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Modular Incubator Chamber

MIC-101

Instructions for Use

DESCRIPTION

The Modular Incubator Chamber (MIC-101) is a compact and versatile tool designed as a cost-effective system for maintaining cell cultures under stable hypoxic or hyperoxic conditions. It offers a straightforward approach to controlling oxygen levels using its closed system, preventing multi-well plate edge evaporation, and tailoring gas concentrations to your specific requirements.

The MIC-101 incubator utilizes a surface-type seal where all portions of the O-ring are uniformly compressed by a glass reinforced polycarbonate retaining clamp for a reliable air tight seal. The cylindrical walls and semi-spherical top and bottom provide minimum gas flow resistance and no inherent dead space during initial purging. The chambers have an integrated stacking feature for storage during or after experimentation. All units are molded from high quality polycarbonate and will not break, crack or cloud with extended use.

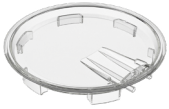
COMPONENTS

Lid
MIC-102, Qty: 1

Trays
MIC-104, Qty: 3

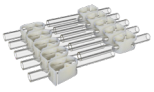
O-Ring
MIC-106, Qty: 1

Base
MIC-103, Qty: 1



Clamp
MIC-105N, Qty: 1

Tubing Clamp with Tubing
MIC-107, Qty: 10/bag



*These parts are guaranteed for one year against defects, leaks and breakage. PLEASE DO NOT return any warranty items without written authorization.

OPERATION

Please observe the following procedures for proper use of the MIC-101 incubator. As we cannot anticipate nor control conditions of product applications, we do not warrant suitability or favorable results. The MIC-101 and accessories are for research use only and not for human use.

To Open the Chamber

1. Grasp chamber and clamp firmly with left hand opposite of the clamp handle.
2. Place right hand firmly over clamp handle and open slowly. The clamp can be easily removed from the chamber by extending the clamp to its full diameter. This can be accomplished by opening the clamp handle to its full extent.
3. Remove clamp.
4. Using both hands remove the lid and trays. Always use both hands when handling lid, base, trays and the clamp. This will prevent accidental spills.

To Reassemble the Chamber

1. Check all O-ring surfaces making sure they are free of any particles which could cause leaks. O-ring should be cleaned periodically (see cleaning instructions). If the chamber leaks, first inspect O-ring and O-ring grooves, making sure they are clean and not damaged. If the chamber still fails to seal, check adjustment of the clamp; one or two turns of the threaded bolt with a 3/8" open end box wrench are all that is necessary to tighten the clamp (see retaining clamp instructions).
2. Position the trays in base with your desired cell cultures, making sure that they are seated properly.
3. The chamber must be humidified to prevent excessive evaporation of cultures. This can be accomplished by placing a petri dish with 10-20 ml of sterile water in the chamber.
4. Place the lid on the base.
5. Grasp the clamp with left hand and position the clamp where the base and lid join. Left hand should be held firmly against clamp and chamber. Slowly close the clamp handle with right hand making sure the clamp is centered. The chamber is now ready to be purged with gas.

To Gas the Chamber

1. Open both inlet and outlet ports by releasing the white plastic clamps on the tygon tubing.
2. Attach inlet port tygon tubing to a source containing the desired gas mixture.
3. Typically, a rate of 40-50 liters/min (LPM) completely purges the chamber in 2 minutes (maximum flow rate is 50 LPM). Since flow rates and experimental conditions vary, we recommend that each investigator determines the time and frequency of flushing. Flow meters are available at embrient.com/flow-meters. The MIC-101 is designed to maintain constant gas levels for a minimum of 72 hours.

   CAUTION! DO NOT PRESSURIZE MIC- 101 CHAMBER. Both the inlet and outlet ports' clamps must be open during this procedure. The chamber may rupture under excess pressure.
4. After the chamber has been purged, disconnect gas source.
5. To avoid pressurizing chamber, seal by closing the inlet clamp first. Then close the outlet clamp. Tighten clamps by applying pressure until the tygon tubing is firmly compressed.
6. Put the chamber at the desired temperature either in a conventional continuous flow CO_2 incubator, a heat only incubator, or a warm room. If the chamber contains a large quantity of tissue culture plates, to remove any gases that may have been trapped in the media, we recommend re-flushing the system after one hour of incubation.

SEALING USING THE RETAINING CLAMP

The base and lid flanges are forced together by the retaining clamp. As torque is applied to the adjustable bolt of the clamp handle, an inward radial force is created in the retaining clamp. This force compresses the O-ring and forms the seal. The clamp has been pre-adjusted to provide a reliable, air-tight seal. If the clamp needs to be adjusted, loosen nut on handle with a 3/8" open end box wrench and to tighten, turn the bolt clockwise.

CLEANING

The chamber may be sterilized with either 70% ethanol, 5% formalin, or sterilizing gas mixtures (when sterilizing with ethylene oxide the units should be placed in a vacuum chamber and degassed). UV light can also be used for sterilization, but repeated exposure to UV light will degrade the polycarbonate material. The O-ring should be cleaned periodically to ensure a proper seal. When removing the O-ring, be careful not to scratch the O-ring groove. Wipe the O-ring with 70% ethanol and a Kimwipe. Do not use silicon grease on O-ring. **NOTE:** *Chambers should not be autoclaved!*

CHEMICAL RESISTANCE

Exposure to solvents such as strong acids, all bases and organic solvents (polycarbonate is soluble in aromatic and chlorinated hydrocarbons) should be avoided. Avoid prolonged exposure to alcohol. However, short term exposure to 70% ethanol is recommended for cleaning the Modular Incubator Chamber.

GAS TANK VOLUME CONVERSION

80 cu. ft. gas tank = 2200 liters
200 cu. ft gas tank = 5700 liters

RELATED ACCESSORIES

Single Flow Meter
SFM-3001, Qty: 1

Air Filters
HFS-2021, Qty: 6/pkg

SHOP

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