

# Innocor<sup>®</sup> LCI

## Lung Clearance Index Measurements from Preschool Children to Adults



- Uses SF<sub>6</sub> - a true, insoluble gas in trace amounts (≈0.2 %)
- Child-friendly test - faster than the N<sub>2</sub> method
- No need for external O<sub>2</sub> supply (integrated test gas cylinder)
- FDA and Health Canada approved, CE marked

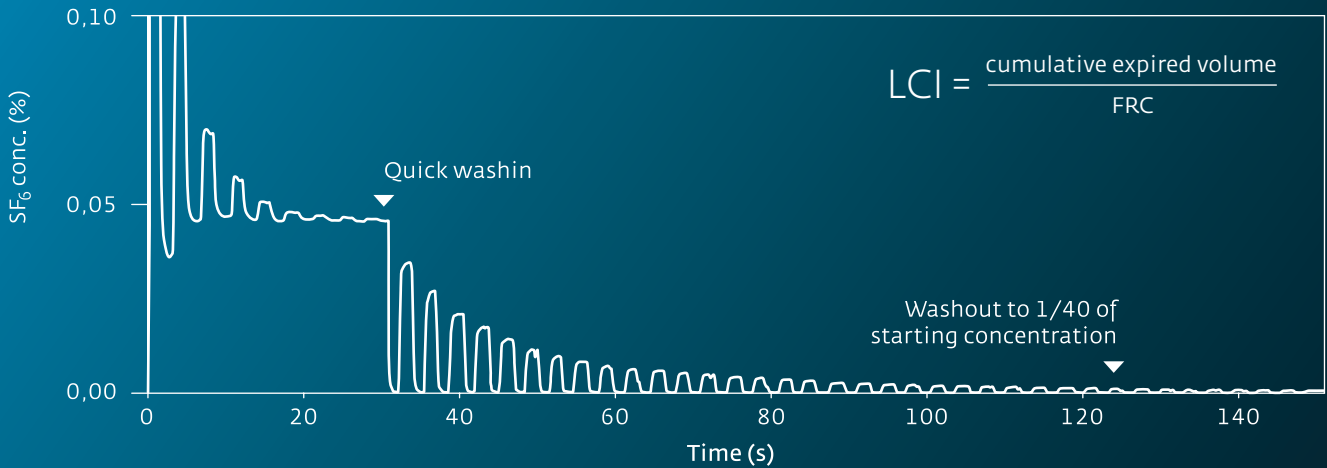
# Method

**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 FEV<sub>1</sub>, allowing early detection of disease in the smaller airways, down to small children and infants.

**Why use SF<sub>6</sub> and not N<sub>2</sub>?** No influence of N<sub>2</sub> back-diffusion into the lungs from blood and tissues, no impact of pure O<sub>2</sub> 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 SF<sub>6</sub> compared to conventional methods. In case of manoeuvre failure (e.g. coughing or leaks) there is no need to wait - simply repeat the test.



Patient interface for children and adults

Compact and portable



Approx. 75 tests in miniature gas cylinder using dilution with air



## Technical Specifications



### Gas analyser

#### (Photoacoustic spectroscopy)

Components and ranges . . . . . N<sub>2</sub>O 0-2.5%, SF<sub>6</sub> 0-0.5%, CO<sub>2</sub> 0-10%  
 Accuracy after calibration . . . . . ± 1.5% rel.  
 Signal-to-noise ratio . . . . . > 1000 @ half-scale (N<sub>2</sub>O and SF<sub>6</sub>)  
 . . . . . > 400 @ half-scale (CO<sub>2</sub>)  
 Sampling frequency . . . . . 100 Hz  
 Sample flow rate . . . . . 120 ml/min

### Oxygen sensor

#### (Laser diode absorption spectroscopy)

Range . . . . . 5-100%  
 Accuracy after calibration . . . . . ± 1.5% rel.  
 Signal-to-noise ratio . . . . . > 500 @ 21% O<sub>2</sub>  
 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% N<sub>2</sub>O, 1% SF<sub>6</sub>, 94% O<sub>2</sub>  
 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

Meets the Guidelines of the ERS/ATS Consensus Statement:  
*Eur Respir J.* 2013 Mar;41(3):507-22