Batch	Agent1	Agent2
1	7,7	8,5
2	9,2	9,6
3	6,8	6,4
4	9,5	9,8
5	8,7	9,3
6	6,9	7,6
7	7,5	8,2
8	7,1	7,7
9	8,7	9,4
10	9,4	8,9
11	9,4	9,7
12	8,1	9,1

Paired t-test

Alpha	0,05	
Hypothesised Mean Difference	0	
	Variable 1	**Variable 2**
Mean	8,25	8,683333333
Variance	1,059090909	1,077878788
Observations	12	12
Pearson Correlation	0,901055812	
Observed Mean Difference	-0,433333333	
Variance of the Differences	0,211515152	
df	11	
t Stat	-3,263938591	
P (T<=t) one-tail	0,003772997	
t Critical one-tail	1,795884814	
P (T<=t) two-tail	0,007545995	
t Critical two-tail	2,200985159	

Exercise 8.4:

Obtained related samples t = 3.264 with 11 degrees of freedom. The twotailed p-value is p = 0.008, so the observed t is significant at the 1% level. The sample mean numbers of the filtration agent data sets were, 8.25 for Agent1 and 8.68 for Agent2. The data constitute significant evidence that the underlying mean number of Agent2 was greater by estimated 8.68 – 8.25 = 0.43. The results suggest that Agent2 should be preferred.

Exercise 8.5:

H0: $\mu 1 \geq \mu 2$

H1: $\mu 1 < \mu 2$

The one-tailed p-value is p = 0.004. The observed t is therefore significant at the 1 % level. The result suggest that Agent2 should be preffered. Thus the data are consistent with the H1 hypothesis.