

FROM E. E. RUMBERGER
PITTSBURGH OFFICE

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

1979 August 27

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

PLAINTIFF'S
EXHIBIT
AL-1475

APC 003426



1979 August 27
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Distribution:

Safety Mgrs. - Domestic & Caribbean
Safety Mgrs. - Subsidiaries &
Allied Products

Purchasing Agents

J. H. Sloane	- Pgh.
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R. W. Wrenn	- Pgh.
G. T. Holmes	- Pgh.
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R. C. McCormack	- Pgh.
T. I. Stephenson	- Pgh.
G. F. Leymeister	- Pgh.

W/O Attachment

Industrial Hygiene Newsletter

Environmental Managers

E. L. Rooy	- Pgh.
J. Z. Nelson	- Pgh.
G. F. Stephens	- Pgh.
D. D. McGregor	- Pgh.
R. L. Graves	- Pgh.
M. J. Caprio	- Pgh.
J. M. McCollum	- Pgh.
R. G. Labar	- ATC
D. St. Jacques	- ATC
J. E. Hines	- ATC

FROM HAIG G. SAKOIAN
PITTSBURGH OFFICE

TO M E M O R A N D U M

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

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8F-4563

MEMORANDUM
1979 July 30
Page 2

Distribution:

Industrial Hygiene Newsletter

R. G. Labar	- ATC
N. Kloap	- Arkansas Works
R. C. Hinkle	- Badin Works
R. Karstensen	- Mosal Aluminum, Mosjoen, Norway
J. Rob	- Mosal Aluminum, Farsund, Norway
M. J. Caprio	- Pittsburgh
J. M. McCollum	- Pittsburgh
J. Z. Nelson	- Pittsburgh
E. L. Rooy	- Pittsburgh
G. F. Stephens	- Pittsburgh
D. D. McGregor	- Pittsburgh

APC 003429

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Belting/Drip Casting</u> Conveyors	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: <u>Johns-Manville</u> - "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: <u>Johns-Manville</u> - "360" Keene Corp. - "Super 1900" 48 Insulation - "Super 48"

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APC 003430

* Number of plants using material.
(Cont.)

ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
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 Protection/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, 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. "Kelnit 29" Keller Gloves Pyrotex TM

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* Number of plants using material.
(Cont.)

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.

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* Number of plants using material.
(Cont.)

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Packing/ General</u> <u>pump 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. * (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> <u>protection,</u> <u>electrical</u> <u>insulation</u>	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".)
<u>Rope/Furnace</u> <u>insulation</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. * (15 plants: 1, 3, 6, 8, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, & 24) 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	MUST BE TESTED. Johns-Manville - Ceraform Rope (used in Warrick) Pyrotek - Fiberseal Rope + Others
<u>Sheet Gasketing/</u> <u>General</u>	* 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> <u>Furnace seals,</u> <u>general insulation</u>	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) 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)	Tape Replacements: PyrotexTM Refrasil Fiberfrax NorFab
<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.

PREP
CON

APC 003434

* Number of plants using material.

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

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Specifying
Application

ASBESTOS -- POTROOM USES

Page 7

Substitute

Comments

Location

Cradle to Pot Shell
Insulation

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).

Superstructure Fort
Insulation

Cem-Fil GRC - 9" x 7" x 1"
Marinite-P -- 1/2" sheet

Massena
Massena

Received material to be tested.
Received material to be tested.

Pot Cover Insulation

Almac Plastics Inc.'s-
High-Temp Glass
Marinite-P -- 1/2" sheet
Pyrotek's Fiberseal
H-3 Fabric
(Same as above)
(Same as above)

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

Amatex - Thermoglass
#G-36P752

Wenatchee

insulation.
Satisfactory.

Walkway Grating
Insulation

M-50 Pyrotherm Dense
Board

Massena

Tested; unsuccessful; it crumbles.

GRC Cem-Fil - 1/4" 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

Badin

To be tested.

Board

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.

