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PLAINTIFF'S EXHIBIT

FD-1462

Inter Office

Manufacturing Staff

Mr. A. J. Filipovitch

January 22, 1979

cc R. F. Birdsall
A. G. Folger
J. D. Kindree
✓ P. E. Toth

Subject: Asbestos Substitute Insulation Materials

Per your request, we have investigated a number of alternate insulation materials which could possibly be substituted for asbestos containing materials presently used throughout the Casting Division.

Asbestos is a proven occupational carcinogen. The toxic effects of asbestos have been evidenced even at extremely low concentrations. In view of this fact, OSHA has established a stringent permissible exposure standard for asbestos, and it is expected that this standard could be made considerably stricter within the next few years. Such a standard almost precludes the use of engineering controls for providing a safe working environment. Instead, it will require industry to substitute alternate materials for present asbestos usage.

At the present time, there does not appear to be any one material on the market which can readily be substituted for asbestos in all its applications. Because of its unique physical properties (thermal insulation, fire protection, reinforcing agent, etc.), asbestos has been widely used for many years. With the increased restrictions on asbestos usage, we expect more manufacturers to produce substitute materials; but, currently there are few such materials available and we have limited experience or knowledge about their uses. Included is information on three manufacturer's products we evaluated as well as some of our preliminary recommendations.

The recent developments in the asbestos issue have been a source of grave concern to all processors and users of asbestos containing materials. This may lead to an overreaction to assume that it is necessary to immediately eliminate the use of all asbestos materials. Some operations are isolated or enclosed and the use of asbestos presents little risk of hazard to employees. Plant Engineering Office and the Industrial Hygiene and Toxicology Department can assist Casting Division in identifying those operations where the continued use of asbestos materials would not cause an unnecessary health hazard.

Some asbestos containing materials should not be too difficult to replace with substitute insulation materials. Present uses such as asbestos cloth and blanket (used as spark and heat shields), millboard, tape, gloves and mitts are included in this category. In general, where the material does not come into direct contact with extreme temperatures or is not subjected to abuse, then these substitute insulation materials should perform satisfactorily.

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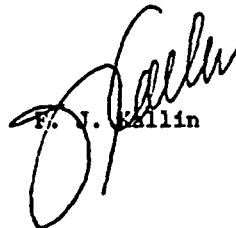
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SCF-FORD-1660

January 22, 1979

We have evaluated three manufacturer's products: the Carborundum Company's Fiberfrax ceramic fiber; the W. S. Libbey Company's fabrics based on DuPont Nomex; and Havel Industries Siltemp. Of the three, Fiberfrax appears to have the most promising application. The chemical composition is primarily Al_2O_3 and SiO_2 with other minerals constituting a small proportion. The material is manufactured in a wide variety of forms such as: fiber, paper, blankets and felts, boards, and textiles, among others. The manufacturer claims a continuous use limit of 2300°F and excellent stability resisting corrosion. Siltemp, a derivative of SiO_2 , is manufactured primarily as a textile and probably has more limited applications such as welding curtains. Nomex is an organic polymer and it also has limited applications; however, it does have properties which should warrant evaluation of its use as personal protective clothing for employees.

As previously mentioned, we have limited experience with asbestos substitute insulation materials and cannot make any specific recommendations at this time. Instead, we recommend that Casting Division conduct shop trials of the above mentioned three materials to determine the feasibility of substituting these materials for currently used asbestos materials. Plant Engineering Office could assist Casting Division in conducting these evaluations. Industrial Hygiene should be consulted to ensure that these alternate materials, in themselves, do not present an unreasonable health risk to employees.



F. J. Wallin

RJG:jd
attachments

8005 1167

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QUOTATION

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These photographs depict a test similar to one devised by the U.S. Navy to simulate the performance of thermal barriers to determine suitability for use during welding and burning applications. Note that the molten steel does not penetrate the SILTEMP cloth and that essentially no smoke is generated even under these severe heat conditions. Further, the cut-off section of steel plate is caught by the SILTEMP cloth, thus simulating the prevention of possible injury to personnel, or damage to valuable equipment—or ignition of flammables. Examination of the SILTEMP cloth (final photo) shows the cooled steel lightly adhered to the cloth. SILTEMP 188CH meets the requirements of MIL-I-24244 specifications, relating to chloride content and corrosion resistance. For further information, call or write: Haveg Industries, Inc., 900 Greenbank Road, Wilmington, Delaware 19808, Tel.: 302-995-3800.

