

SPEARMAN'S RANK COEFFICIENT TESTDAILY MEAN VCM RESIDUAL CONCENTRATIONS

Procedure is to rank daily means and then to square the difference of ranking.

<u>Day</u>	<u>Daily Mean</u>	<u>Rank</u>	<u>Difference</u>	<u>Square Of Difference</u>
1	71.88	4	-3	9
2	68.92	2	0	0
3	71.55	3	0	0
4	68.90	1	3	9
5	72.61	5	0	0

$$\text{Spearman's Rank Coefficient} = 1 - \frac{6 \sum d^2}{n^3 - n}$$

Where d^2 = square of differences
 n = number of samples

$$d_1^2 = 9$$

$$d_2^2 = 0$$

$$d_3^2 = 0$$

$$d_4^2 = 9$$

$$d_5^2 = 0$$

$$n = 5$$

Then:

$$\text{Spearman's Rank Coefficient} = 1 - \frac{6(9+0+0+9+0)}{125 - 5} = 0.10$$

for $n = 5$, the critical value for significance is $\pm 0.90^{(1)}$

Therefore, since the calculated rank coefficient, 0.10 is less than the critical value, 0.90, there is no significant difference in the mean daily averages.

(1) Chemical Rubber Handbook Tables for Probability of Statistics
 Published by Chemical Rubber Company, 1966, page 330