APC 003436

(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 -- 1/4" 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 1/4" 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 - 1/4" and Fiberseal Felt T-1 - 1/4" (Same as above)	Badin	Tested and proved okay.
	Fiberseal M-13 - 1/8" Compressible board	Massena	Tested on P-225 siphon gasket and crucible cover plate gaskets; found unsatisfactory 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.

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(Cont.)

ASBESTOS -- POTROOM USES

Application

<u>Ladle & Ladle Lid</u>			
<u>Seal</u>	Silicon Red rubber air hose - 3/4"	Warrick	Standard (but different seal from other plants).
	Refrasil - wrapped around rubber hose	Badin	No good; rubber melts; seal breaks.
	1-1/4" Fiberseal rope - F-10	Badin & Massena	On order.
	1" Fiberseal rope - D-1	Anaconda	Uses 600 ft./mo. of D-1
	1-1/4" Fiberseal rope - F-10	Pt. Henry	

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APC 003438

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

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HAIG G. SAKOIAN
1979 July 20/eds

APC 003439

ASBESTOS REPLACEMENT SUMMARY -- BY USE

<u>MATERIAL/USE</u>	<u>POTENTIAL EXPOSURE</u>	<u>REPLACEMENTS AVAILABLE</u>
<u>Belting/Drip Casting Conveyors</u> <i>Field</i>	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 fiber refractory block. There are no asbestos products used in melting furnaces, holding furnaces, heat treat furnaces.
<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; temperature 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.

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APC 003440

ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
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™ Refrasil Nor-Fab Keller Gloves Kelnit Welding Blankets

Personal Protection/
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, 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.

"Kelnit 29"

Keller Gloves

Pyrotex™

Textoglass Glove from Gateway Industrial in Pittsburgh

See on 7/20/65

APC 003441

*Number of plants using material.

See well on file

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ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
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)	With the exception of the critical header applications for both HDC and FDC ingot operations, Johns-Manville's (J.M.) asbestos-free Marinite-C board should replace the asbestos Molten Metal Marinite. The applications for Marinite-C include molten metal transfer troughs, baffles, basins and floating skimmers. J-M's asbestos-free Marinite-I is not recommended for molten aluminum operations.

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In certain applications, an acceptable alternate for Marinite-C is Pyrotek's asbestos-free Pyrotherm B-3 manufactured by Cape Boards of England. An asbestos-free material for the critical HDC and FDC header applications has yet to be developed for commercial use. Until this product is available, we will continue to use asbestos Header Grade Molten Metal Marinite.

Packing/General
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, braised asbestos may offer a potential for exposure and should be replaced.

* (All plants)

Since specific needs and equipment type 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.

APC 003442

Typical:
U.S. ...
... FDC
... R-150

*Number of plants using material.

ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
Paper/Welding protection, electrical insulation	Should be replaced. * (6 plants: 1, 3, 7, 13, 17, and 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".)
Rope/Furnace 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)	Fiberseal A-1 rope (Pyrotek, Inc.) can be used in place of asbestos rope for sealing the gap between the mold and bottom block in FDC casting operations. It prevents metal leakage and its good thermal stability allows it to be reused numerous times. It may also be used for sealing joints in pouring troughs. Z-5 treated fiberglass rope (Pyrotek, Inc.) can be used successfully as a crucible lid gasket on vacuum-type potroom tapping crucibles. It replaces the presently used Johns-Manville 872 or 702 asbestos gasketing material. However, Z-5 will not replace gaskets made of twisted aluminum foil. Plants using foil gaskets will in all probability have to continue that practice.

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*Number of plants using material

ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
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Sheet Gasketing/
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 application, each use should be carefully considered. Care should be taken to insure that maintenance personnel do not have on hand and use indiscriminately 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)

* Number of plants using material.

