

Oxygen Sensor Lifespan

Galvanic oxygen sensors work on a similar principle to an electrical battery: using an anode, a cathode and a liquid electrolyte to generate electricity by way of a chemical reaction. Like batteries, they have a limited lifespan, which is governed by the amount of electrolyte and anode material available.

Galvanic oxygen sensors generate an electrical output in direct proportion to the level of oxygen that the sensor is exposed to, so in normal air, where the oxygen concentration is around 21%, the sensor's output is approximately one fifth of what it would be in 100% in oxygen.

Consequently, sensors exposed to high levels of oxygen throughout their life have a shorter lifespan than those measuring low concentrations. Typically, a sensor such as the R-22MED may last up to 45-48 months in air, but only 9-10 months in pure oxygen.

In order to prolong the shelf life of oxygen sensors, they are sealed into gas barrier bags shortly after manufacture. These bags restrict the transit of oxygen molecules from the outside to the inside of the bag, whilst the sensor consumes the available oxygen inside it.

Once the oxygen is consumed, the sensor output drops significantly and the sensor effectively 'goes to sleep'. The reaction does not stop entirely as some oxygen molecules still find their way through the gas barrier, but the effect is such that after 2 years inside the bag, a sensor will still retain approximately 90% of its original lifespan.

Where sensors carry manufacturing dates, these relate to when a production batch was started and not to the start of the warranty period, which is from the date of invoice. Warranty periods are honoured regardless of the manufacturing date as the packaging has preserved the sensor life, which will not have been significantly reduced.

Although storing sensors for longer periods will not significantly shorten their lifespan (providing the gas barrier bag is sealed and undamaged), Viamed recommends that sensors be put into service whilst still within their original warranty period so as to afford the end-user the benefit of the warranty.

Different sensors have different warranty periods; please check with Viamed or your local distributor for information concerning individual sensors.