

JOAN E. SANDER

PITTSBURGH OFFICE - 6

MEMORANDUM

① ~~B. J. Turner~~
② J. B. Parker

1983 July 06

RE: ASBESTOS SUBSTITUTES FOR POTROOMS

The attached report on "Asbestos Substitutes for Potrooms" may be of interest to you. The report, compiled by Pittsburgh Mechanical Engineering, should be self-explanatory; however, please feel free to contact me if you have any questions.

Joan Sander
JOAN E. SANDER

JES:sc

Attachment

Distribution:

C. A. Carter-Badin Works
H. E. Ellis-Badin Works
S. M. Anderson-Massena Operations
J. R. Feeley-Massena Operations
G. D. Hicks-Massena Operations
A. G. Clayton-Rockdale Works
E. B. Parker-Rockdale Works
H. G. Sakoian-Tennessee Operations
W. S. Stroud-Tennessee Operations
J. A. Blessinger-Vancouver Operations
D. E. Thompson-Vancouver Operations
K. P. Karsten-Warrick Operations
H. F. Hillegass-Wenatchee Works
J. A. Thompson-Wenatchee Works

Any thing to
add or change
for final sale?
R. S. L.
According to this we
aren't using Ebony asbestos
anymore - maintenance
agrees. Bal

E. E. Rumberger - Pittsburgh Office/6 AB

D. R. PEINECKE
MECHANICAL ENGINEERING DIVISION
PITTSBURGH OFFICE - 3 WPH

ENGINEERING MANAGERS
DOMESTIC SHELTERS

H & S
Industrial Hygiene

1983 MAY 12

BDD
~~ER~~
TBB
RMJ
~~JES~~
BEP

MAY 17 1983

SC
DEH
CD
PW
LMN
EDS

RE: ASBESTOS SUBSTITUTES FOR POTROOMS

Attached is a summary of items we have found satisfactory, are testing, or have found unsatisfactory as asbestos substitutes for potroom application. There are a number of areas where we could use additional information on test outcomes and current costs from each plant. Of particular interest is cost, because the number of substitutes has grown to where we should start making choices based on economics. Our objective is to maintain this data base as accurately as plant input allows and provide technical expertise in materials selection. Please provide an update on an annual basis.

Our current comments and recommendations are as follows:

Bus Insulation

The purpose of insulation is to electrically isolate leaves in balanced bus systems. Insulation must withstand bus temperature, generally 150 to 250°F. It must be able to resist molten bath spills, to a limited extent, where the edge is exposed.

Current recommendation is an aluminum bar with a 1/16 inch piece of Westinghouse, Micarta H-2497, NEMA Grade G-11, or equal, insulating plate taped to each side. Use Scotch No. 10, non-conductive tape, or equal.

Cradle to Potshell Insulation

The purpose of insulation is to act as a thermal barrier to prevent distortion of cradles caused by high shell temperature. Insulation must withstand shell temperature and shell compressive load.

Current recommendation is Johns-Manville Cerewool Millboard. It is about one-fourth as expensive as Chem-fil GRC sheet, which has also been used in this application.

Cradle Wedge Insulation

The purpose of insulation is to provide a "parting surface" between the wedge and the shell. Service temperature must exceed 1000°F because of shell side temperatures.

Current recommendations is Sepco, Style 709, graphited cloth, 1/16 inch thick. Massena uses a fiberglass cloth hand-dipped in graphite which also performs satisfactorily.

ARD 003715

Crucible Lid Seal

Current recommendations are:

- °Pyrotek Z-5 treated fiberglass braided rope (favored)
- °Sepco FG801 fiberglass rope

Exhaust Duct

Badin, Massena, Tennessee, Warrick, and Wenatchee have all tested Pyrotek Hetron 197 fume duct with success. Badin, Tennessee, Warrick, and Wenatchee are replacing transite duct with the Pyrotek product on an as-required basis. Vancouver is using a similar product made by E. J. Bartell. We endorse conversion to the Pyrotek duct at the present pace.

Exhaust Duct Gasket

This gasketing is installed between mating flanges of the superstructure exhaust duct. It must have a minimum working temperature of 400°F, and must be able to resist fluoride attack.

Current recommendations are:

- °Ametex Norfab Series 400
- °Pyrotek T-22 Fiberseal Cloth

Poker Roller Insulation

We have been using Westinghouse Micarta H-12426, Nema Grade G-9, glass cloth epoxy, insulating plate, or equal, for this application. Vancouver is testing Pyrotek's TS-106 dense board which may also prove to be a satisfactory product for this application.

Side Cover Insulation

We recommend an aluminum bar wrapped with fiberglass cloth in place of a bar of any insulating material. The aluminum bar resists physical abuse better than any insulating material alone, found to date. The bolted or riveted connections between the cover and bar must be insulated with Westinghouse Micarta HY-1293, Nema Grade G-7, glass cloth silicon insulating bushings, or equal.

Recommended cloths are:

- °Alpha-Martex Style 1925, treatment #9383, tape
- °Ametex G36P752 fiberglass cloth (favored)
- °Pyrotek H-3 Fiberseal fabric
- °Southern Textiles Weldgard fiberglass tape

Siphon Gasket

The following materials have been used successfully:

- °Babcock and Wilcox Kaowool, 8 Lb. Density
- °Carborundum Fiberfrax
- °Garlock 7021 Bluegard Paper
- °Johns-Manville Cerefelt
- °Johns-Manville Cerewool Millboard
- °Pyrotek G-1 Fiberseal Felt
- °Pyrotek M-13 Compressible Board (favored)
- °Sepco FG801 Fiberglass Rope

Superstructure Foot Insulation

We have continued to specify Ebony-asbestos because no substitute has proven itself satisfactory for the high compressive loads of our more modern pots.

Walkway Grating Insulation

We are currently specifying hardwood (sap-soft maple) treated with Koppers NCX. However, the wood chars from molten bath, even with the fire-retardant treatment. Badin is testing Pyrotek's Phenolic Paper and G-5 board products. Wenatchee is using a Micarta Nema Grade G-10. (A G-11 might be an improvement, since it has better temperature resistance.) Results will indicate whether these are suitable substitutes for wood.

Attn.
D. R. PEINECKE

DRP:plb

cc: M. J. Caprio - Pittsburgh Office/22 AB
P. A. Haas - Pittsburgh Office/20 AB
D. D. McGregor/R. E. Seymour - Pittsburgh Office/23 AB
J. L. McKinstry/J. R. Ogle - Sao Paulo, Brazil
E. E. Rumberger - Pittsburgh Office/6 AB

Route Copy: 1) A. G. Rust/K. A. Isakson - 3 WPH
2) R. C. McCormack - 20 AB