



**TRIPLE / S
DYNAMICS
INTERNATIONAL, INC.**

[REDACTED]

Dear [REDACTED]:

Attached is our test report on the two samples of sawdust contaminated with sand we processed for you. The separated samples are being returned to you via Air Freight for you further inspection.

The results, I believe, are very promising. The fact that we show a lower sand content is probably partly due to the fact that we tested the material in its "as recieved" condition and did not do any drying. Even though the material would be somewhat easier to process if it were dry, it appears possible to remove 95% of the sand while losing only about 6% of the wood. It may be possible to improve somewhat on these results and reduce the wood loss in a continuous operation; we would need to run a larger sample in order to confirm this. I would appreciate learning your evaluation of this test after you have had a chance to review the enclosed data and inspect the samples.

If these results are satisfactory, we would like to know what production capacity you are currently running in order to quote the screening and separating equipment to you. For your further information, I am enclosing literature on our Texas Shaker, Vibrating Screens and our Fluidized Bed Separators.

Sincerely yours,

TRIPLE/S DYNAMICS INTERNATIONAL, INC.

[REDACTED]

cc: [REDACTED]

[REDACTED]

TRIPLE/S DYNAMICS, INC.
LABORATORY TEST REPORT

██████████
TEST NO: S-76-14 ██████████

OBJECTIVE: To test the effectiveness of Sutton Steel Gravity Separators for removing sand and grit from sawdust.

EQUIPMENT USED: Ro-Tap Sieves, 1' x 3' Laboratory Screen, V-135 Fluidized Bed Separator W/Feeder and Exhaust System.

TEST PROCEDURE: Two separate 6Kg. samples were used for the testing. First, a small portion was split off from each sample and Ro-Tapped to determine the size distribution of the material. The material retained on each screen size was then separated into the sand and wood portion by sink-float testing using carbon tetrachloride as the separation medium. The results of the Ro-Tap analysis and first sink-float test are shown in Tables Samples I (A) and Sample II (A). Next the material was screened over 10-mesh and 30-mesh openings on the laboratory screen; the -10 mesh by +30 mesh material being retained for further separation.

This screened fraction was then separated into four products on the Gravity Separator: heavies, middlings (boundary fraction), lights, and material entrained in the exhaust air (cyclone). The weight of each fraction for samples I and II is shown in paragraphs (B). Small samples were then split out of the three separator discharge products and were separated into sink and float fractions in carbon tetrachloride. The results of this sink-float are shown in paragraphs (C) .

CONCLUSIONS :

1. There was less total sand than expected in either sample. In sample I the +6 mesh material was not sink-float separated and in sample II the +6 mesh and +10 mesh fractions were not sink-float separated because no sand particles were visible. Differences in test methods for sand content may be why we did not find 9% sand in either sample.
 2. In both samples, it appears possible to screen out a +10 mesh fraction that will be practically sand-free.
 3. In order to feed a sized mixture to the separator and eliminate the very fine grit, the -30 mesh material could be screened out and discarded.
 4. Due to the size of the samples, little time was available to try different machine settings to find the optimum separation possible. Due to changes in machine settings more clean product was obtained in testing sample II than with sample I.
- ██████████

[REDACTED]

LABORATORY DATA

SAMPLE I

A.) Sieve Analysis - (Tyler standard sieves)

MESH	WOOD		SAND		TOTAL	
	Wt.	%	Wt.	%	Wt.	%
6	29.4g	14.7%	-0-	-0-	29.4g	13.8%
10	55.2	27.7	0.1g	.8%	55.3	26.0
14	53.9	27.0	11.4	87.0	65.3	30.7
20	43.4	21.8	0.9	6.8	44.3	20.9
24	12.0	6.0	0.2	1.5	12.2	5.7
32	4.7	2.3	0.2	1.5	4.9	2.3
-32	.9	0.5	0.3	2.3	1.2	.6

Sand Content = 6.16%

B.) Separation - -10 mesh x +30 mesh fraction

HEAVY	MIDDLING	LIGHT	CYCLONE COLLECTOR
230g. (11.2%)	1559.25g. (76.1%)	55.5g. (2.7%)	205.0g. (10%)

C.) Sink-Float of separator products

	Sink(Sand)	Float(Wood)	%Sand in Fraction
Heavy	33.9gr.	11.8gr.	74.2
Middling	0.4gr.	8.8gr.	4.3
Light	trace	2.6gr.	

According to sieve analysis and sink-float -10 +30 mesh fraction should have 10.02% sand.

$$\begin{aligned}
 \text{Heavies } 11.2\% \times 74.2\% \text{ sand} &= 8.31\% \\
 \text{Middlings } 76.1\% \times 4.3\% \text{ sand} &= 3.27\% \\
 \hline
 &= 11.58\%
 \end{aligned}$$

(Difference is due to fact that some wood did sink.)

[REDACTED]
LABORATORY DATA

SAMPLE II

A.) Sieve Analysis - (Tyler standard sieves)

MESH	WOOD		SAND		TOTAL	
	Wt.	%	Wt.	%	Wt.	%
6	27.0g.	16.4%			27.0g.	15.7%
10	61.3	37.4			61.3	35.7
14	39.3	23.9	trace		39.3	22.9
20	26.2	16.0	.7	9.0	26.9	15.6
24	6.7	4.0	4.9	63.6	11.6	6.8
32	3.0	1.8	0.5	6.4	3.5	2.0
-32	0.6	0.4	1.6	20.1	2.2	1.3

Sand Content = 4.49%

B.)

HEAVY	MIDDLING	LIGHT	CYCLONE COLLECTOR
245.5g (10.0%)	1020.6g (41.9%)	992.25g (40.7)	179.5g (7.4%)

C.) Sink-Float of separator products

Fraction	Sink(Sand)	Float(Wood)	%Sand in Fraction
Heavy	37.0g.	15.7g.	70.2
Middling	0.4g.	20.9g.	1.8
Light	trace	3.6g.	

According to sieve analysis, -10m x +32m contained 7.5% sand
 sand recovered or retained = 70.2% x 10.0% (Heavies) = 7.02%
 + 1.8% x 41.9% (Middlings) = 0.75%
7.77%