

-E 07 '86 11:20AM

☐ SECTION BY RESEARCH☐ SECTION BY RESEARCH☒ SECTION BY RESEARCH☐ SECTION BY RESEARCH☐ SECTION BY RESEARCHREPORT
UNITED STATES GYPSUM
RESEARCH CENTERJOINT COMPOUNDS
COMPLETION EFFORT

25434

1-2202

9-R-78

Notebook 4806

Notebook 5075

003115

ATTAPULGUS CLAY IN COMPETITIVE JOINT COMPOUNDS

Competitive All-Purpose joint compounds have been analyzed for attapulgus clay and asbestos to determine possible infringement of U.S. Gypsum's patent. U.S. Gypsum holds the patent for the use of attapulgus clay as a replacement for asbestos in joint compounds. The competitive joint compounds were manufactured by National Gypsum, Georgia-Pacific, Hamilton, Mason, Locke, Raco, Roco, Supro, and Welco. These companies have approximately 85% of the competitive joint compound market representing eighty million dollars in annual sales.

The attapulgus clay was separated from these compounds and identified by x-ray diffraction - the most definitive method for identifying minerals. All the samples contained attapulgus clay in the absence of asbestos which indicates patent infringement.

NOTICE

This document is produced by United States Gypsum Company in the case captioned The Corporation of Mercer University v. National Gypsum Co., et al., U.S. Dist. Ct., N.D. Ga., Civ. No. 85-126-3-MAC. This document is subject to the provisions of a Protective Order entered in that case on July 18, 1985, as subsequently amended by the Court to require this document. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.

Company in the case captioned The Corporation of Mercer University v. National Gypsum Co., et al., U.S. Dist. Ct., N.D. Ga., Civ. No. 85-126-3-MAC.

CONFIDENTIAL

06406

Dr. A. W. Struven	Gypsum
Summary Only	Gypsum
151. J. N. Walker	151. J. N. Walker
151. J. T. Eby	151. P. E. Struven
151. J. M. Summerfield	151. J. M. Summerfield
151. J. L. Nevers	151. J. L. Nevers
151. J. M. Maynard (3)	151. J. M. Maynard (3)

CLERK U.S. DISTRICT COURT
Exhibits:

P 1087

D

Case No. 85-0322-CV-W 8-6

11-20-81 P.6

NOTICE

This document is produced by the United States Gypsum Company for the use of the National Gypsum Research Center. It is subject to the provisions of a Protective Order entered in that case on July 18, 1985, as subsequently amended by the court. Use of this document by any person other than the National Gypsum Research Center is strictly prohibited, except in accordance with the terms of that Protective Order.

Report No. 2563
File No. 1-2202
Date 9-8-78 U.S.

CONFIDENTIAL

66407

Title: Attapulgus Clay In Competitive Joint Compounds

The purpose of this investigation was to provide unambiguous proof for the presence or absence of attapulgus clay in competitive joint compounds. The competitive products analyzed are listed in Table 1. X-ray diffraction is the most definitive analytical method for identifying attapulgus clay since crystalline minerals are "fingerprinted" by the position and intensity of peaks in the x-ray diffraction spectrum. Attapulgus clay peaks can not be observed in the diffraction pattern of dried joint compound because of the low clay concentration (1-4%) and the masking of attapulgite peaks by those of mica. The clay must be separated from other joint compound components to obtain the best diffraction pattern.

The separation is accomplished by dispersing the clay in a colloidal suspension, allowing the non-clay components to settle out, and then flocculating the clay colloid with calcium hydroxide. The clay was dispersed when the carbonate filler was dissolved with hydrochloric acid. After allowing the acid-insoluble solids to settle out overnight, the colloidal suspension was siphoned from the residue and flocculated with $\text{Ca}(\text{OH})_2$. The clay was recovered by centrifugation. An x-ray diffraction pattern was taken of the air-dried product.

Attapulgus clay is identified by observing characteristic peaks in the x-ray diffraction spectra. The main attapulgite peaks occur at 10.5, 4.5, 3.23 and 2.61 angstroms, with minor peaks at 5.42 and 6.44 angstroms. The latter two peaks are not subject to mica interference but are only observed in good quality spectra. Attapulgite identification was based on observing the main 10.5 angstrom peak and one or more of the other peaks. The attapulgus clay peaks as well as the other acid insoluble components are presented in Table 2. Clay fractions from National and Raco gave very pure attapulgite spectra, while Welco showed only two attapulgite peaks because of a large kaolinite content.

