

FROM E. E. RUMBERGER
PITTSBURGH OFFICE

TO LOCATION MGRS. - DOMESTIC & CARIBBEAN
LOCATION MGRS. - SUBSIDIARIES & ALLIED PRODUCTS

BD
JW
DW

1979 August 27

**PLAINTIFF'S
EXHIBIT**

AL-241

RE: ASBESTOS

The attached memorandum on the status of Alcoa's asbestos replacement program was recently released to all location Industrial Hygienists. Because of the impact of asbestos use on each of our locations, I felt it important that you be aware of this information. Works Safety, Environmental, and Purchasing Managers are included in the distribution of this letter.

The asbestos problem, from a health hazard and governmental regulation standpoint, has not diminished in the least. In fact, implications are that asbestos control regulations will become even more stringent in the future. For these reasons, we are currently stepping up our coordination of this program to find substitute materials wherever possible.

The corporate Industrial Hygiene staff will monitor feedback on the testing of replacement materials and maintain the continuity of the program. Technical expertise on asbestos substitutes will be provided by each of the following personnel in the areas indicated:

<u>H. G. Sakoian</u> (Pgh.-Ind. Hygiene)	-- Overall Coordinator
<u>M. J. Caprio</u> (Pgh. Office-Purchasing)	-- General Insulation; Molten Metal Marinite
<u>J. M. McCollum</u> (Pgh. Office-Mechanical Engineering)	-- Potroom Replacements
<u>D. St. Jacques</u> (ATC-Safety)	-- Personal Protective Equipment

Please distribute this information to other appropriate personnel on your staff as you see fit.

E. E. RUMBERGER
EER/eds
Attachment

Distribution: See Page 2 on Reverse Side



ARCH 020032

FROM HAIG G. SAKOIAN
PITTSBURGH OFFICE

TO MEMORANDUM

1979 July 30

RE: ASBESTOS SUBSTITUTION

Attached is a summation of asbestos materials currently in use at Alcoa locations. Included in the listing are:

- The material and its use
- The number of plants using the material
- Whether or not there is a potential for employee exposure
- Potential replacements, if available -- and manufacturers (Page 10)

Much effort has been extended to reduce and eliminate asbestos uses in most locations. However, as can be seen by this report, many uses still exist. Because the continued use of asbestos products may result in unnecessary health hazards and concerns to our employees, as well as additional costs to Alcoa to comply with specific provisions of the OSHA Standard, we believe it is in Alcoa's best interest to continue eliminating the use of asbestos products wherever possible. This does not mean that all existing asbestos should be removed immediately which, as in the case of sprayed-on insulation, could create unnecessary exposure potentials. Rather, a systematic effort should be made to discontinue uses, when feasible and practical, by substitution or elimination. By creating this listing and maintaining frequent updating via feedback from all locations, each plant can be provided with the information necessary to attain this goal.

Mr. J. M. McCollum, Pittsburgh Office Mechanical Engineering, has been coordinating such an effort for asbestos replacements in potrooms. A list illustrating Alcoa's experience with potroom replacements is shown on Pages 7, 8, and 9.

It is hoped that this type of registry will be extended to cover all asbestos uses for all locations. To achieve this, it is asked that each location copy this office on all efforts made towards asbestos replacement... whether positive or negative. This information will then be disseminated to all locations on a periodic basis so that each plant can profit from the experience of the others in the Company.

Any questions, comments, or additions to the attached would be appreciated.

HAIG G. SAKOIAN

HGS/eds
Attachments
Distribution: See Page 2



ARCH 020033

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Belting/Drip Casting Conveyors</u>	Potential for exposure during maintenance and removal. * (2 plants: 3, 7)	UNTESTED. Potential candidate: Fiberseal Fabric (NOTE: Must determine operating temperatures and strength/durability requirements for engineering.)
<u>Block or brick/ Furnaces</u>	Potential for exposure during installation, and especially during removal, even though this is infrequent. * (1 plant: 23)	Ceramic refractory block and brick.
✓ <u>Brakes/Vehicles & Equipment</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. * (All plants)	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 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/Boiler Maintenance</u>	Potential employee exposure. * (2 plants: 18, 24)	Two grades: 1. <u>Hydraulic-setting cement</u> -- Contains mineral wool and Portland cement; temperature range up to 1,000°F. Suppliers: 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. Suppliers: Johns-Manville - "360" Keene Corp. - "Super 1900" 48 Insulation - "Super 48"

* Number of plants using material.
(Cont.)

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
Cloth/Insulation, Welding Blankets	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. * (6 plants: 12, 13, 16, 17, 20, & 24)	Pyrotek Fabrics (used in Warrick) Pyrotex TM Refrasil Nor-Fab Keller Gloves Kelnit Welding Blankets
Personal Protec- tion/Gloves, Mittens, Pads, Coats, & Pants	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. * (All plants)	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, <u>flame-resistant terrycloth gloves</u> can often be effective replacements where up to 700°F temperatures are encountered. For temperatures up to 1,000°F, <u>gloves made of duPont's Kevlar fiber</u> 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. <u>Please keep us advised of your results.</u> "Kelnit 29" Keller Gloves Pyrotex TM

* Number of plants using material.
(Cont.)

ARCH 020035

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
Marinite and Marinite Floats/ Molten Metal Casting	Because of the special problems associated with Marinite in ingot casting, it is being treated separately. * (11 plants: 1, 7, 9, 13, 16, 17, 19, 20, 21, 22, & 24)	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 costs associated 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 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 management and Medical.

* Number of plants using material.
(Cont.)

