

Argumenten voor aanschaf van een Promethion metabolic system (calorimetriesysteem) bij de firma Sable Systems Europe GmbH

The decision was based on the system's ability to measure water vapor pressure, rate of water loss, metabolic water production as well as the ability to perform mathematical correction of water vapor pressure and barometric pressure effects on VO₂, VCO₂, EE and RER.

The interval between successive metabolic measurements, in pull mode (negative pressure), from a given mouse, was not to exceed 2 minutes (cycle time), with all system cages being monitored. To ensure a low stress environment for the animals the minimum number of full air exchanges in the cage was to exceed 12 per hour (cage time constant (=cage volume/flow rate) of no more than 4 min), without the effect of pressurizing the cage. In case of a flow rate generator malfunction or prolonged power loss the system was to allow the animal to be maintain in livable conditions over a period of 24h.

All mass measurements (for food and water intake, and body mass determination) were to utilize load cells with a 24bit AD converters, capable of resolving a change of 2 mg (0.002 g) over a range of 0-1 kg (0-1000 g), to allow adequate precision and accuracy.

All data collected by the entire system (analyzers, flow generators, mass sensors, wheel etc.) was to be acquired at a frequency of no more than 1 Hz (one sample per second minimum) and be stored on disk in raw format, without any transformations, to allow high resolution and fully traceable data analysis.

Finally, telemetry system was to monitor, at minimum, core body temperature and gross motor activity with the use of battery-free, implantable transponders, with volume not exceeding 1 ml, to reduce downtime and recurring costs.

Sable Systems, Promethion metabolic phenotyping system was the only equipment on the market that not only met all, but also, in many cases, exceeded the requirements.