

Leaded versus Lead-free sensor



:: KEY FEATURES ::

Lifetime

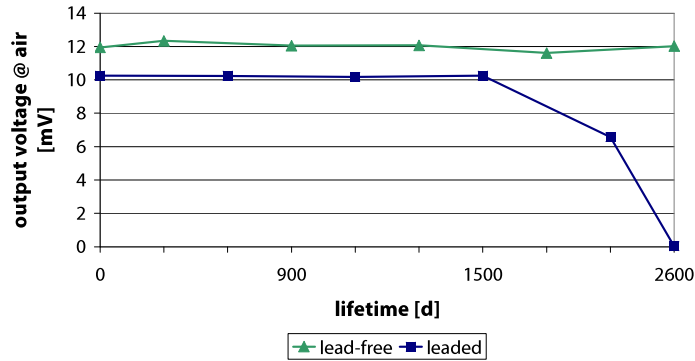


Fig. 1: Conditions According to the assumption of the anode, we set up an accelerated lifetime-test at high pressure and 100% O₂. **Conclusion** Whereas the leaded cell will find its end of life at approximately 2600 days the lead-free cell keeps on going.

Output drift

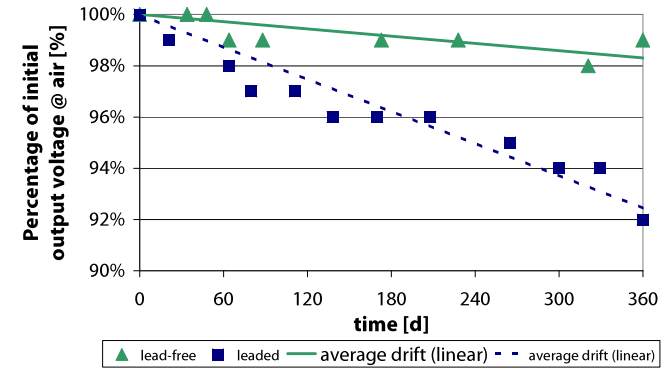


Fig. 2: Conditions Average drift within a time period of 12 month at room ambient conditions. **Conclusion** The lead-free cell is much more stable than the leaded sensor and drifts less by the factor of 4.5.

Response time t_{90}

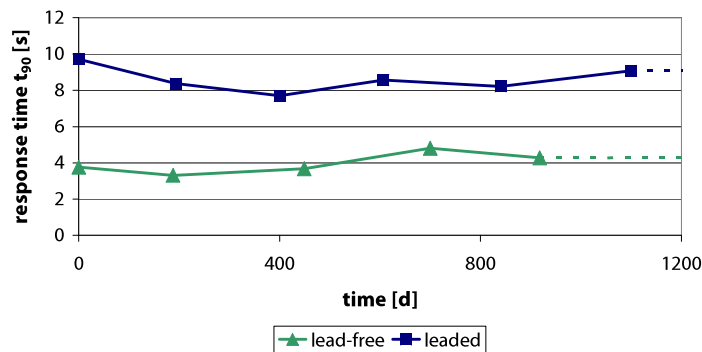


Fig. 3: Conditions Accelerated lifetime test at higher temperature and 100% O₂. Since almost 3 years the response time is constant within a +/- 1.5s interval. **Conclusion** The lead-free sensor is even faster, 2.5 times than the leaded cell.

Linearity error

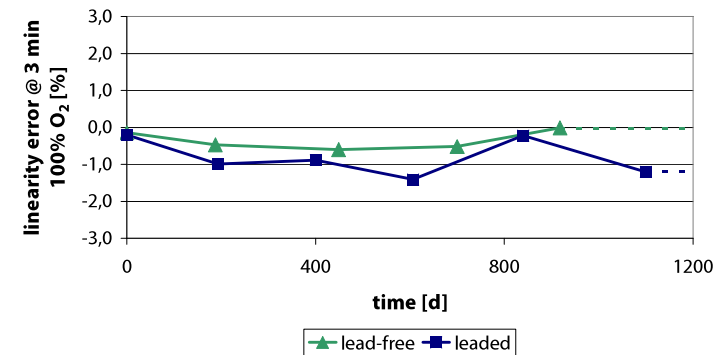


Fig. 4: Conditions Accelerated lifetime test at higher temperature and 100% O₂. Since almost 3 years the linearity error is lower than -1.5%. **Conclusion** Tops off the leaded cell as its linearity error is even lower as well as smoother.