

FROM HAIG G. SAKOIAN

PITTSBURGH OFFICE - 7

TO MR. E. E. RUMBERGER - PGH. 7

MR. T. B. BONNEY - PGH. 7

1979 May 07

**PLAINTIFF'S
EXHIBIT**

AL-354

RE: ASBESTOS SUMMARY

Enclosed is a summation of asbestos materials currently used at Alcoa plants. Included in the listing are:

- Total number of plants using the material
- Number reporting potential employee exposures
- Those reporting no foreseeable employee exposures
- Those with employee exposures unknown

Also enclosed are informational summaries of each material giving comments and potential replacements when these are available, along with names and addresses of suppliers.

This copy is for your review.

I would like to discuss all of this with you at your convenience.

HAIG G. SAKOIAN

HGS/eds
Attachments



ASBESTOS MATERIALS CURRENTLY USED AT ALCOA PLANTS

<u>Material</u>	<u>Application</u>	<u>Summary of Replies</u>			<u>Total No. of Plants Using Material</u>
		<u>Potential Exposure</u>	<u>Potential Exposure</u>	<u>Unknown</u>	
<u>Belting</u>	High temperature conveyors (drip casting)	1	1	--	2
<u>Block or brick</u>	Furnaces	--	1	--	1
<u>Brakes</u>	Vehicles and equipment brakes (i.e., presses)	1	2	4	7
<u>Cement Patch</u>	Maintenance, i.e., boiler or patch	1	--	1	2
<u>Cloth</u>	Protection from burning and welding; air seal on hot ductwork heat shielding; gasketing	--	3	3	6
<u>Ebony Asbestos</u>	Pot covers				1
<u>Personal Protec- tion, i.e., gloves, mittens, pads</u>	Handling hot material	3	9	3	15
<u>Marinite and Marinite Floater</u>	Molten metal casting	8	2	1	11
<u>Packing, Wicking Rope</u>	General pump packing; furnace door insulation	9	10	1	20
<u>Paper</u>	Welding protection; gasketing; electrical insulation	2	4	--	6
<u>Sheet</u>	General insulation; gasketing	4	8	5	17

ASBESTOS MATERIALS CURRENTLY USED AT ALCOA PLANTS

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		<u>Potential Exposure</u>	<u>Potential Exposure</u>	<u>Unknown</u>	
<u>Spray Insulation</u>	Fire insulation - general plant	--	--	1	1
<u>Tape; Tubing</u>	Furnace door seals; wire; and general insulation	2	7	1	10
<u>Thermocouple wire and covers</u>	Thermocouples	3	2	2	7
<u>Transite Insula- tion Board</u>	Mill board for electrical and thermal insulation; used between pot and cradle	6	4	2	12
<u>Transite Pipe</u>	Pot fume ductwork; water pipe				6

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ASBESTOS REPLACEMENT MANUFACTURERS

<u>PRODUCT</u>	<u>SUPPLIER</u>	<u>TELEPHONE</u>
<u>Pyrotex™</u>	Newtex Industries, Inc. Railroad Ave. P.O. Box 25 Victor, NY 14564	716/924-9135
<u>Fiberseal Products</u>	Pyrotek Incorporated East 9601 Montgomery Ave. Spokane, WA 99206 - or - Box 77 - R.D. #1 Claremont Rd. Carlisle, PA 17013 - or - Santa Fe Springs, CA	509/926-6211 717/249-2075
<u>Refrasil</u>	HITCO Division of Armco Steel Middletown, OH 45042	
<u>Nor•Fab Yarns; Fabrics</u>	Amatex 1032 Stanbridge St. Norristown, PA 19404	215/277-6100
<u>Fiberfrax</u>	The Carborundum Company Insulation Division P.O. Box 808 Niagara Falls, NY 14302	716/278-6221
<u>Hi-Temp 270</u>	Penn Compression Moulding, Inc. Burton Street Pittsburgh, PA 15218	412/351-4004
<u>Ceramic Fiber Products</u>	Kaowool Babcock & Wilcox Cem-Fil Corporation Two International Plaza Drive Nashville, TN 37217 Keller Glove Mfg. Co. Plumsteadville, PA 18949	 615/361-4664 215/766-8818

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ASBESTOS INFORMATIONAL SUMMARIES -- BY USE

