

GRACE

Construction Products Division

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SUBJECT: September, 1983
Monthly Report

MONTHLY HIGHLIGHTS

- The Wilder plant continues to produce Monokote from SBO treated L-3 concentrate with no manufacturing problems. The average furnace yield improvement for the first twelve carloads is 3.22.
- August YTD sales to Gypsum customers are \$1,215,144 which is 18.5% over budget and 28.9% over prior year. The strong recovery we saw in the first half is expected to slow down, but should still finish the year well over budget.
- Air samples taken during the Firemate test at Minnkota Power Company indicates there were negligible amounts of tremolite fiber in the air. The combination of surface treating the L-4 concentrate and Dearborn's enclosed handling equipment are responsible for the low fiber levels. The highest TWA measured was 0.03 f/cc in an area where there was a large vermiculite spill.

I. VERMICULITE CONCENTRATE (VCK)

A. Dearborn Chemical's Firemate Process

1. Minnkota Power Co. completed a three week evaluation of Firemate using high fouling coal containing 9% sodium. They are now planning a three week test of Perlite using DUSCO's injection equipment and burning normal grade coal containing only 4.5% sodium. DUSCO will then have another chance to run Firemate under the same operating conditions and sodium content to compare directly to Perlite. DUSCO estimates that Minnkota will run several more full scale tests before making a decision of which materials to use.
2. The fiber levels measured during the Minnkota Test were extremely low (highest recorded was 0.03 f/cc TWA). Even though we ran one control T/L without SBO treatment, we could not show any correlation between treated and untreated since most areas measured were zero or extremely low and beyond the accuracy of the test methods.

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3. DUSCO is discussing another possible trial with the Allegheny Power System in Willow Island, West Virginia. This is a 175 MW unit with a tube fouling problem, which would consume 500,000 lbs./yr. (250 TPY) of vermiculite. DUSCO has requested Enoree concentrate due to landed cost difference with Virginia Vermiculite Co. We have agreed to supply test quantities from Enoree.

B. Tremolite Binder Project

1. Wilder continues to run SBO treated L-3 with no apparent problems. The mine assay yields are averaging 3.2% over untreated, and Wilder is reaching the higher assay yields. Table I shows the data on the first 12 cars. The yield improvement ranges from (1.8%) to +7.2%. The "flake yield" is the assay yield divided by the concentrate grade, which is the calculated yield on a 100% vermiculite basis. The wide fluctuation in yield is suspected to be due to sampling techniques at the mine. Once the oil treatment becomes a standard procedure, it will be easier to establish sampling procedures to get more accurate data.
2. We have targeted Dallas as our next plant to continue scale-up evaluation of SBO L-3. The first C/L should arrive the week of October 10, 1983. Monokote will be made and compared to control material in the field. We will also produce Terra Lite #3 and send to Travelers Rest for growth tests.
3. A split C/L of SBO treated L-4 was made with a control split from the same conveyor and sent to New Orleans. This will be used to check roof deck performance via C-45A tests. ZCA will be produced the week of October 10, 1983 from this test material.

C. Semi-Bulk Packaging

We are continuing to experiment with the return of tote sacks to Enoree. The bags returned from USG's Sweetwater, Texas plant are on their 3rd trip and have little attrition. USG's Canadian plant has returned bags and nearly half are not suitable for reshipment.

We will collect all cost information relative to return of tote sacks and use this to determine if we should accept this as standard policy.

D. Account Status

1. U. S. Gypsum Co. - USG purchasing is working to justify a plant evaluation of our SBO treated L-3 based on the freight savings to western plants (\$113,000) and the lower FOB price (\$137,000)..

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USG management is reluctant to purchase from Libby due to the tremolite issue. We hope the new surface treatment and the potential \$272,000 savings will convince USG to run a full scale test.

