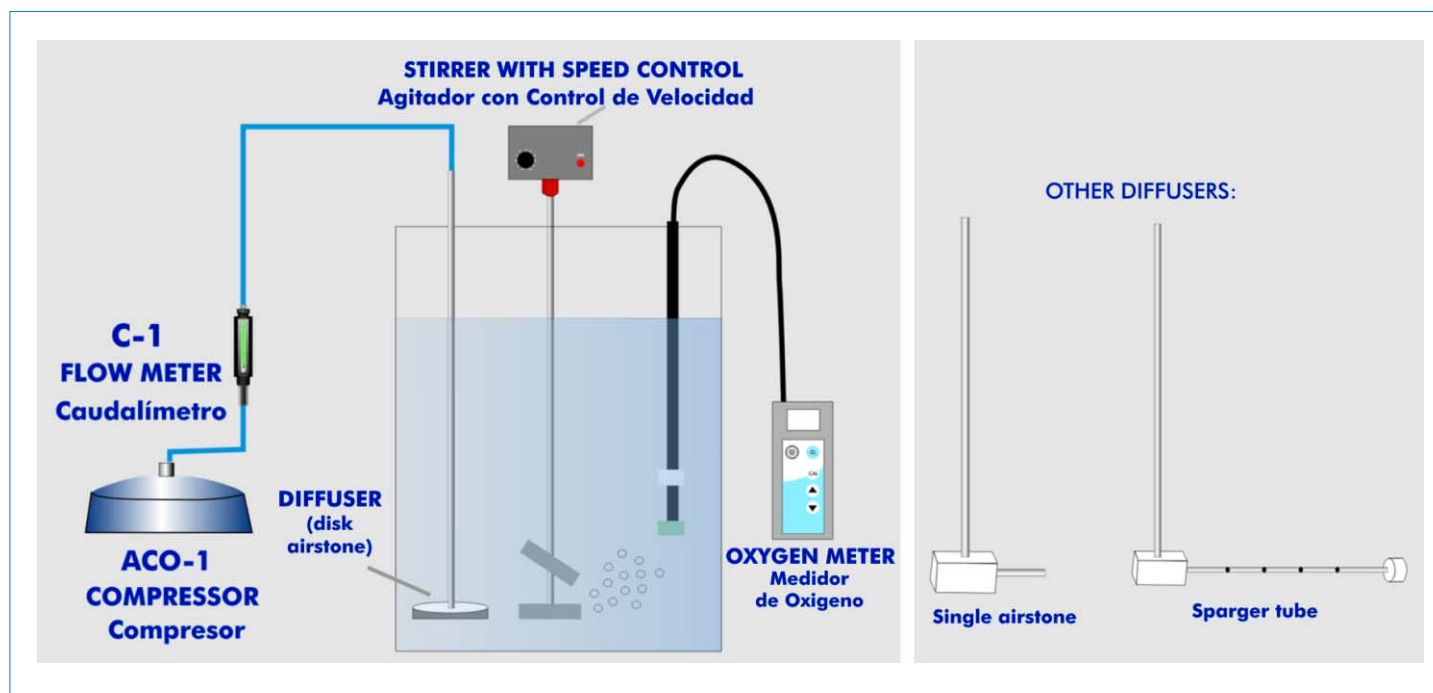




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Products
Products range
Units
13.-Environment

PROCESS DIAGRAM AND ELEMENTS ALLOCATION



DESCRIPTION

This unit permits the study of the oxygen transfer characteristics of diffused air systems, and to study the physical and chemical parameters which influence their oxygenation capacity.

The "PEAI" unit demonstrates the water aeration process which, mainly, eliminates smell and taste from water.

The main component of the unit is the central tank where the liquid subjected to study will be poured in, normally water. An air pump, located underneath the tank, is responsible of injecting air within the tank. The air-injection pipe goes through a device that measures and control the injected air, allowing manual control of the volume of air allowed to flow to the deposit. After the air flow controller, the air is taken through a flexible pipe to the upper inlet of the tank. There, three different air outlets might be connected, each one disperses air at the bottom of the tank in a different way.

On the other hand, there exists a stirrer shaft (with variable speed control) in the middle of the unit/tank. The main part of the stirrer is a motor that makes it turn inside the tank.

Finally, there is a oxygen-meter to measure the oxygen dissolved in the water and a temperature meter.

SPECIFICATIONS

Bench top unit.

Anodized aluminium structure. Panels and main metallic elements in stainless steel.

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

Open tank of 28 l. capacity.

Air injection pipe.

Air injection controller/meter (flow meter, range: 0.4 - 5 l./min.).

Paddle stirrer with variable speed.

Air pump.

Oxygen meter, range: 0.0 - 60 mg/l.

Oxygen probe length: 300 mm.

Three diffusers: sparger tube, disk airstone and single airstone.

Temperature meter, range: -19.9 to 149.9°C, (0.1°C).

Cables and accessories, for normal operation.

Manuals:

This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

Practical Possibilities of the Unit:

- | | |
|---|---|
| 1.- Aeration necessity determination. | Diffuser arrangement. |
| 2.- To measure the absorption coefficient K_L and the oxygenation capacity R. | Depth of water. |
| 3.- Influence of the injected oxygen volume. | Water composition. |
| 4.- Study of the effect on K_L and R of:
Water temperature.
Degree of fluid mixing.
Gas flow rate. | 5.- Influence of the stirrer turn speed.
6.- Aeration with air injection and agitation.
7.- Influence of the temperature in the process.
8.- Influence of liquid level in the tank.
9.- Effects of oxygen transfer under non-steady state conditions. |

REQUIRED SERVICES

- Electrical supply: Single-phase, 220 V / 50 Hz or 110 V / 60 Hz.
- Water supply.
- Drainage system.
- Chemicals required: Sodium sulphite. Cobaltous chloride.

DIMENSIONS & WEIGHTS

- Dimensions: 600 x 700 x 850 mm. approx.
- Weight: 50 Kg. approx.

RECOMMENDED ACCESSORIES

- | | |
|------------------------------------|------------------------------|
| - Stop clock. | - 100 ml measuring cylinder. |
| - Triple beam top loading balance. | |

AVAILABLE VERSIONS

Offered in this catalogue:

- **PEAI. Aeration Unit.**

Offered in other catalogue:

- **PEAIC. Computer Controlled Aeration Unit.**

* Specifications subject to change without previous notice, due to the convenience of improvements of the product.



C/ Del Agua, 14. Polígono San José de Valderas. 28918 LEGANES. (Madrid). SPAIN.
Phone: 34-91-6199363 FAX: 34-91-6198647
E-mail: edibon@edibon.com WEB site: www.edibon.com

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