<u>MATERIAL</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Belting</u>	Potential for exposure during maintenance and removal.	UNTESTED. Potential candidate: Fiberseal Fabric (NOTE: Must determine operating temperatures and strength/durability requirements for engineering.)
<u>Block or brick</u>	Potential for exposure during installation, and especially during removal, even though this is infrequent.	Ceramic refractory block and brick.
<u>Brakes</u>	Recent studies indicate some asbestos fibers survive from brake use and are not destroyed, as presumed previously. However, the percentage of fibers not degraded by heat and friction is unknown.	NONE. Should reemphasize requirement of not using air to blow out brake drums and linings. Vacuum systems are available and should be used. (NOTE: Recommend air sampling for asbestos at one or two locations to document and confirm LOW or NO exposures: 1. Vehicle brake mechanics 2. Extruder brake, mechanical presses, or other equipment brake changers)
<u>Cement Patch</u>	Potential employee exposure.	Two grades: 1. <u>Hydraulic-setting cement</u> -- Contains mineral wool and Portland cement; temperature range up to 1,000°F. <u>Suppliers:</u> Johns-Manville - "375" Keene Corp. - "Super Powerhouse" 48 Insulation - "Quick-Set Cement" 2. <u>High-Temperature Grade</u> -- Contains mineral wool; temp. range: 1,000°F to 1,900°F. <u>Suppliers:</u> Johns-Manville - "360" Keene Corp. - "Super 1900" 48 Insulation - "Super 48"

ASBESTOS INFORMATIONAL SUMMARIES -- BY USE

MATERIAL	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
<u>Cloth</u>	Plants indicate NO potential or unknown exposures. In many cases, the cloth is used wet and would, indeed, pose little potential for dust inhalation. However, as several plants indicated, there may be some cases where the exposure is unknown.	Pyrotek Fabrics (used in Warrick) Pyrotex TM Refrasil NorFab Keller Gloves Kelnit Welding Blankets
<u>Personal Protection, i.e., gloves, mittens, pads, coats, and pants</u>	There may or may not be a potential for exposure depending on the type of material, i.e., whether it is aluminized or coated; lined or unlined; and the frequency of use. In general, lined, aluminized protective equipment should not generate a potential for dust inhalation. However, noncoated, unlined materials may pose a problem and should be replaced, preferably with a nonasbestos substitute.	These apply for some applications, not all. Many times asbestos gloves are used in cases where the temperatures encountered do not warrant the need for asbestos. For example, flame-resistant terrycloth gloves can often be effective replacements where up to 700°F temperatures are encountered. For temperatures up to 1,000°F, gloves made of duPont's Kevlar fiber may be acceptable. However, past Alcoa experience indicates that in certain applications the seams of these gloves do not hold up. For this reason, each case should be treated separately. Please keep us advised of your results. (NOTE: Consult Safety Dept. for potential replacements.) "Kelnit 29" Keller Gloves PyrotexTM

ASBESTOS INFORMATIONAL SUMMARIES -- BY USEMATERIALPOTENTIAL EXPOSUREREPLACEMENTS AVAILABLE

Marinite and
Marinite Floater

Because of the special problems associated with Marinite in ingot casting, it is being treated separately.