Handwritten signature

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ASBESTOS REPLACEMENT SUMMARY -- BY USE

MATERIAL/USE	POTENTIAL EXPOSURE	REPLACEMENTS AVAILABLE
<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: Pyrotex™ 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. Tennessee has successfully used a fiberglass-coated braided and wrapped thermocouple wire from Thermoelectric Co., Saddlebrook, N.J. - P/N Q/Q/20-J (Standard Grade) in their ingot preheat and a two conductor 20 gauge premium grade thermocouple wire - Q/TW-20-JJ in their annealing furnace.

A ceramic fiber product from 3M, Nextel 312, might also be tried.

NOT holding up

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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 - POINT COMFORT
5 - CLEVELAND	17 - REA MAGNET WIRE
6 - CORONA	18 - RICHMOND, INDIANA
7 - DAVENPORT	19 - ROCKDALE
8 - FORT MEADE	20 - TENNESSEE
9 - LAFAYETTE	21 - TIFTON
10 - LANCASTER	22 - VANCOUVER
11 - LEBANON	23 - VERNON
12 - MARSHALL (ACPC)	24 - WARRICK

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ASBESTOS -- POTROOM USES

Specific Application	Substitute	Location	Comments
Cradle to Pot Shell Insulation	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. We are presently specifying an asbestos bearing item, J-M millboard #106, because this is used in an area where exposure to this item is very minimal. A phenolic plastic or fabric substitute would probably be suitable for use in this area.
Superstructure Pot Insulation	Cem-Fil GRC -- 9" x 7" x 1" Marinite-P -- 1/2" sheet	Massena Massena <i>Warrick</i>	To be tested. To be tested. <i>11-63</i> We are presently specifying ebony asbestos for this item. Tests on other materials have not been successful. <i>Warrick 11-63</i>
Pot Cover Insulation	Almac Plastics Inc.'s - High-Temp Glass Marinite-P -- 1/2" sheet Pyrotek's Fiberseal H-3 Fabric (Same as above) (Same as above) Amatex - Thermoglass #G-36P752	Massena Massena Massena Badin Warrick Wenatchee	Testing. To be tested. To be tested for P-75 pot covers. Double the material; works well. Works well; now standard; also works for side shield insulation. Satisfactory. We have eliminated use of asbestos by wrapping AMATEX THERMOGLASS #G-36P752 around an aluminum bar. In other installations fiberglass fabrics have been used as the insulating material.

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ASBESTOS -- POTROOM USES

Specific Application	Substitute	Location	Comments
<u>Walkway Grating</u> <u>Insulation</u>	M-50 pyrotherm Dense Board	Massena	Tested; unsuccessful; it crumbles.
	GRC Cem-Fil - 1/4" & 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).
<u>Bus Insulation</u>	Penn Hi-Temp 270	Warrick	Looks good in preliminary tests; to be tested further; limitation might be that it's too expensive.
	Marinite-P -- 1" sheet	Badin	We have eliminated use of transite by substituting either GRC Cem-fil sheet or wood treated by Koppers with their NCX chemical for fire retardation.
	Cem-Fil GRC - 1/4" & 1/2"	Massena	Currently testing (but it crumbles).
	Marinite-P -- 1/2" sheet	Massena	To be tested
			To be tested.

We have eliminated use of transite by substituting an aluminum bar with a 1/16" layer of glass fabric epoxy, NEMA Grade G-11, taped to each side of the bar.

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ASBESTOS -- POTROOM USES

<u>Specific application</u>	<u>Substitute</u>	<u>Location</u>	<u>Comments</u>
<u>Exhaust Duct Insulator</u> <i>Garwick?</i> <i>Duct</i>	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 1/4" 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. We are using the same asbestos impregnated sheet material as previously reported; however, Carlock's Gylon material would probably work for this application.
<u>Siphon Gaskets</u>	Pyrotek's Fiberseal Felt G-1 - 1/2" and Fiberseal Felt T-1 - 1/4" (Same as above)	Badin	Tested and proved okay.
	Fiberseal M-13 - 1/8" Compressible board	Massena	Tested on P-225 siphon gasket and crucible cover plate gaskets; found unsatisfactory.
	J-M Ceraform Heat Seal	Massena	To be tested on P-225 siphon gasket and crucible cover plate gaskets.
		Rockdale	Not as stable as asbestos; needs replaced more often. We are presently using Pyrotek's T-1 felt material for this application. This item contains no asbestos.

