| 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 |

t-Test: Paired Two Sample for Means

| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 8,25 | 8,683333333 |
| Variance | 1,059090909 | 1,077878788 |
| Observations | 12 | 12 |
| Pearson Correlation | 0,901055812 | |
| Hypothesized Mean Difference | 0 | |
| df | 11 | |
| t Stat | -3,263938591 | |
| P(T<=t) one-tail | 0,003772997 | |
| t Critical one-tail | 1,795884819 | |
| P(T<=t) two-tail | 0,007545995 | |
| t Critical two-tail | 2,20098516 | |

| | |
|---|---|
| Difference in Means | -0,433333333 |

## Exercise 8.4g

**Two-Tailed Test to show Impurity differences between 2 Filtration Agents**

**The sample Mean from Agent 1 and 2 were 8.25 and 8.68 respectively.**

**Underlying Mean number of Impurities associated with the different Agents, shows that there are less impurities associated with Agent 1, by an estimated 8.25 - 8.68 = 0.43 than Agent 2.**

**Agent 1 appears to have less detected impurities by a ratio of 0.43 for each instance.**

**The obtained related samples t = 3.264 with 11 degrees of freedom.**
**Associated p-value = 0.008, and observed t is significant at the 5% level (two-tailed) for behavioral studies (or 1% or less for medical studies).**

**These results would support the Null Hypothesis that there is little difference in impurity levels between the 2 Filtration Agents.**