ARCH 020036

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
✓ <u>Packing/ General</u> pump packing	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. * (All plants)	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/Welding</u> protection, electrical insulation	Should be replaced. * (6 plants: 1, 3, 7, 13, 17, & 20)	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".)
7 <u>Rope/Furnace</u> insulation	Plants are divided on the extent of potential dust hazards. Uncoated material may pose a problem during removal and disposal and should be replaced. * (15 plants: 1, 3, 6, 8, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, & 24)	MUST BE TESTED. Johns-Manville - Ceraform Rope (used in Warrick) Pyrotek - Fiberseal Rope + Others
✓ <u>Sheet Gasketing/</u> General	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 out at the plant may create a dust hazard during cutting, installation, removal, and disposal. Since the requirements for gasketing material vary depending on the * Number of plants using material.	

(Cont.)

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ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Sheet Gasketing</u> (Cont.)	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. 3. Insure proper disposal of waste material. * (All plants)	
<u>Tape; Tubing/</u> Furnace seals, general insulation	Majority of plants do not consider this to be a potential dust hazard. However, certain uses may generate free fibers. * (10 plants: 1, 3, 6, 9, 13, 16, 17, 18, 20, & 23)	Tape Replacements: PyrotexTM 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. * (7 plants: 1, 6, 7, 9, 15, & 19; probably more)	Sleeves made of Refrasil or Fiberfrax material may be used in place of asbestos-coated wire in some cases; otherwise, no replacements available.

* Number of plants using material.

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KEY TO ALCOA LOCATIONS

1 - ATC	13 - MASSENA
2 - ARKANSAS	14 - MOBILE
3 - BADIN	15 - NORTHWEST ALLOYS (ADDY)
4 - CHILLICOTHE (Wear-Ever Aluminum)	16 - PT. COMFORT
5 - CLEVELAND	17 - REA MAGNET WIRE
6 - CORONA	18 - RICHMOND, INDIANA
7 - DAVENPORT	19 - ROCKDALE
8 - FT. MEADE	20 - TENNESSEE
9 - LAFAYETTE	21 - TIFTON
10 - LANCASTER	22 - VANCOUVER
11 - LEBANON	23 - VERNON
12 - MARSHALL (ACPC)	24 - WARRICK

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	Wenatchee	Tested; proved to be good replacement.
	Cem-Fil GRC Sheet	Warrick	Installed and seems okay; will get back with update.
	Cem-Fil GRC	Massena	Currently testing (just started).
<u>Superstructure Fort Insulation</u>	Cem-Fil GRC - 9" x 7" x 1"	Massena	Received material to be tested.
	Marinite-P -- 1/2" sheet	Massena	Received material to be tested.
<u>Pot Cover Insulation</u>	Almac Plastics Inc.'s High-Temp Glass	Massena	Testing.
	Marinite-P -- 1/2" sheet	Massena	To be tested.
	Pyrotek's Fiberseal	Massena	To be tested for P-75 pot covers.
	H-3 Fabric		
	(Same as above)	Badin	Double the material; works well.
	(Same as above)	Warrick	Works well; now standard; also works for side shield insulation.
	Amatex - Thermoglass #G-36P752	Wenatchee	Satisfactory.
<u>Walkway Grating Insulation</u>	M-50 Pyrotherm Dense Board	Massena	Tested; unsuccessful; it crumbles.
	GRC Cem-Fil - 1/2" and 3/8"	Massena	To be tested on P-225.
	Marinite-P -- 1/2" sheet	Massena	To be tested on P-225.
	Marinite-P -- 1" board	Badin	Currently testing; not optimistic.
	Pyrotherm G-5 Insulating Board	Badin	To be tested.
	Kaowool M	Warrick	Does not stand up (no good).
	Penn Hi-Temp 270	Warrick	Looks good in preliminary tests; to be tested further; limitation might be that it's too expensive.

(Cont.)

ASBESTOS -- POTROOM USES

<u>Specific Application</u>	<u>Substitute</u>	<u>Location</u>	<u>Comments</u>
<u>Bus Insulation</u>	Marinite-P -- 1" sheet Cem-Fil GRC - 1/4" and 1/2" Marinite-P -- 1/2" sheet	Badin Massena Massena	Currently testing (but it crumbles) To be tested. To be tested.
<u>Exhaust Duct Insulator</u>	Pyrotek Pipe	Warrick	Looks good in preliminary tests; now have 8 in use with a 1/4" wall; have ordered 8 more 3/8" and 8 more 1/2" 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 - 1/4" and Fiberseal Felt T-1 - 1/4" (Same as above)	Badin Massena	Tested and proved okay. Tested on P-225 siphon gasket and crucible cover plate gaskets; found unsatisfactory
	Fiberseal M-13 - 1/8" Compressible board	Massena	To be tested on P-225 siphon gasket and crucible cover plate gaskets.
	J-M Ceraform Heat Seal	Rockdale	Not as stable as asbestos; needs replaced more often.

(Cont.)

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ASBESTOS -- POTROOM USES

Application

Ladle & Ladle Lid
Seal

Silicon Red rubber air
hose - 3/4"
Refrasil - wrapped around
rubber hose
1-1/4" Fiberseal rope - F-10
1" Fiberseal rope - D-1
1-1/4" Fiberseal rope - F-10

Warrick
Badin
Badin &
Massena
Anaconda
Pt. Henry

Standard (but different seal from
other plants).
No good; rubber melts; seal breaks.
On order.
Uses 600 ft./mo. of D-1

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ASBESTOS REPLACEMENT MANUFACTURERS

<u>PRODUCT</u>	<u>SUPPLIER</u>	<u>TELEPHONE</u>
<u>PyrotexTM</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

HAIG G. SAKOIAN
1979 July 20/eds

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