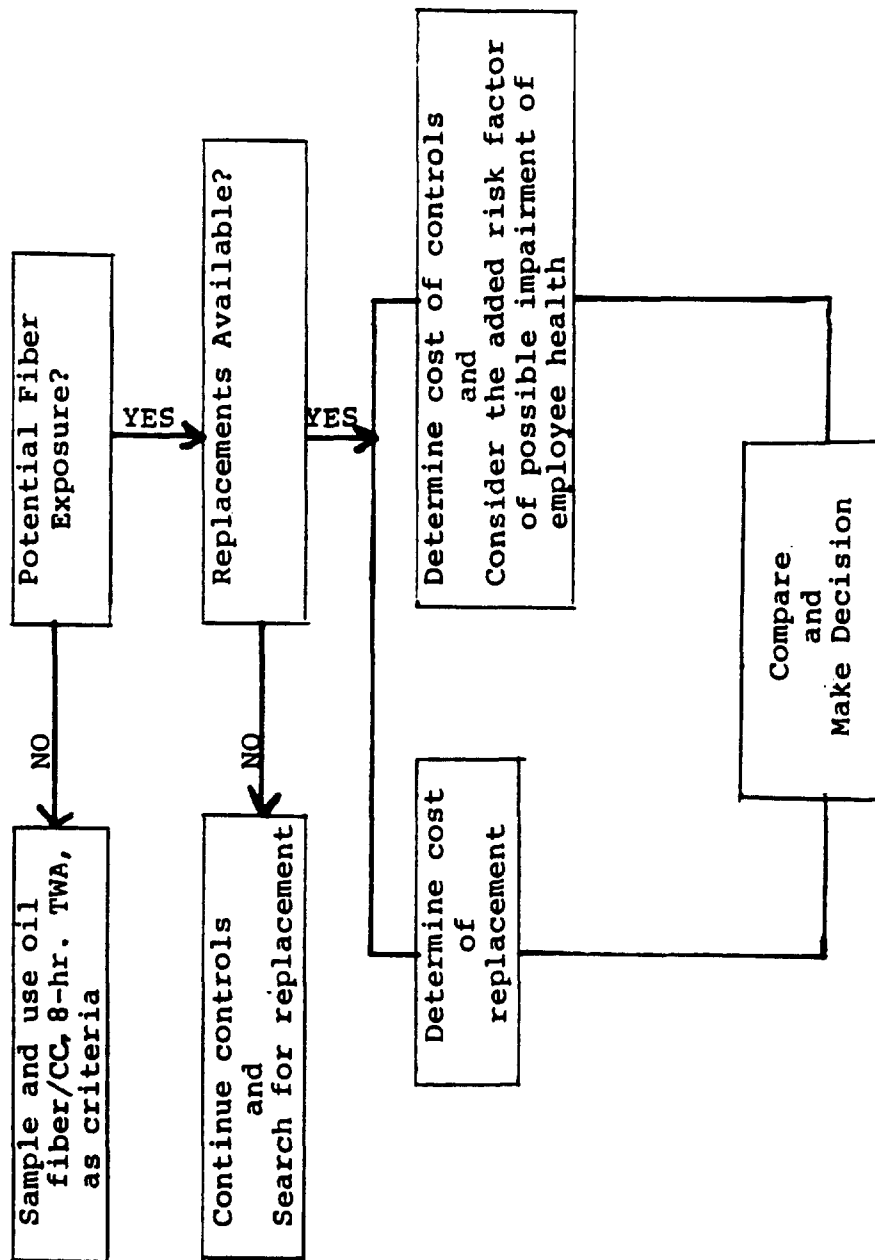
Alcoa Research Laboratories and our suppliers, in conjunction with plant personnel and Primary Products, have been working for some time to find replacements for molten metal Marinite. Due to this effort, replacements are now available for many -- but not all -- of its uses. Many plants are now using these replacements; however, for one reason or another, many plants continue to use Marinite even in those cases with potential replacements. These reasons include initial cost factors, and increased production in with lost or decreased production in ingot casting. Considering the increased costs associated with compliance requirements, i.e., medical exams, protective clothing, disposal requirements, ventilation controls, etc. -- in addition to the less tangible, but more serious costs of potential impairment of employee health -- every effort should be made to institute the replacements now available and to continue the search for those uses not yet replaceable.

If costs associated with replacement are considered to be extreme and inhibitory the analysis shown on Page 4 should be performed.

If it is still considered that the costs associated with replacement remain prohibitive to the location, continue the control program and continue the search for a more feasible replacement. This decision must be arrived at only after careful examination by both

ASBESTOS INFORMATIONAL SUMMARIES -- BY USE

Since the potential risks to employee health are not clear-cut, the costs of controls must be given added weight.



ASBESTOS INFORMATIONAL SUMMARIES -- BY USE

<u>MATERIAL</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Packing</u>	In most cases, pump packing materials are bonded in rubber or some other coating compound. As indicated by the plants, these generate little potential for fiber exposure. However, some packings, such as uncoated, noncompressed, braided asbestos may offer a potential for exposure and should be replaced.	Since specific needs and equipment types vary dramatically, pump packing and general packing materials are purchased at the plant level. Suitable replacements should be handled by plant Purchasing by direct contact with manufacturers and suppliers.
<u>Paper</u>	Should be replaced.	Johns-Manville - Cerawool Paper (NOTE: Asbestos paper should not be used for welding protection. Substitutes available for this application can be found in the section dealing with "Cloth".)
<u>Rope</u>	Plants are divided on the extent of potential dust hazards. Uncoated material may pose a problem during removal and disposal and should be replaced.	MUST BE TESTED. Johns-Manville - Coraform Rope (used in Warrick) Pyrotek - Fiberseal Rope + Others
<u>Sheet Gasketing</u>	Pre-cut compressed gaskets should pose little potential for employee exposure, especially if they are resin or rubber bonded. Sheet gaskets which must be cut at the plant may create a dust hazard during cutting, installation, removal, and disposal. Since the requirements for gasketing material vary depending on the application, each use should be carefully considered. Care should be taken to insure that maintenance personnel do not have on hand and use indiscriminantly such sheet gasket material. Storerooms and users should be carefully monitored to: 1. Determine and document exposures. 2. Evaluate housekeeping.	

