

Steam D-value Determination Report

Date started _____
Date completed _____

Temperature 118 121 126 132 Other _____

Lot # _____ Batch # _____ Carrier _____ Population/unit _____

The following is designed for runs using 10 BIs per run (ie only valid for 10/run).
At least 3 runs showing dichotomous results are required.

Fraction Negative (Spearman-Karber)

Time	#BIs sterile	10 - f	f(10 - f)
	0	10	0
	0 (f ₁)	10	0
	(f ₂)		
	(f _{k-1})		
	10 (f _k)	0	0
	10 (f _{k+1})	0	0

f_k = all BIs sterile and adjacent to a dichotomous result
 f₁ = all BIs survive and adjacent to a dichotomous result
 T = time to achieve f_k
 d = time interval between runs in minutes
 u = # of BIs per run (ie 10)
 N₀ = Population of BI unit (use most recently determined value)
 U = mean time until sterility
 D = D-value
 V = variance
 SD = standard deviation and is \sqrt{v}

ucl = upper confidence limit
lcl = lower confidence limit

$$U = T - d/2 - (d/10 \times \sum f_{k-1} \text{ to } f_1)$$

$$U = \text{____} - \text{____}/2 - (\text{____}/10 \times \text{____}) \qquad U = \text{_____}$$

$$D = U / (\log N_0 + .2507) \qquad D = \text{____} / (\log \text{____} + .2507)$$

D = _____ minutes

Calculations By _____ Date _____

Calculations Reviewed By _____ Date _____ 11/27/98