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Correct with 3/4"

ASBESTOS -- POTROOM USES

<u>Specific application</u>	<u>Substitute</u>	<u>Location</u>	<u>Comments</u>
<u>Ladle & Ladle Lid Seal</u>	Silifon Red rubber air hose - 3/4"	Warrick	Standard (but different seal from other plants).
	Refrasil - wrapped around rubber hose.	Badin	No good; rubber melts; seal breaks.
	1-1/2" Fiberseal Rope - F-10	Badin & Massena	On order
	1" Fiberseal rope - D-1	Anaconda	Uses 600 ft./mo. of D-1
	1-1/2" Fiberseal rope - F-10	Pt. Henry	

We are presently using Pyrotek's Z-5 material which contains no asbestos. Several layers of this material are used for one seal.

Pot Exhaust Duct

We have conducted extensive tests on a Hetron 197 material at both Wenatchee and Warrick. This material is quite expensive, and it may not be as durable as the transite now in use. Therefore, we are continuing to use transite for this application.

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ASBESTOS REPLACEMENT MANUFACTURERS

<u>Product</u>	<u>Supplier</u>	<u>Telephone No.</u>
<u>Pyrotex</u>	Newtex Industries, Inc. Railroad Avenue P. O. Box 25 Victor, New York 14564	716/924-9135
<u>Fiberseal Products</u>	Pyrotek, Inc. East 9601 Montgomery Avenue Spokane, WA 99206 -OR- Box 77 - R.D. #1 Claremont Road Carlisle, Pa. 17013 -OR- Santa Fe Springs, CA	509/926-6211 717/249-2075
<u>Refrasil</u>	HITCO Division of Armco Steel Middletown, Ohio 45042	
<u>Nor Fab Yarns; Fabrics</u>	Amatex 1032 Stanbridge Street Norristown, Pa. 19404	215/277-6100
<u>Fiberfrax</u>	The Carborundum Company Insulation Division P. O. Box 808 Niagara Falls, N. Y. 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, Tenn. 37217 Keller Glove Mfg. Co. Plumsteadville, Pa. 18949	615/361-4664 215/766-8818

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R. E. PODHORA
INDUSTRIAL HYGIENE DEPARTMENT
POINT COMFORT OPERATIONS

TO MR. THOMAS B. BONNEY AUG 7 1978
PITTSBURGH OFFICE

cc: Mr. R. M. Rose
Mr. F. J. Mabry
Mr. G. Gehlhoff/Mr. G. L. Williams
Mr. D. J. Fisher/Ms. K. M. Johnson
Mr. Leslie Pfeil
Mr. Chase Phillips/Mr. L. Stringham
Ms. Edna Wagner

1978 August 04

RE: ELIMINATION OF UNNECESSARY USE OF ASBESTOS CONTAINING MATERIALS

This is to acknowledge today's receipt of your captioned letter dated 1978 July 28. We at Point Comfort have been working toward the goal of eliminating the use of asbestos containing materials since December, 1974. There are still a few uses in the plant where good substitutes are difficult to find and your assistance will be greatly appreciated.

One such area is the use of Marinite for molds at Ingot Casting. Some plants such as Wenatchee and likely others are having their Marinite cut outside their plants. Has a satisfactory substitute for Marinite been accepted?

We are currently working with our Purchasing Department and Fiberfrax to obtain suitable substitutes for 1/32" and 1/8" asbestos sheet for furnace flow cone wrapping, trough covers, etc.

We are also developing a training program for maintenance personnel and others who are involved with jobs such as old insulation removal. Attached are copies of two letters describing our recent efforts.

Our Insulating Department has developed some good practices which should be helpful to others in similar jobs at other plants. If procedures such as ours have not been developed at other refining plants or where large volumes of insulation are used, perhaps the attached material may be of some benefit.

