

Advanced in vitro exposure systems

VITROCELL® Spiking System



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For the dynamic supply of gas mixtures from volatile solvents and gases in ppm and ppb ranges



The VITROCELL® Spiking System (VSS) has been specifically designed to provide optimal results when exposing gas mixtures from solvents, gases and vapors.

It is the perfect solution when the required concentrations are not available in cylinders. The gas mixture is produced dynamically by means of a digital syringe pump allowing injections of

less than 0.1 μ l with high accuracy. The component is introduced into a zero gas.

The programmable heating steps, mass flow controllers and the secondary dilution

system allow the production of mixtures in various ppm and ppb concentration ranges.



Syringe drive
High precision and electronically controlled



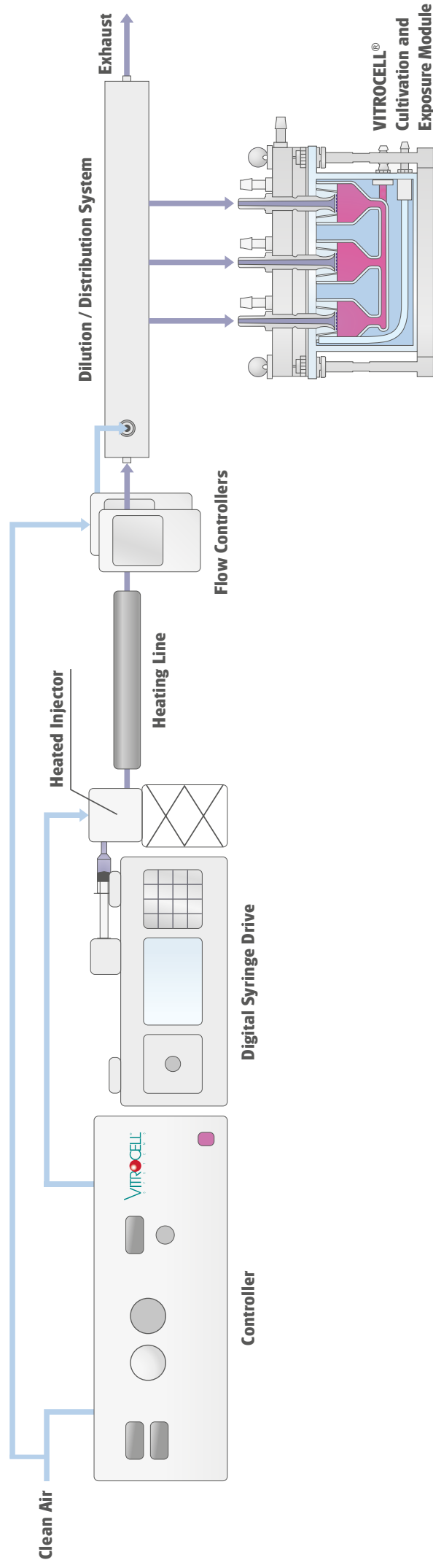
Syringe types
Compatible with various syringe types

Features

- Suitable for solvents, gases and vapors
- Reliable supply of mixtures in the ppm and ppb range
- Tailor-made system with calculation program
- Accuracy of injection within less than 0.1 μ l
- Microprocessor controlled syringe drive for syringes from 10 μ l to 140 ml
- Standard max. evaporation temperature 180° C (356° F)
- Optional high temperature version up to 400° C (752° F)

In vitro Inhalation Toxicology

Flow chart / VITROCELL® Spiking System



Calculation Program

Part of the delivery is a calculation program to choose the syringe type as a function of component, concentration and exposure time.

Controller

The controller adjusts the zero gas flow and controls the temperature of the injector block and heating line.

Digital Syringe Drive

The microprocessor controlled syringe drive is compatible with a large range of commercially available syringes from 10 µl to 140 ml. The selection is made out of an internal syringe library. The flow rate and operation time can be defined. The injector block can be easily adjusted to fit for the diameters of different syringe types. The injector is heated in function of the dew point of the component. Further heating takes place in the subsequent heating line.

Dilution / Distribution System

The system dilutes the mixture to arrive in the ppb range. It works using the proven VITROCELL® double jet technology. It also acts as a distribution system as it is directly connected to the VITROCELL® exposure module.

About VITROCELL®

VITROCELL® exclusively concentrates on the developing, producing, installing, training and servicing of advanced *in vitro* exposure systems.

The VITROCELL® Systems' team is driven by their vision for new in-vitro standards through state-of-the-art technology, highly qualified workmanship and absolute client dedication. VITROCELL® has successfully collaborated with clients from leading research institutes, contract research organizations, regulatory authorities or industrial laboratories across the world. Working with our team experts, all modules have been tailored to create durable and complete turnkey-systems for *in vitro* inhalation toxicology. Gases, environmental atmospheres, nano particles and complex mixtures are analyzed on lung cells at the air/liquid interface using these systems. VITROCELL® technologies are also applicable to solutions for skin research.

Over a decade of devotion to research in this specific field has given our team of design & precision manufacturing specialists the opportunity to mentor highly diversified and complex projects **from conception to completion**. We strive to become a constructive member of each research team, providing support when it is needed, advice when it is required and modules of the highest quality, which are even polished by hand before leaving here to be integrated into your workspace. Every piece of our German engineered equipment is manufactured to the highest of standards – yours.

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