

## Glue Line Strength Test

Glue strength was tested using the Box Crush Test (BCT) performed to the TAPPI Standards by an independent lab. Multiple tests were conducted on multiple sized boxes.

### Results Summary

Box Sample	Average		Standard Deviation	
	Aerated	Non Aerated	Aerated	Non Aerated
1	860	861	31	18
2	952	937	58	54
3 – Set 1	967	900	34	22
3 – Set 2	955	957	35	39

# Box Sample 1

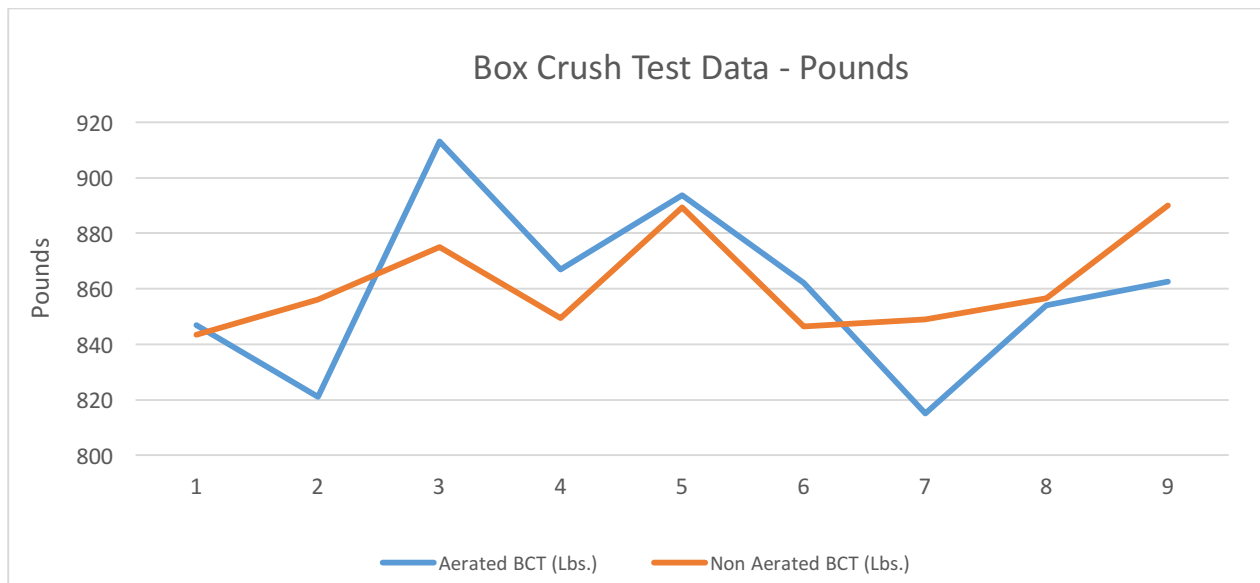
## Box Information

Box Sq. Ft.	Box Dimensions	Glue Joint Length (In.)	Board Combination
6.1598	15.14 x 55.14	15	45VK/36MED/45VK



## Box Crush Test Data – Aerated vs. Non Aerated

Sample	Aerated BCT (Lbs.)	Non Aerated BCT (Lbs.)
1	846.9	843.5
2	821.0	856.1
3	913.1	875.0
4	867.0	849.4
5	893.6	889.3
6	862.1	846.5
7	815.0	848.9
8	854.0	856.5
9	862.6	890.1
Average	860	861
Standard Deviation	31	18