ASBESTOS INFORMATIONAL SUMMARIES -- BY USE

<u>MATERIAL</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Spray Insulation</u>		SHOULD BE REPLACED. Flamastic Spray Insulation
<u>Tape; Tubing</u>	Majority of plants do not consider this to be a potential dust hazard. However, certain uses may generate free fibers.	Tape Replacements: Pyrotex TM Refrasil Fiberfrax Nor•Fab
<u>Thermocouple Wire</u>	Due to deterioration and fraying of the asbestos insulation on thermocouple wire, potential fiber exposure may exist.	Sleeves made of Refrasil or Fiberfrax material may be used in place of asbestos-coated wire in some cases.
<u>Potroom Uses</u>		Asbestos replacements in potrooms have been sought for some time. J.M. McCollum, Pittsburgh Office-Mechanical Engineering, has been coordinating this program. The summary of potroom asbestos uses which follows on Pages 7 and 8 indicates: - The specific application - The asbestos substitutes which have been or are being tested - The location performing the tests - Comments regarding applicability. Hopefully, by continued cooperation and feedback of testing results, other locations may be aided by our growing experience.

ASBESTOS -- POTROOM USES

<u>Specific Application</u>	<u>Substitute</u>	<u>Location</u>	<u>Comments</u>
<u>Cradle to Pot Shell Insulation</u>	Quarry tile Cem-Fil GRC Sheet Cem-Fil GRC	Wenatchee Warrick Massena	Tested; proved to be good replacement Installed and seems okay; will get back with update Currently testing (just started).
<u>Superstructure Fort Insulation</u>	Cem-Fil GRC-9"x7"x1" Marinite-P -- 1/4" sheet	Massena Massena	Received material to be tested. Received material to be tested.
<u>Pot Cover Insulation</u>	Almac Plastics Inc.'s- High-Temp Glass Polyester Marinite-P -- 1/4" sheet Pyrotek's Fiberseal H-3 Fabric Pyrotek's Fiberseal H-3 Fabric Amatex - Thermoglass #G-36P752 Pyrotek's Fiberseal H-3 Fabric	Massena Massena Massena Badin Wenatchee Warrick	Testing. To be tested. To be tested for P-75 pot covers. Double the material; works well. Satisfactory. Works well; now standard; also works for side shield insulation.
<u>Walkway Grating Insulation</u>	M-50 Pyrotherm Dense Board GRC Cem-Fil - 1/4" and 3/8" Marinite-P -- 1/4" sheet Marinite-P -- 1" board Pyrotherm G-5 Insulating Board Kaowool M Penn Hi-Temp 270	Massena Massena Massena Badin Badin Warrick Warrick	Tested; unsuccessful; it crumbles. To be tested on P-225. To be tested on P-225. Currently testing; not optimistic. To be tested. Does not stand up (no good). Looks good in preliminary tests; to be tested further; limitation might be that it's too expensive.
<u>Bus Insulation</u>	Marinite-P -- 1" sheet Cem-Fil GRC - 1/4" and 1/2" Marinite-P -- 1/4" sheet	Badin Massena Massena	Currently testing (but it crumbles). To be tested. To be tested

(Cont.)

ASBESTOS -- POTROOM USES

<u>Specific Application</u>	<u>Substitute</u>	<u>Location</u>	<u>Comments</u>
<u>Exhaust Duct Insulator</u>	Pyrotek Pipe	Warrick	Looks good in preliminary tests; now have 8 in use with a $\frac{1}{4}$ " wall; have ordered 8 more $\frac{3}{8}$ " and 8 more $\frac{1}{4}$ " for testing.
	Hetron 197	Wenatchee	Fiber glass pipe with antimony and dynel liners have failed and have been replaced with normal transite
	Hetron 92	Wenatchee	Fiber glass pipe with antimony and asbestos linings -- satisfactory.
	Fiberfrax laminate tubes by Carborundum, Inc.	ATC	
<u>Exhaust Duct Gaskets</u>	Pyrotek's Fiberseal Felt T-1	Massena	No plans.
<u>Siphon Gaskets</u>	Pyrotek's Fiberseal Felt G-1 - $\frac{1}{4}$ " and Fiberseal Felt T-1 - $\frac{1}{4}$ " (Same as above)	Badin	Tested and proved okay.
	Fiberseal M-13 - $\frac{1}{8}$ " Compressible board	Massena	To be tested on P-225 siphon gaskets and crucible cover plate gaskets.
		Massena	To be tested on P-225 siphon gaskets and crucible cover plate gaskets.
<u>Ladle & Ladle Lid Seal</u>	Silicon $\frac{1}{4}$ " rubber air hose - $\frac{3}{4}$ "	Warrick	Standard (but different seal from other plants).
	Refrasil - wrapped around rubber hose	Badin	No good; rubber metls; seal breaks.
	1- $\frac{1}{4}$ " Fiberseal rope - F-10	Badin & Massena	On order.
	1" Fiberseal rope - D-1	Anaconda	Uses 600 ft./mo. of D-1
	1- $\frac{1}{4}$ " Fiberseal rope - F-10	Pt. Henry	