We will comply with your request to survey the plant and plan to submit the results by 1978 September 01.

R. E. Podhora
R. E. PODHORA

REP:vh

Attachments

(copy of Mr. Bonney's letter to
all carbon copy recipients.)

APC 003452



ALCOA

FROM: R. M. ROSE/RUDY PODHORA
POINT COMFORT OPERATIONS

TO: MANAGERS, SUPERINTENDENTS,
and DEPARTMENT HEADS
POINT COMFORT OPERATIONS
cc: Mr. Bobby Sowders & On-site
Construction Superintendents

1978 July 10

RE: INSULATION REMOVAL AND DISPOSAL

It was brought to our attention 1978 June 28, by members of the insulating department and Bobby Sowders that craftsmen such as pipefitters, mechanical maintenance personnel and others were observed removing insulation from pipes or vessels without the knowledge of the possibility of asbestos in the insulation. The removal of insulation, in most instances, is being done without the proper protective equipment and the craftsmen are using improper disposal procedures for the debris that is generated from this process. Our insulators have been trained to properly handle asbestos materials and, therefore, work under the policy that all insulation contains asbestos until determined otherwise.

In order to maintain compliance with Federal Regulation No. 1910.1001 (asbestos) and to avoid asbestos exposures, the procedures used by the Insulation Department are to be utilized by others who need to remove insulation for one reason or another. These procedures are generalized below:

1. To avoid unexpected and unnecessary asbestos exposure, assume that all insulation contains asbestos.
2. Before demolition or insulation removal is started, all personnel are to be properly protected with NIOSH approved respirators and proper protective clothing, such as disposable coveralls and gloves, head and foot covering.
3. A small sample of the insulation is to be submitted to the Industrial Hygiene Department for microscopic analysis for asbestos. You will be advised whether the insulation contains asbestos or not.
4. If the insulation contains asbestos and whenever conditions and circumstances permit, the insulation should be soaked with water to eliminate or minimize dust generation during demolition.
5. Debris from demolition is to be cleaned up as follows:
 - a. Using the above respiratory protection and protective clothing, all asbestos debris is to be promptly cleaned up and put in plastic bags, sealed, and then deposited in the special asbestos disposal Dempster bucket. It is essential that asbestos debris be promptly cleaned up to minimize the amount of dust that can become airborne by the wind.
 - b. The asbestos is then buried in the solid waste disposal area.
6. Good housekeeping procedures are to be followed

Rudy E. Podhora
R. M. ROSE/R. E. PODHORA
RMR/REP/mg

APC 003453

FROM R. M. ROSE
R. E. PODHORA
POINT COMFORT OPERATIONS

TO MANAGERS, SUPERINTENDENTS,
DEPARTMENT HEADS AND SUPERVISORS

cc: Mr. Bobby Sowders
Mr. Louis Vaclavick
On-Site Construction Supts.

1978 July 31

RE: INSULATION REMOVAL & DISPOSAL
REFER TO OUR LETTER 1978 JULY 10

Subsequent to the letter of July 10, it was learned that additional information was required to properly implement the insulation removal and disposal program.

The Insulation Department has developed a system of good practices and pages 8 and 8A from their Tool and Equipment Safety Analysis are attached. In addition to the instructions outlined in our letter of July 10, please add these procedures:

1. Dampen insulation if conditions and circumstances permit. (It is not necessary to "soak" the insulation as previously instructed.)
2. Put up signs cautioning personnel of asbestos in the area. (Insulation Department has some signs--more may need to be made.)
3. Put up red flagged barricade tape around areas being stripped. (Approximately 10 - 15 feet up wind and 50 feet downwind.) Good judgement has to be exercised here because it depends on the location and numerous variables.
4. Put waste material in plastic bags, tie or seal bags and dispose in special asbestos dumpster.

The intent of these procedures is to protect persons working with asbestos containing materials and other persons in the work area. In order to accomplish this and to maintain compliance with Federal regulations, all persons involved need to be instructed in the practices described above. A Point Comfort asbestos control program is being developed and subsequent information will be distributed upon its completion.

