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Johns-Manville
Sales Corporation

Asbestos Fibre Division

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December 4, 1975

Mr. Vance A. Stayner
President
Micro-Materials, Inc.
Box 63
Sugar Grove, Illinois 60554

File Plastics general

Dear Vance:

For your present work, I am sending you a twenty-five pound sample of our loose 7RF02 for your test work. Currently, the loose 7RF02 is $90 a ton in Canadian funds F.O.B. our Jeffrey mine in Asbestos Quebec. This material will be available in the loose form after January 1, 1976 for about another year.

For future use to reduce dust problems, I am sending twenty-five pounds of 7RF02 in flake form and treated with a polyethylene glycol treatment. I hope this can be used in your processing equipment. Since this flake-form would reduce the amount of dust generated. I believe this material should break up in your mixers since a similar flake material containing water as a binder is used in drilling muds for the oil industry where the fiber flakes are just poured into pond to give the viscosity to the drilling mud. I believe our current estimate on the price of this flake material with the polyethylene glycol treatment will be approximately 10-12¢ a pound in final production. Again the 7RF02 flakes price would be F.O.B. our mine, in Canadian funds.

I have checked into the labeling requirements for your material and I believe it would require a label as follows.

CAUTION
Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm

I hope this letter answers your questions and you should be seeing the samples in three or four weeks. If you require further information please feel free to contact me.

Sincerely,

Rich Cree

Rich Cree

JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER

Report No. 411-967

Date January 8, 1975

Title: ASBESTOS REINFORCED THERMOPLASTICS
LATEX FIBER TREATMENTS BY GOODYEAR

File: Plastics

SUMMARY

7TS6 fiber treated with SBR and NBR latex by Goodyear Tire and Rubber, Chemical Division, was sent to Johns-Manville Research and Development for evaluation. The treatment was developed as part of a program to eliminate dust in powdered materials and included an encapsulation process. Past commercial use of asbestos in polymer products prompted trial application of latex to 7TS fiber by Goodyear.

The treated fibers were received in the form of small nodules and were essentially dust free. The fiber nodules opened easily under finger pressure. The treatments included two types: Styrene-budadiene (SBR) and butadiene-acrylonitrile (NBR) applied at 5 percent level. The fibers were compounded in polyethylene and polybutylene by intensive mixing and compression molded. Untreated fiber and glycol treated fiber were included for comparison.

None of the 7TS fibers showed complete dispersion and impregnation in the molded resin. The NBR latex treatment improved dispersion of 7TS6 fiber in polyethylene but showed no improvement in impact strength compared to untreated fiber. The SBR latex showed poorer dispersion than untreated fiber but higher impact strength. Apparently, poor fiber dispersion resulted in less damage to the impact strength of unfilled polyethylene.

In polybutylene, the latex treatments showed negligible effect on impact strength compared to untreated fiber and gave much less improvement in flexural strength.

In general, the latex treatments were not effective as impact modifiers in thermoplastics as compared to the liquid glycol treatment. Results point up the importance of processibility and the need for processing aids to improve fiber dispersion of 7TS6 fiber.

Contents: Summary, Appendixes I and II.

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Reported by J. H. Kietzman

J. H. Kietzman

jmw

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Notebook No.: 4414, pp. 126-131

APPENDIX I

Table 1

Outline of Compounding and Molding Procedures

A. Brabender Compounding

Equipment: Brabender Mixing Chamber, roller head

Mixing Temperature: 350°F
Mixing Time: 5 minutes (after fusion peak)
RPM: 25
Batch Weight: 60 grams total

B. Compression Molding

Equipment: DAKE Hand Press

	Polyethylene	Polybutylene
Preheating:	Pressure - 25,000 gage	25,000 gage
	Temp. Rise - 75 to 240°F	75 to 220°F
	Dwell Time - 5 minutes	5 minutes
Compression*:	Max. Temp. - 280°F	260°F
	Pressure - 30,000 gage	30,000 gage
	Dwell Time - 5 minutes	5 minutes

*Note: Brabender samples preheated under pressure to temperatures 15 to 20 degrees below the resin softening point. Densification was obtained by allowing platen temperature to increase under load to the softening point of the resin.

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APPENDIX II

Table 1

Processibility
40 Percent 7TS6 Fiber

Resin	Fiber Treatment	Brabender Melt Torque	Fiber Dispersion & Impregnation	Effect of Fiber Treatment on Processibility
Polyethylene	Unfilled	2,800	--	
	None	3,600	Fair to Poor	--
	SBR Latex*	4,050	Poor	Decreased
	NBR Latex**	3,500	Fair to Good	Improved
	Glycol (10%)	4,030	Fair	Improved
Polybutylene	Unfilled	1,650	--	
	None	1,800	Fair to Good	--
	SBR Latex*	2,300	Very Poor	Decreased
	NBR Latex**	2,500	Fair	Slight Decrease
	Glycol (10%)	2,050	Fair to Good	No Effect

* Styrene-butadiene; sample No. 5813-150A

**Butadiene-acrylonitrile; sample No. 5813-152A

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APPENDIX II

Table 2

Strength of Molded Sheets
40 Percent 7TS Fiber

Resin	Fiber Treatment	Izod Impact Ft Lb/In. Notched	Izod Impact Ft Lb/In. Unnotched	Flexure Ultimate Strength psi	Flexure Stiffness Modulus psi x 10^5
Polyethylene (High Density)	Unfilled (Control)	1.5	23.0*	6,790	1.6
	Untreated Fiber	0.5	2.5	8,000	2.6
	SBR Latex	0.6	4.4	6,520	2.2
	NBR Latex	0.4	2.6	6,290	2.2
	Polyethyl. Glycol (10%)	1.0	4.0	6,900	1.9
Polybutylene* (Witco)	Unfilled (Control)	2.2	13.8	4,180	0.6
	Untreated Fiber	0.6	4.7	5,540	1.6
	SBR Latex	0.8	4.2	4,990	1.2
	NBR Latex	0.8	4.6	4,490	1.1
	Polyethyl. Glycol (10%)	1.6	8.5	4,500	1.1

*A day cure at normal temperature.

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