Innocor® LCI

Lung Clearance Index Measurements from Preschool Children to Adults

- Uses SF₆ - a true, insoluble gas in trace amounts (≈0.2 %)
- Child-friendly test - faster than the N₂ method
- No need for external O₂ supply (integrated test gas cylinder)
- FDA and Health Canada approved, CE marked

PulmoTrace
Unique gas exchange solutions
www.pulmotrace.com
Method

What is LCI? LCI is a measure of ventilation distribution in the lungs. It equals the number of times the patient needs to replace the lung volume to decrease the concentration of a blood insoluble tracer gas in the lungs by a factor of 40 in normal breathing at rest. The tracer gas is recorded during a multiple breath washout (MBW) test.

Why measure LCI? LCI is a more sensitive marker of abnormalities than FEV₁, allowing early detection of disease in the smaller airways, down to small children and infants.

Why use SF₆ and not N₂? No influence of N₂ back-diffusion into the lungs from blood and tissues, no impact of pure O₂ on breathing pattern or gas exchange, considerably shorter testing time and less sensitivity to leaks.

Why choose Innocor LCI? We use a fast-responding photoacoustic infrared gas analyser with unmatched sensitivity, accuracy and stability. Our patented method makes the test significantly shorter, with minimal use of SF₆ compared to conventional methods. In case of manoeuvre failure (e.g. coughing or leaks) there is no need to wait - simply repeat the test.

Technical Specifications

Gas analyser (Photoacoustic spectroscopy)
Components and ranges  N₂O 0-2.5%, SF₆ 0-0.5%, CO₂ 0-10%
Accuracy after calibration  ± 1.5% rel.
Signal-to-noise ratio  > 1000 @ half-scale (N₂O and SF₆)
> 400 @ half-scale (CO₂)
Sampling frequency  100 Hz
Sample flow rate  120 ml/min

Oxygen sensor (Laser diode absorption spectroscopy)
Range  0-100%
Accuracy after calibration  ± 1.5% rel.
Signal-to-noise ratio  > 500 @ 21% O₂
Sampling frequency  100 Hz
Sample flow rate (same flow as above)  120 ml/min

Flowmeter (Differential pressure pneumotachometer)
Range (Standard size)  ±100 l/min
Sampling frequency  100 Hz
Dead space  12 ml

Rebreathing valve (Pneumatic, with silicone valve insert)
Dead space, Compact (non-rebreathing)  5 ml

Gas supply
Gas composition  5% N₂O, 1% SF₆, 94% O₂
Cylinder capacity  18 litres (0.15 l @ 124 bar & 21 °C)
Approx. number of tests (at rest)  75

Pulse oximeter
Oxygen saturation range  0 - 100%
Pulse rate (HR) range  40 - 240 BPM

Mechanical
Size  35 x 29 x 26 cm (W x H x D)
Weight (depending on configuration)  8 kg

Electrical
Power supply  100-120V / 200-240V, 50/60 Hz
Power consumption  30 W nom., 50 W max.
Protection  Class I type BF according to IEC 60601-1

Environmental
Operating temperature  10 - 40 °C
Operating pressure  525 - 800 mmHg