R. M. ROSE/R. E. PODHORA

RMR:REP:vh

Attachments

APC 003454



API

TOOL AND EQUIPMENT SAFETY ANALYSIS

JOB DESCRIPTION	HAZARDS	SAFETY PRECAUTIONS
<u>REMOVING OLD INSULATION</u> Tools and equipment needed to remove old insulation are knives, dykes, shears, ladders, scaffolding, nippers, JLG manlift.	2.1 Type of material.	A. When removing asbestos-type materials, gloves and an approved respirator must be used. Caution signs shall be put in immediate area warning personnel of asbestos hazard. (See Page 8A for detailed instructions.) B. When removing insulation from caustic lines, goggles and rubber or plastic gloves must be worn. C. When removing old fiberglass, gloves and goggles should be worn to protect hands and eyes from the glass fibers. D. Wear full faceshield when stripping acid or caustic line E. Wear disposable hood when stripping leaking caustic or acid lines; this in addition rain jacket, rain pants, goggles rubber boots, rubber gloves, a full faceshield. (Addendum 1978-03-16). F. Use proper tool to cut banding in addition to wearing gloves. In cell building, wear rubber gloves in addition to cotton gloves. (Addendum 1978-04-05). G. When stripping decomposers, wear disposable suits. (Addendum 1978-04-05).
	2.2 Improper use of tools.	See Section 1.2
	2.3 Improper use of equipment.	See Sections 1.3.D and 1.3.F.
	2.4 JIG manlift.	See Sections 1.5.1 and 1.5.2.

TOOL AND EQUIPMENT SAFETY ANALYSIS

JOB DESCRIPTION	HAZARDS	SAFETY PRECAUTIONS
<u>INSULATING AIR CONDITIONING DUCTS</u> Tools and equipment needed for insulating air conditioning ducts are knives, saw, tape measure, trowels and ladders.	3.1 Location of duct.	A. Look for electrical wires when duct is located in the ceiling B. Do not work in dark areas without lights.
	3.2 Improper use of tools.	See Section 1.2.
	3.3 Improper use of equipment.	See Sections 1.3.D and 1.3.E.
		* <u>Detailed Instructions for Removing Asbestos Materials</u> When determining if material is asbestos, a small sample of the material will be taken by a supervisor to the Industrial Hygiene Department where an analysis will be made. If an analysis cannot be made immediately, treat material as if is indeed asbestos and follow these procedures: Dampen material down, wear disposable suits, gloves, respirator with asbestos dust cartridges, put up signs cautioning personnel asbestos in area, and put up red-flagged barricade tape around areas being stripped (approximately 10-15 feet upwind and 50 feet downwind). Put waste material in plastic bags and dispose in special asbestos dumpster. (Addendum 1978-04-15)

APC 003456

FROM THOMAS B. BONNEY
PITTSBURGH OFFICE

TO

1978 July 28

RE: ELIMINATION OF UNNECESSARY USE OF ASBESTOS-CONTAINING MATERIALS

Over the past six years, primarily by means of Industrial Hygiene Newsletters, we have attempted to discourage the use of asbestos at all of our operating locations. We have taken this position for two reasons. First, excessive exposure to asbestos represents a real hazard. Second, compliance with the applicable OSHA standard costs us money which we would not have to spend if substitute materials were used (e.g., for air sampling, medical surveillance, disposal procedures, etc.). Although our plants have made impressive headway, it appears that our goal of eliminating unnecessary asbestos usage is not yet at hand.

As we visit our plants, we still see asbestos products being used. We suspect that for many of them there are asbestos-free, functionally acceptable alternates. Because 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 that it is in Alcoa's best interest to eliminate the use of asbestos products wherever possible. To accomplish this objective requires that first we know for what specific applications it is presently being used. Therefore, we request that you survey your location to provide us with information about your plant's use of asbestos. The attached form indicates the data that is required and can be used for submitting your survey results. We ask that you submit the results of your survey by 1978 September 01.

