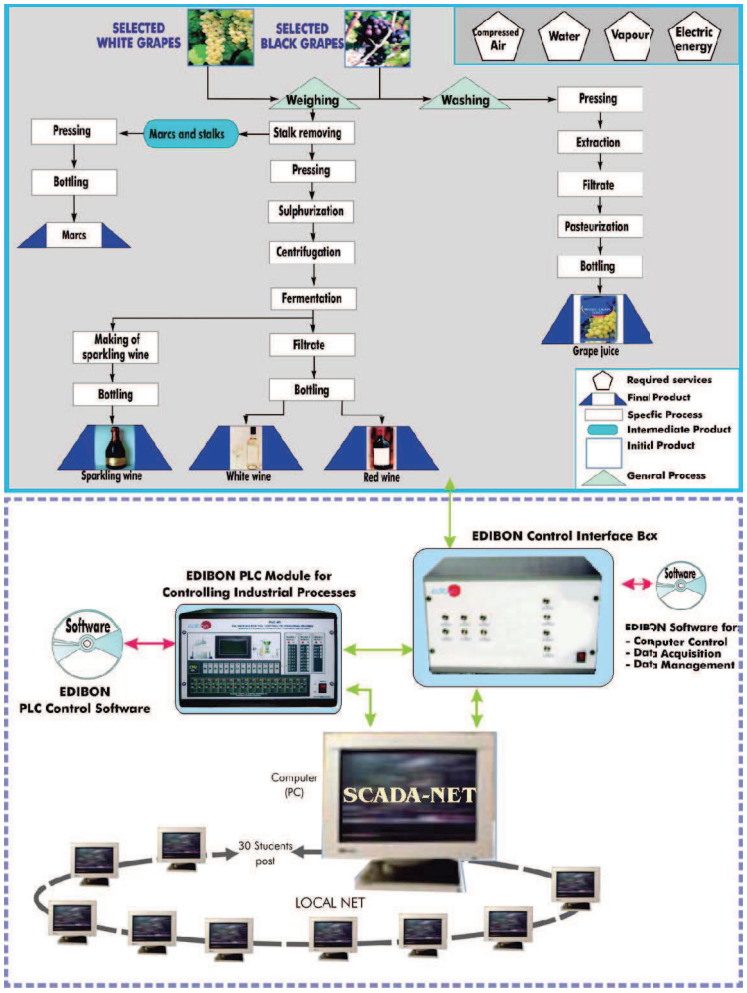
-Evaluation of technical, legal and administrative aspects concerning food adulteration.

-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

UV00. **Process Plant for Grapes with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

PRACTICAL POSSIBILITIES

Items included in the supply:

① UV00. Process Plant for Grapes, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized,the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 5 to 300 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
  Standard Scale (Weighing).
  Extractor unit (Extraction).
  Plates Filter (Filtrate).
  Pasteurized unit (Pasteurization).
  Stalk removing unit (Stalk removing and sulphured).
  Centrifuge (Centrifugation).
  Fermentation unit (Wine fermentation).
  Bottling unit (Bottling).
- Analysis and quality control laboratory.

Dimensions= 12000 x 12000 x 3000 mm. approx. Weight: 3000 Kg. approx.

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

-Analysis of all phases of the product transformation, from reception to packaging.

-Qualitative evaluation of the finished product as function of the productive operations performed.

-Experimentation on the efficiency of the different chemical products used for the preservation process.

-Organization of procedures for continuous quality control of the production operations.

-Execution of procedures for disinfection and sanification of the equipment.

-Evaluation of technical, legal and administrative aspects concerning food adulteration.