The presence of asbestos fibers was checked with an optical microscope (450X), and the presence of serpentine and amphibole asbestos types was analyzed by x-ray diffraction. The joint compound was wet-sieved through a 125 mesh screen to concentrate possible asbestos fibers for easier detection. No asbestos fibers were observed in these competitive samples.

Acknowledgment:

Appreciation is expressed to Mr. John Hsieh for performing the many x-ray scans and asbestos analyses.

Report No. 25634
 File No. 1-2207
 Date 9-8-78
 Page 7 of Report

Table 1

Competitive Products Analyzed

Competitive Product	Construction Product Division	Received	Code Number
Georgia-Pacific Ready-Mix Joint Compound	Central	6-2-78	1147RC45
Hamilton's All-Purpose Joint Systems	Western	7-18-78	
Murco Ready-Mix Joint Compound	Southern	7-25-78	H-707A
Gold Bond Vinyl All-Purpose Ready-Mix Joint Compound	Eastern	6-21-78	W0524R R10B
Mr. Mud Ready-Mix Joint Compound (Proko)	Southern	7-25-78	
Raco Products Vinyl Ready-Mix Joint Compound	Southern	7-25-78	

This document is produced by United States Gypsum Company in the case captioned School District of the City of Independence, Missouri, 30 v. U.S. Gypsum Company et al., Civ. Ct. Jackson City, Mo. CV84-05324. B. This document is subject to the provisions of a Protective Order entered in that case. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.

CONFIDENTIAL

06498

NOTICE

This document is produced by United States Gypsum Company in the case captioned The Corporation of Mercer University v. National Gypsum Co., et al., U.S. Dist. Ct., M.D. Ga., C.A. 25 (263) MAC. This document is subject to the provisions of a Protective Order entered in that case on July 18, 1985. The substance of this document is not to be used for any purpose not authorized by the Court to make this document public. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.

5075 5

05/90

CONFIDENTIAL

with the terms of that Protective Order.

The document is produced by the United States Department of Energy in the case of and The Corporation of General Electric v. National Governors' Assn., et al., U.S. Dist. Ct., W.D. Cal., Case No. 85-1263-PAW. This document is subject to the provisions of a Protective Order entered in that case on July 18, 1985, as subsequently amended by the Court to include this document. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.

NOTICE

Table I

Competitive Products Analyzed (continued)

Competitor Product	Construction Product Division	Received	Code Number
Becon B-184 Ready-Mix Joint Compound	Central	8-20-78	878*
Supro Custom All- Purpose Joint Compound	Western	7-24-78	
Wel-Cote Ready-Mixed Drywall Compound	Southern	7-2-78	4541-78

Report No. 35834
 File No. 1-2202
 Date 9-8-78
 Page 8 of Report

Table II

X-Ray Diffraction Analysis of Competitive Products

Competitor	Attenuated Diffraction Peaks Observed					Acid Insoluble Residue Components			X-ray Diffraction Analysis of Competitive Products		
	10.58Å	4.5Å	3.23Å	2.61Å	5.44Å	5.42Å	Mica	Talc	Quartz	Naolinite	
Georgia Pacific	X	X	X	X			X	X	X	X	
Hamilton	X	X	X	X			X	X	X	X	
Ward	X	X	X	X			X	X	X	X	
National Gold Bond	X	X	X	X			X	X	X	X	
Prodo	X	X	X	X			X	X	X	X	
Mr. Mid	X	X	X	X			X	X	X	X	
Raco	X	X	X	X			X	X	X	X	
Ruco	X	X	X	X			X	X	X	X	
Eupro	X	X	X	X			X	X	X	X	
Malco	X	X	X	X			X	X	X	X	

CONFIDENTIAL

Also contained $Fe_2O_3 \cdot 2H_2O$ pigment
 Contains a large amount of kaolinite

06410

This document is produced by United States Gypsum Company in the case captioned The Corporation of Mercer University v. National Gypsum Co., et al., U. S. Dist. Ct., M.D. Va., C.A. 85-1263-MAC. This document is subject to the provisions of a Protective Order entered in that case on July 18, 1985, as subsequently amended 1/18. Court to include this document. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.

NOTICE

This document is produced by United States Gypsum Company in the case captioned The Corporation of Mercer University v. National Gypsum Co., et al., U. S. Dist. Ct., M.D. Va., C.A. 85-1263-MAC. This document is subject to the provisions of a Protective Order entered in that case on July 18, 1985, as subsequently amended 1/18. Court to include this document. Use of this document by any person or entity is strictly prohibited, except in accordance with the terms of that Protective Order.