## Box Sample 2

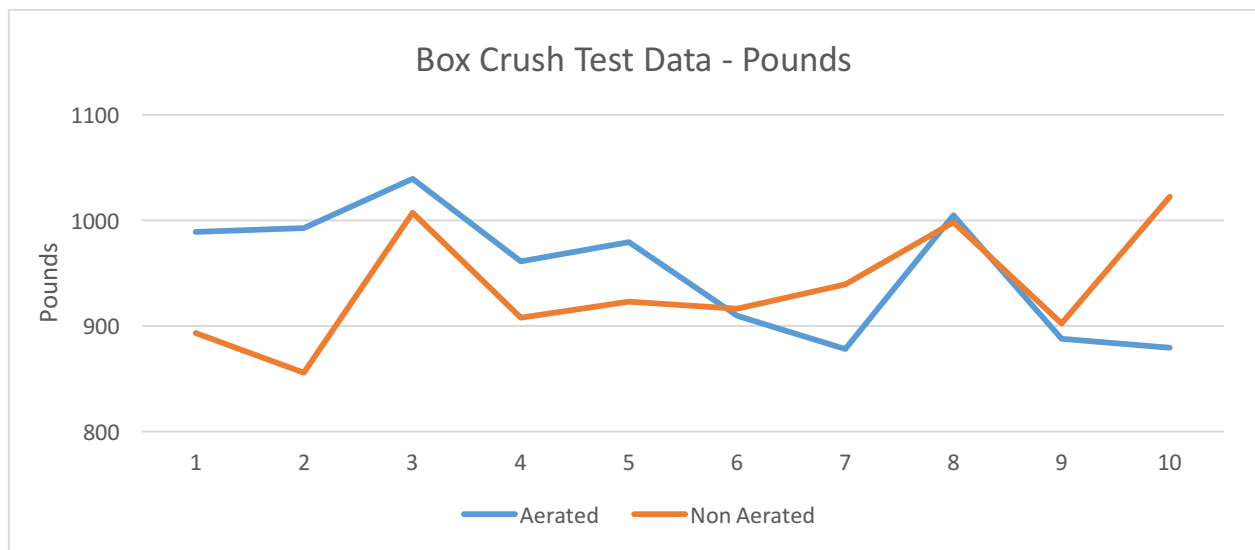
### Box Information

Box Sq. Ft.	Box Dimensions	Glue Joint Length (In.)	Board Combination
11.1016	24.08 x 65.04	13 3/8	42VK/36MED/55VK



### Box Crush Test Data – Aerated vs. Non Aerated

Sample	Aerated BCT (Lbs.)	Non Aerated BCT (Lbs.)
1	989.1	893.6
2	992.9	855.8
3	1039.0	1007.0
4	961.0	907.7
5	979.3	922.9
6	909.9	916.2
7	878.1	939.5
8	1005.0	998.0
9	888.0	902.3
10	879.3	1022.0
Average	952	937
Standard Deviation	58	54



# Box Sample 3 – Set 1

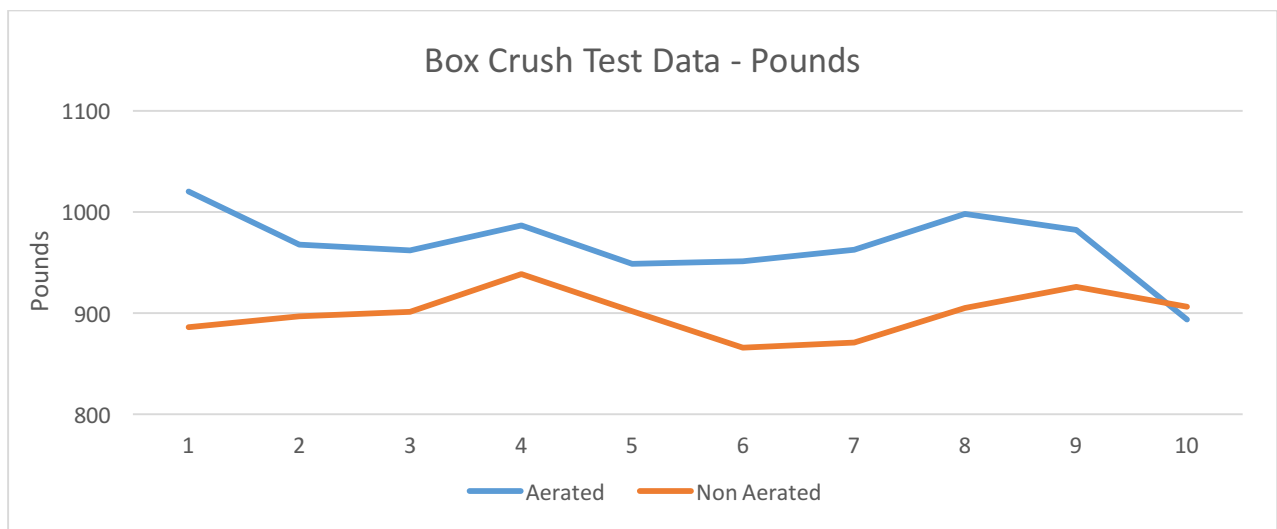
## Box Information

Box Sq. Ft.	Box Dimensions	Glue Joint Length (In.)	Board Combination
9.1585	20.11 x 63.12	11	42VK/36MED/55VK



## Box Crush Test Data – Aerated vs. Non Aerated

Sample	Aerated BCT (Lbs.)	Non Aerated BCT (Lbs.)
1	1020.0	886.2
2	967.7	897.2
3	962.3	901.3
4	986.9	938.6
5	948.8	902.2
6	951.1	865.7
7	962.4	870.9
8	998.2	905.2
9	982.5	925.8
10	893.6	906.5
Average	967	900
Standard Deviation	34	22



## Box Sample 3 – Set 2

### Box Information

Box Sq. Ft.	Box Dimensions	Glue Joint Length (In.)	Board Combination
9.1585	20.11 x 63.12	11	42VK/36MED/55VK



### Box Crush Test Data – Aerated vs. Non Aerated

Sample	Aerated BCT (Lbs.)	Non Aerated BCT (Lbs.)
1	945.5	912.3
2	1046.0	1007.0
3	1031.0	986.2
4	1025.0	932.3
5	1022.0	976.3
6	961.3	966.8
7	969.9	994.7
8	980.5	981.3
9	DAMAGED	924.6
10	974.8	890.9
Average	995	957
Standard Deviation	35	39