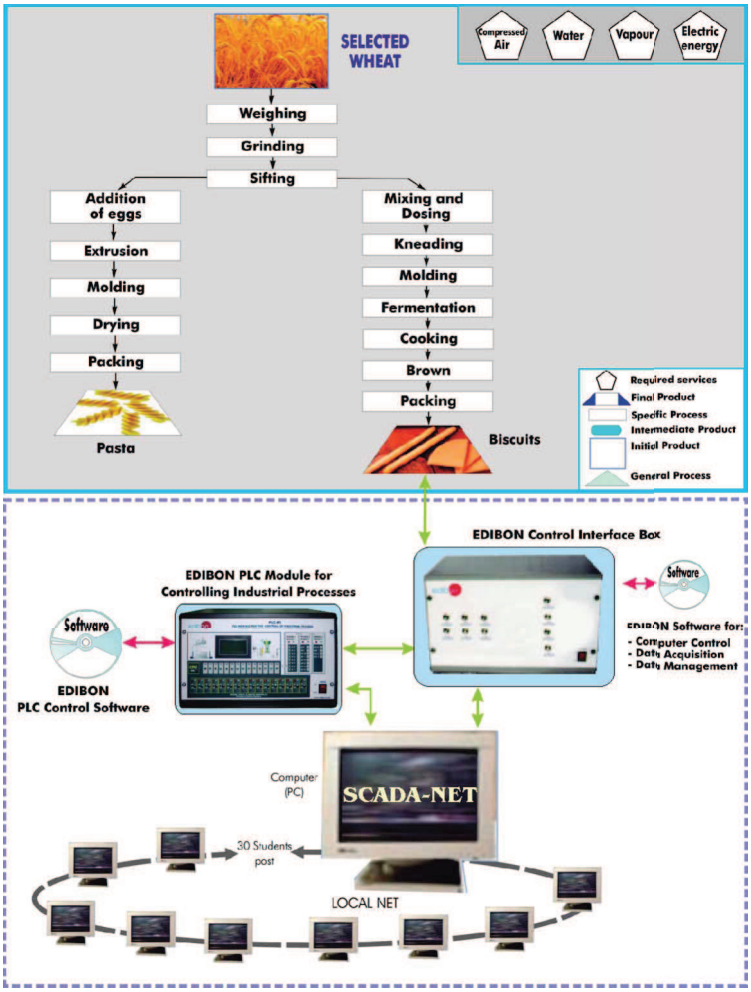
-Manual and computer control operation.

-Sensors calibration systems.

-SCADA systems and local net.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/UV00.pdf

CE00. **Process Plant for Cereals with Scada-Net System "ESN"**



SYSTEM CONFIGURATION

Items included in the supply:

① CE00. Process Plant for Cereals, complete as specifications.
② Control Interface Box.
③ Data Acquisition Board.
④ Software for: Computer Control + Data Acquisition + Data Management.
⑤ EDIBON SCADA-NET Software Package for classroom control and management.
⑥ PLC Module for the Control of Industrial Processes, with all necessary accessories.
⑦ PLC Control Software.
⑧ Computers and local network included.
⑨ Interconnection elements and all accessories included for normal working operation.
⑩ Manuals for:
Practices and Exercises, Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration, etc.

SPECIFICATIONS SUMMARY

- Anodized aluminum structure and stainless steel metallic elements. All elements needed are chemical resistant.
- Control Interface Box:
  With process diagram in the front panel. The unit control elements are permanently computer controlled. Simultaneous visualization in the PC of all parameters involved in the process. Calibration of all sensors involved in the process. Real time curves representation. All the actuators' values can be changed at any time from the keyboard. Shield and filtered signals to avoid external interferences. Real time PID control with flexibility of modifications from the PC keyboard of the PID parameters, at any moment during the process. Open control allowing modifications, at any moment and in real time, of parameters involved in the process.
- Computer Control+Data Acquisition+Data Management Software:
  Flexible, open and multicontrol software. Management, processing, comparison and storage of data. Sampling velocity up to 250 KS/s (kilo samples per second). It allows the registration of the alarms state and the graphic representation in real time.
- PLC box for Industrial Control Processes, with front panel process diagram, including PLC Control Software.
- Manual, semiautomatic and automatic controlled. All system is connected with a local net with 30 computers in which any student can control any block of the process. When the complete process plant is working synchronized, the control is unique and the rest of the computers in the net works as visualization screens.
- It has been design for a wide range of feed, since 15 to 180 kg, to provide the use for teaching , the production and research.
- The following units have been designed for optimization of all process involved:
  Standard Scale (Weighing).
  Press unit (Pressed).
  Sifting unit (Sifting).
  Mixer unit (Mixed).
  Tank to addition of eggs (Egges addiction).
  Extrusion unit (Extrusion).
  Moulding unit (Moulding).
  Cooking unit (Cooking).
  Packing unit (Packing).
  Kneading unit (Kneading).
  Fermentation unit (Fermentation).
- Analysis and quality control laboratory.

Dimensions= 12000 x 12000 x 3000 mm. approx. Weight: 3000 Kg. approx.

More information in: www.edibon.com/products/catalogues/en/units/foodwatertechnologies/foodtechnologypilotplants/CE00.pdf

PRACTICAL POSSIBILITIES

This Process Plant has the target of: Research, Teaching, Production and future businessman platform.

It permits the following control and process aspects:

- Analysis of all phases of the product transformation, from reception to packaging.
- Qualitative evaluation of the finished product as function of the productive operations performed.
- Experimentation on the efficiency of the different chemical products used for the preservation process.
- Organization of procedures for continuous quality control of the production operations.
- Execution of procedures for disinfection and sanification of the equipment.
- Evaluation of technical, legal and administrative aspects concerning food adulteration.
- Manual and computer control operation.
- Sensors calibration systems.
- SCADA systems and local net.