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New method for aircraft leak testing

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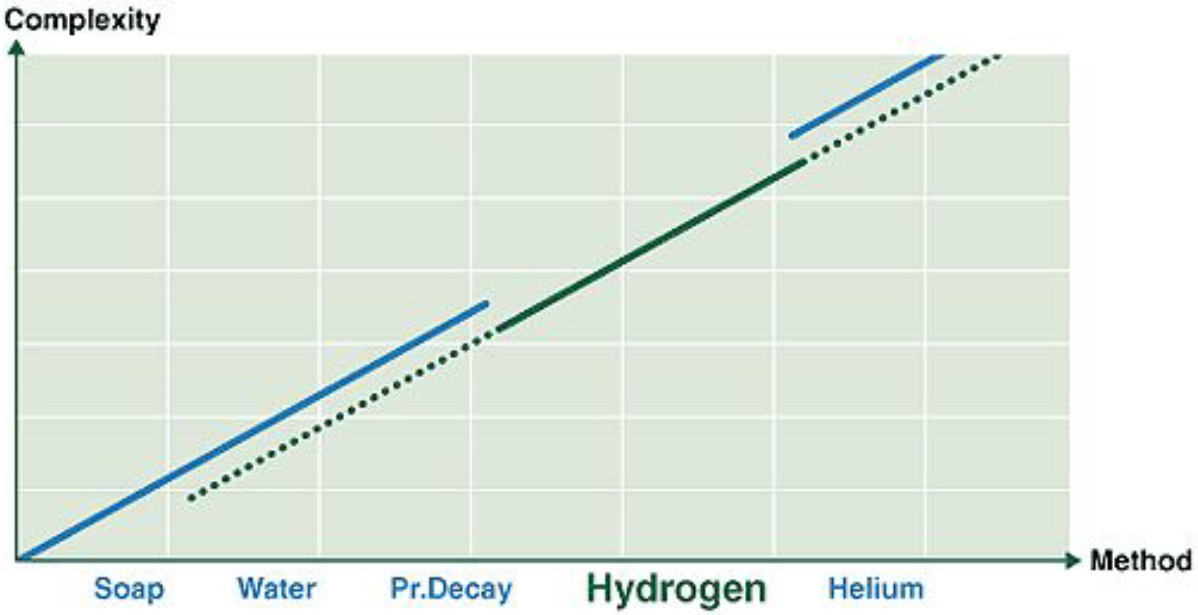
Sensistor Technologies

www.sensistor.com

Leak testing methods

- Soap
- Water bath
- Pressure decay
- Tracer gas
  - Hydrogen
  - Helium



Hydrogen Trace Gas?

- Non flammable *(5% hydrogen in nitrogen: Formiergas 95/5)*
- Low background (0.5 ppm)
- Easily dispersed
- Non sticking
- Inexpensive
- Environmentally friendly, sustainable
- Non corrosive
- Non toxic

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Hydrogen Leak Detector H2000

- Robust and suitable for industrial environment
- No gas sampling *(no pumps, no filters)*
- Maintenance free
- Short response time, quick recovery
- Battery operated, mobile
- Easy to calibrate on site

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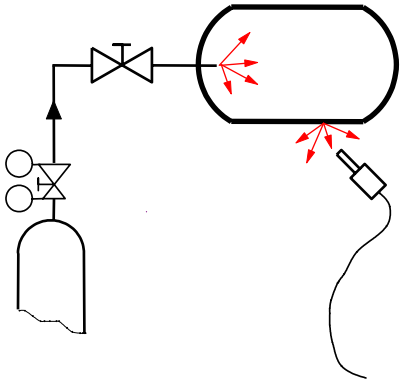
Methods

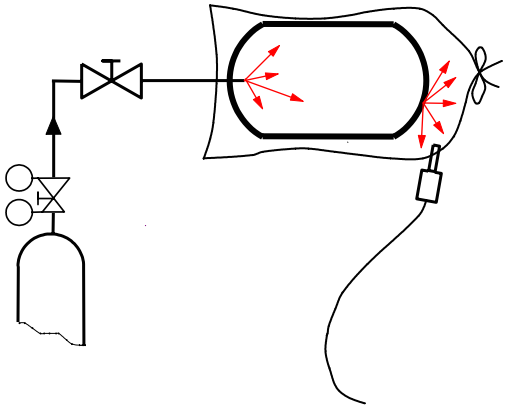
Leak locating

Sensitivity: $5x10^{-7}$ mbarl/s
with Hydrogen Trace Gas



Integral testing

Simple chamber test at
atmospheric pressure



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Example: Inflatable life raft

Pin pointing leaks for maintenance and repair

Application examples

- **Component testing**
  Fuel ducts, bleed air ducts
  (Eaton Aeroquip)

- **Assembly testing**
  Galley cooling system
  (Airbus: A340, A380)

- **Maintenance and repair**
  Fuel systems
  (Tornado, Eurofighter, Eurocopter: NH90)

Locating fuel leakages

- Gas pressure: typ. 1-5 psig
- Ensure gas spreads thoughout the volume
- Search - repair, and check again (gas spillage no problem)
- Gas leakage 10^{-4} cc/s = no drip of jet fuel

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Main advantages over helium

- Hydrogen is much less expensive than helium
- Hydrogen disperses much quicker than helium

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Aerospace Testing Expo 2005

Leak Testing with Hydrogen Trace Gas

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