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Glowing slag-like mass accumulates

Molten metal does not penetrate as
close-up of vertically held cloth
indicates

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the practical
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 Continuing research with man-
 made fibers led to the development
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 synthetics by a unique process for
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High temperature resistance...
 While most conventional synthetic
 textiles give little protection beyond
 350° F THERMONOL cloth gives
 continuous protection up to 650° F
 and intermittent protection at
 considerably higher temperatures

Excellent workability...
 Strength light weight high abrasion
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 and non-stretch characteristics
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Good chemical resistance...
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 fected by most acids There is a
 slight loss of strength after
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Available in most forms...
 THERMONOL will be available in
 most commonly used forms such
 as yarns (plain and reinforced),
 roving tapes braided tubing,
 twisted and braided ropes and
 several fabric sizes styles and
 weights



Since the discovery by medical experts of the hazards associated with asbestos products, the textile industry was challenged to develop acceptable substitutes. The demand for strong flexible heat resistant textiles produced many substitute textiles. THERMONOL textiles are a step ahead of all the others with an entirely new combination of blended fibers, offering the most similar features to asbestos ever attained. Contact Janos Industrial Insulation Corporation for your free sample and test it for yourself.



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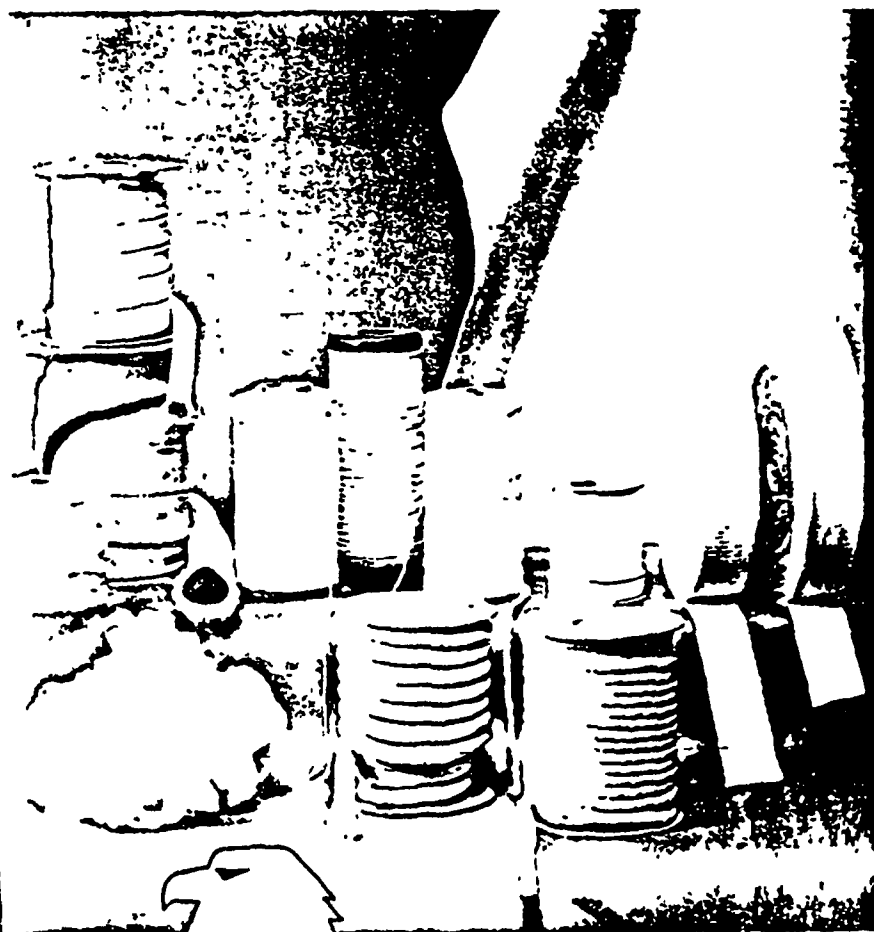
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NON-ASBESTOS SYNTHETIC HEAT-RESISTANT TEXTILES



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NOR-FAB heat-resistant textiles
are entirely free of asbestos

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Continuing Amatex research with
man-made fibers led to the develop-
ment of NOR-FAB 400—a combination
of synthetics by a unique process
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High temperature resistance . . .
While most conventional synthetic
textiles give little protection
beyond 350° F, NOR-FAB 400 cloth
gives continuous protection up to
650° F, and intermittent protection
at considerably higher temperatures

Excellent workability . . .
Strength, light weight, high abrasion
resistance, flexibility, drapability
and non-stretch characteristics make
NOR-FAB 400 a desirable cloth for
gloves, protective garments, blankets,
drop curtains and insulation barriers

Good chemical resistance . . .
NOR-FAB products are unaffected by
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strength after exposure to certain
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Available in most forms . . .
NOR-FAB 400 will be available in
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The adverse publicity about asbestos textile products and the OSHA-imposed requirements governing their continued use have challenged the resourcefulness of industry suppliers to develop suitable alternatives. The need persists for strong, flexible, heat-resistant textiles to meet today's growing demands. One of the available options . . . an exclusive development by Amatex . . . is NOR-FAB 400, described herein. It is an entirely new combination of blended fibers—offering the most desirable characteristics yet obtainable for high temperature synthetics.

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