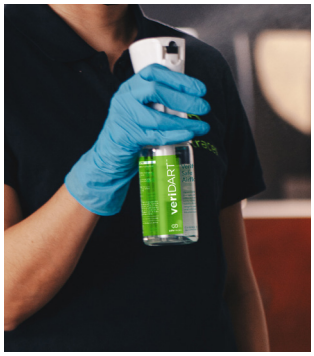
veriDART® uses liquid aerosols that desiccate and shrink to particle sizes within the range of expelled human emissions

Log_{10} Reduction from Baseline Method

The Logarithmic reduction (Log_{10} red) of the veriDART signal is a comparison of the amount of DNA detected in a sample vs a specific dilution of the concentration in the DNA-tagged solution used. This is called the Tag-Baseline.



Tag-Baseline:

- Its value depends on the DNA-concentration of the Tag used
- It is measured in qPCR cycles
- This value is representative of the of DNA collected in sample point:

  1. Located 6 feet from an Origin Point sprayed 3 feet to the side
  2. In a small office room with still air and door open
  3. Sampling 7.5 lpm for 30 minutes

Calculation:

$$Log_{10}\ red = \frac{(Sample\ Cq - Tag\ Baseline)}{Efficiency\ Log_2/Log_{10}}$$

Example:

Sample Cq = 28.3; Tag-Baseline = 20.0;
Efficiency Log_2/Log_{10} = 3.32

$$Log_{10}\ red = \frac{(28.3 - 20.0)}{3.32} = 2.5\ Log_{10}\ red$$

Sample Cq: number of qPCR cycles needed to detect the presence of DNA from the sample.

Tag Baseline: number of qPCR cycles needed to detect the presence of DNA from a DNA-tagged solution under standard procedures.

Efficiency: represents the ratio of how much change in Log_2 units are observed per 1 Log_{10} unit of change in the amount of DNA present in the sample.

Results Interpretation:

- **SP-01:** this point detected 10 times less DNA than the baseline.
- **SP-12:** this point detected 1,000 times less DNA than the baseline.
- **SP-01 vs SP-12**: the point located in the office named SP-12 received 100 times less DNA than what is detected at the same time in the Breakroom SP-01.