The equation for calculating the life of Micro-fuel cells

Rules of Physics govern the life of a sensor

Months of life in air $\underline{Pb}$ x K
$$I$$

Where
Pb = Amount of lead in (grams)
I = Cell current output in air (Amperes)
K = 3.59×10^4

Percent hours = (7.2×10^4) x (Months of life in 100% Oxygen)

[**7.22** $\times 10^4$ derived from 100 x 30 x 24 hrs]

For the R- 17

Pb 14 gms
Maximum current in air = $\underline{14 \times 3.59 \times 10^4}$ = 30.9 months (21% Oxygen)
$$127 \times 10^{-6}$$

Percent hours $= (7.2 \times 10^4)$ x (39.6×0.209) = 595,522

NB multiplying by 0.209 converts months of life in air to months of life in 100% oxygen

Assume 75% anode efficiency

$$595,552 \times 0.75 = 447,000 \text{ percent hours}$$

Marketing Rules
If 100% consumption of lead is assumed the life can be quoted as 595,000 percent hours.
Sensor output is quoted as +/- 30%
If all the factors are in one direction the sensor could have an output 30% lower thus theoretically increasing the life to 892,000 percent hours.