

TRIPLE/S DYNAMICS
PROCESS EVALUATION

██████████
BY: ██████████

SUBJECT: Removal of Rock From Vermiculite on a Gravity
Table for ██████████

LAB SAMPLE NUMBER: 79-185

SALES REPRESENTATIVE: ██████████

BACKGROUND: Two barrels of raw vermiculite ore were received from ██████████. The sample labeled #2 consisted of approximately 27% vermiculite and 73% rock, sized -8 to +16. The second sample, labeled #3, consisted of approximately 17.5% vermiculite and 82.5% rock, sized -12 to +30. The objective of the test was to separate the rock from the vermiculite.

PROCEDURE: Both samples #2 and #3 were split and a sieve analysis and bulk density test run. Sample #2 was then passed over a V-135 Gravity Table equipped with a 65 count deck with a tailing riffle. Each fraction; light, mid and heavy, were collected, weighed, and a bulk density test run.

Sample #3 was then passed over the V-135 Gravity Table equipped with the same deck as the previous test. Again, each fraction was collected and weighed and a bulk density test run.

Sample #2 was next run over the 22-F Stoner equipped with a 16 mesh deck. The lights and heavies were collected and the weight of each fraction was determined.

RESULTS AND
DISCUSSION:

The results of the sieve analysis and bulk density tests run on the head samples #2 and #3 are presented in Table 1.

Table 1 - Results of the Sieve Analysis and Bulk Density Tests on Vermiculite Samples #2 and #3

<u>Sieve Size</u>	<u>Percentage</u>	
	<u>#2</u>	<u>#3</u>
+8	--	--
+10	29.17	--
+12	54.65	1.54
+14	13.09	16.72
+16	2.05	31.30
+20	1.04	26.21
+28	--	18.74
-28	--	5.48
Bulk Density	80.73 #/cu ft	86.52 #/cu ft

Each sample was then passed over the V-135 Gravity Table equipped with a 65 count deck with a tailing riffle. The #2 sample was fed to the separator at a rate of 568 #/hr, and the #3 sample was fed at a rate 586 #/hr. The results of the gravity separation procedure on each sample are summarized in Table 2.

Table 2 - Percent Distribution and Bulk Density of Sample #2 (-8+16) and Sample #3 (-12+30) Vermiculite on a V-135 Gravity Table

Sample #2

<u>Fraction</u>	<u>Percent Distribution</u>	<u>Bulk Density</u>
Lights	19.35%	53.29 #/cu ft
Mids	11.44%	95.45 #/cu ft
Heavies	69.21%	118.70 #/cu ft

(Continued...)

Table 2 - (Continued...)

Sample #3

<u>Fraction</u>	<u>Percent Distribution</u>	<u>Bulk Density</u>
Lights	15.89%	52.12 #/cu ft
Mids	13.08%	85.91 #/cu ft
Heavies	71.03%	98.86 #/cu ft

In both samples, the heavy fractions appear to be clean rock, while the light fractions were largely vermiculite with a very slight contamination of rock.

Sample #2 was next remixed and fed to the Stoner at a feed rate of 1880 #/hr. The results of the Stoner separation are summarized in Table 3.

Table 3 - Percent Distribution of Light and Heavy Fractions of Vermiculite on a 22-F Stoner - Sample #2 (-8 +16)

<u>Fraction</u>	<u>Percent Distribution</u>
Lights	27.27%
Heavies	72.73%

This appears to be a good Stoner separation as the heavy end consisted mainly of rock and the light end was vermiculite with slight rock contamination.

The samples will be returned to [REDACTED] for further evaluation.

[REDACTED]

[REDACTED]