Weibull model equation is:

$$N_t = N_0 \times 10^a$$

where:

$$a = -(t/D)^p$$

t is time. The parameters to estimate are D, p and N_0.
The noisy output is defined as:

$$N_t = (1 - \%noise) * N_t + \xi(N_t \times \%noise)$$

where ξ is random numbers from Poisson distribution with mean parameter $N_t \times \%noise$.

Example of Weibull curve
Time unit is hour. Maximal time is 500h. $D = 300$, $p = 3$ and $N_0 = 1000$