II. NEW PRODUCT DEVELOPMENT

A. Vermiculite Emulsions

The patent investigation of the ICI patent turned up a prior patent expiring on June 13, 1984 which enables Grace to sell vermiculite emulsions using the ICI process without infringement after this date.

Several companies have been approached by ICI offering to sell the technology to produce a vermiculite emulsion. We have received inquiries from some of these companies such as: Owens Corning, J. P. Stevens and Armstrong World Industries. Also three paper companies are interested in this technology for paper coatings.

We are working with these potential customers to develop a vermiculite emulsion for their specific textile and paper applications.

B. Vermiculite Foam

ICI holds a strong patent position on the production of vermiculite foam. The foams we have made in the lab using their patented method have severe shrinkage problems. Unless these shrinkage problems can be resolved, this foam will be of limited commercial value.

R&D is working on several ideas to solve the foam shrinkage problem. A totally inorganic vermiculite foam would have great market potential as a fire retardant insulation.

C. Athletic Surfaces

We have a video recording of local tennis professionals playing on the experimental ZIC Tennis Court. It was raining most of the day and quite cool, therefore, the cooler playing characteristics were not apparent. Comments from the pro's indicate it is a good medium speed surface, with excellent bounce.

Before continuing with this idea, we will wait until Spring of 1984 to determine the product's resistance to winter freeze/thaw conditions. A preliminary market survey will also be complete by the first quarter of 1984.

III. INDUSTRIAL VERMICULITE (ZONOLITE)A. Texture Coatings

Verlite Corp., Tampa, Florida is now supplying U. S. Gypsum with African expanded vermiculite for acoustical plaster and texture compounds. This business was formerly supplied by Stronglite Products Co. Zonolite has been tested and rejected due to darker color.

USG reports that they are now switching several formulae to polystyrene beads due to lower cost of PS beads vs. vermiculite and Perlite.

B. Plastics Filler

Occidental Petroleum Corp. has found both Zonolite #4 as well as ground vermiculite to be an effective filler for Phenolic resins. The vermiculite also improves the heat resistance of the Phenolic. Tests are still underway. Potential sales volume is not known.



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TABLE I

ACTUAL ASSAY YIELD VARIANCE AT WILDER

CARLOAD SHIPMENT DATE	UNTREATED CONTROL L-3			SRD TREATED L-3			VARIANCE PERCENT (%)		
	ASSAY YLD (BACS/TM)	\$ ROCK FLAME YLD (BACS/TM)	\$	ASSAY YLD (BACS/TM)	\$ ROCK FLAME YLD (BACS/TM)	\$	ASSAY YLD (BACS/TM)	\$ ROCK FLAME YLD (BACS/TM)	\$
7/21/83	75.10	9.70	83.17	80.90	9.00	88.90	7.17	(7.78)	6.45
7/25/83	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/3/83	80.90	7.40	87.37	80.90	7.50	87.46	0.00	1.33	0.11
8/5/83	78.50	8.60	83.70	79.40	8.60	86.87	3.65	0.00	3.65
8/9/83	85.20	4.80	89.58	83.70	8.20	89.23	(1.79)	20.97	(0.40)
8/10/83	86.60	5.40	91.54	86.60	5.40	91.54	0.00	0.00	0.00
8/18/83	83.10	5.10	87.57	88.10	5.70	93.43	5.68	10.53	6.27
8/19/83	83.10	5.10	87.57	85.90	5.00	90.42	3.26	(2.00)	3.16
8/19/83	83.70	8.50	88.52	83.70	6.40	89.42	0.00	(1.56)	(0.11)
8/24/83	80.90	5.30	85.43	85.20	8.20	92.81	5.05	35.37	7.95
8/26/83	80.90	8.10	88.03	85.20	8.20	90.83	5.05	(30.65)	3.08
8/31/83	80.90	7.80	87.84	86.60	6.60	92.72	8.58	(19.70)	5.26
AVERAGE	81.54	8.73	87.42	84.20	6.80	90.34	3.16	1.07	3.24

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