Upon receipt we will compile a listing of current usage throughout Alcoa. With the assistance of appropriate plant and Pittsburgh personnel, we will place each usage into one of four categories:

- (1) No foreseeable employee exposures; substitutes available.
- (2) No foreseeable employee exposures; no viable substitutes available.
- (3) Potential employee exposures; substitutes available.
- (4) Potential employee exposures; no viable substitutes available.

Following classification, with the aid of appropriate Pittsburgh and plant personnel, we will work toward a prompt and orderly replacement of all items in category "3". Jointly, we will further consider if there is merit to taking the same action for any or all of those materials in category "1".

APC 003457



1978 July 28
Page 2

This, of course, will require a determination of whether the economic consequences would justify such action. Our ultimate aim is to provide the plants with the information necessary to attain effective control over their use of asbestos. To help accomplish this, we will provide you with information about substitute materials. Eventually, we will publish a list of "approved" asbestos products and applications (i.e., those for which there are no currently viable substitutes) to offer guidance for purchasing, production, industrial hygiene, and other interested plant personnel. We ask your cooperation in collecting the information needed to make this possible.

THOMAS B. BONNEY

TBB:lmn

Attachment

Letter sent to Industrial Hygienists

Copies sent to:

M. J. Caprio, Pittsburgh 19AB
J. Z. Nelson, Pittsburgh 3WPH
N. Kloap, Arkansas Works
R. C. Hinkle, Badin Works
J. D. Breazeal, Davenport Works
H. E. Chandler, Tifton
R. K. Morrow, Massena Works
E. B. Parker, Rockdale Works
W. S. Stroud, Tennessee Works
J. A. Blessinger, Vancouver Works

G. H. Farrah, EHL, Alcoa Technical Center
W. W. Williams, Fort Meade, Fla.
J. B. Dolan, Lafayette Works
G. R. Hartnett/Albert Lee, HC Products Co.,
Princeville, Ill.
J. R. Archibald, Pittsburgh 7AB
P. R. Atkins, Pittsburgh 7AB
B. D. Dinman, Pittsburgh 7AB
W. B. Garyotis, Pittsburgh 2AB
R. V. Newsome, Mobile Works

APC 003458

ASBESTOS SURVEY

Item	Product Description ¹	Specific Application	Dent.	Dust Generated? ²		
				yes	no	Don't Know
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Note 1.. List should include specifications for all asbestos products currently being purchased and used. It should not include previously installed asbestos materials that are still in place but for which non-asbestos replacements are currently being used.

Note 2. Should be answered in light of currently available information. A product will be considered capable of generating significant airborne concentrations of asbestos fibers if the measured or estimated fiber concentrations are in excess of 0.1 fiber per cc (eight-hour time-weighted average). In responding to this question, it will be necessary to consider the possibility of dust being generated not only during installation, but also during use and, where applicable, dismantling.

Letter 1978 July 28 re eliminating asbestos went to the following industrial hygienists:

D. E. Thompson, Addy, Washington
O. E. Wilkinson, Anderson County Works
J. M. Plunkett, ATC
J. F. Dey, Arkansas Works
Earl M. Morgan, Badin Works
V. Locke, Jr., Wear-Ever, Chillicothe
L. L. Grubb, Cleveland
J. V. Muncie, Corona
K. W. Williams, Davenport
S. Huey, Rea Magnet, Fort Wayne
W. D. Coker, Lafayette
L. M. Crivaro, Lancaster
R. Andrew, Lebanon
W. D. Helmick, Logans Ferry
T. V. Byerley, Marshall
G. D. Hicks, Massena
W. J. Boutreis, Mobile
R. E. Podhora, Point Comfort
J. D. Gibbs, Richmond
A. G. Clayton, Rockdale
J. C. Verghe, Tennessee
L. L. Haisch, Vancouver
D. P. Hooghkirk, Vernon
R. L. Parsons, Warrick

APC 003460