VITROCELL® Cloud α MAX

Smallest nebulization volumes and high deposition efficiency

Cloud Alpha MAX
Touchscreen operation with integrated Quartz Crystal Microbalance.

The VITROCELL® Cloud Alpha MAX is our newest innovation in the Cloud family and presents a great leap forward in automated exposure of cell cultures. It combines highly efficient testing with ease of use. The development is based on the well-known and frequently published VITROCELL® Cloud formats (6-, 12- and 24-well). It's functionality enables fully automated processes with an all-in-one control unit. Everyday experiments at the air/liquid interface have never been easier.

The new Cloud Alpha MAX series was developed as a result of numerous customer requests and is now capable to expose mammalian cell cultures in 6-, 12- or 24-well sized cell culture inserts. All commercial brands are supported.

The Cloud system is suitable for nebulization of solutions and suspensions. Possible fields of application are screening of inhaled drugs, toxicity testing of inhaled substances such as chemicals or nanoparticles and virus research.

Exposure at the Air / Liquid Interface

In response to the scientific need to expose in physiologically relevant conditions, the VITROCELL® Cloud Alpha exposure devices have been specifically designed to enable direct exposure of mammalian cells or tissue at the Air/Liquid Interface. Here the cell cultures are not covered with media as opposed to submerged conditions which cause an undesired interaction of the formerly airborne substances with the culture media.

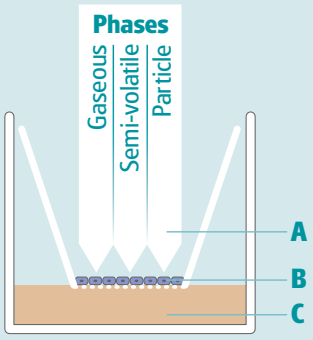
Cell systems cultivated on membrane inserts are exposed at the Air/Liquid Interface (ALI) so that the test substances are received directly. This approach allows for more credible and authentic results than by submerged exposure due to a closer replication of the human physiology.

Air / Liquid Cultivation and Exposure in Exposure Module

A Direct and controlled exposure of test atmosphere to cells

B Cells on membrane

C Media below cells



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Advanced in vitro exposure systems.

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Ideal for small quantities of test substance

The VITROCELL® Cloud Alpha MAX is designed for small nebulization volumes and very high deposition efficiency.

This is important when only small quantities of material are available or when expensive test substances need to be tested. The non-cell exposed area is reduced significantly by direct nebulization into exposure chambers with reduced chamber volume. Different chamber volumes are available.

A set of 3 nebulizers allows for simultaneous testing of 3 concentrations, or a combination of Microbalance for dosimetry, control liquid and suspension of the test substance.

Choice of three types of nebulizers

The system comes with a choice of 3 types of vibrating mesh nebulizers having droplet MMAD ranges of 2.5 – 6.0 µm, 2.5 – 4.0 µm and 4.0 – 6.0 µm.

Recommended nebulisation volumes are 10 – 40 µl. So the device is particularly suitable for testing whenever small quantitities of testing materials are available.

Dosimetry using Quartz Crystal Microbalance (QCM)

The QCM sensor is integrated in the Cloud Alpha MAX exposure module. It is capable of measuring the deposited mass at a resolution of 10 nanogram/cm^2 per second. Results are reported online by the VITROCELL® Monitor software. Data is presented in graphs and stored in MS Excel®.

Key Features:

- Lowest nebulization volumes: ≤ 40 µl per exposure and well
- High deposition efficiency
- Cloud dynamics by vibrating mesh nebulizers
- Easy handling with no external air-flow required
- High reproducibility
- Air Liquid Interface (ALI) exposure
- Direct and efficient guidance of substance exposure to the cells
- 80, 40, 10 mm tube length

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