

SHELL OIL COMPANY

PLAINTIFF'S EXHIBIT

SH-1845

DATE APRIL 25, 1974

TO SHELL ENGINEERING COUNCIL MEMBERS

B. C. BELL
R. H. BROWN
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V. K. LEONARD
D. B. LUCKENBILL
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FROM CHAIRMAN -
SHELL ENGINEERING COUNCIL

SUBJECT ENGINEERING INSULATION
MATERIALS STANDARDS AND
USAGE

Attached are minutes of a recent meeting of engineering representatives to discuss problems with selection, supply and installation of thermal insulation.

As noted in the attachment, the group found that the impacts of removing asbestos from the market plus energy conservation needs have created a need for establishing new base points and guidelines for our insulation systems. Since guidelines from outside organizations such as the recently published report on economic thickness by TMA (Thermal Insulation Manufacturers Association) do not provide satisfactory results, the group recommends a coordinated in-house effort as outlined in the minutes.

It appears that this matter is of greater concern to Chemical Head Office Engineering and Manufacturing Engineering. It would seem appropriate that these departments take the lead in considering the questions of undertaking such a project; whether it should be led by one of the functional departments, or done under R&D auspices, or handled via outside contract or other means.

Please let us know if we may be of assistance in consideration or implementation of this matter.


K. K. MacIntyre

Attachment

LAM 025830

ABS-016968

Subject: Minutes of Meeting on ENGINEERING INSULATION MATERIALS STANDARDS
AND USAGE

Date: April 1, 1974 (Monday)

Time: 9:45 a.m. - 12:45 p.m.

Location: One Shell Plaza - Conference Room 1333

Attendees: E. A. Barrington - Oil - Manufacturing Engineering
D. R. Callicott - Engineering Council Office
W. R. Fairchild - E&P - Gas Plant Engineering
J. A. Hummel - Oil - Manufacturing Engineering
R. G. Jobe - Engineering Council Office
J. W. Johnson - Chemical - Engineering Services
T. E. Lackey - Engineered Equipment and Services - Purchasing

LAM 025831

ABS-016969

MINUTES

ENGINEERING INSULATION MATERIALS STANDARDS AND USAGE MEETING

The purpose of this meeting was to review the changing status of engineering materials for insulation and the applicability of related Company standards.

Materials Supply

Thermal insulation manufacturers have experienced considerable difficulty in meeting the mushrooming demand for their products, precipitated by the energy (fuels) shortage and further complicated by changes in basic manufacturing materials and processes, along with expanding government regulations. Due to these problems, long (ca. 12-18 months) and unpredictable deliveries of insulation materials are now common for the petroleum industry. For example, Johns Manville has adopted a Japanese process to manufacture calcium silicate, but is only capable of producing at about sixty per cent (60%) of its previous asbestos production rate. Due to OSHA asbestos regulations, manufacturers have hurriedly switched to other types of insulation materials (e.g., calcium silicate and mineral wool) products. Government regulatory agencies are reportedly concerned that silica in insulation materials is a possible health hazard. Many insulation manufacturers are currently experimenting to find suitable replacement materials for asbestos and calcium silicate insulation. Manufacturers have attempted to change to glass fibers with organic binders (ca. 3-5%V) for high temperature (1100-1500°F) applications, but the organic binders burn-out rather quickly in hi-temp. service. Most Shell applications involve temperatures of 900°F, or less.

Company Standards

Shell Chemical insulation materials standards currently specify calcium silicate type products, which could be banned by future OSHA regulations if silica is proven to be detrimental to health. The question of whether test procedures are available to measure free crystalline silica was raised. It was stated that OSHA does have a specification test, which quantifies the amount of free silica present in a test sample. Indications are such that insulation materials manufacturers will try to avoid making products available which might later become susceptible to rigid governmental restrictions.

ASTM/AICHE Meeting

John Johnson reported that the recent ASTM/AICHE Tulsa, Oklahoma meeting on Thermal Insulations Materials in the Chemical Industry produced five (5) papers. Two (2) papers presented at this joint symposium were of interest to Shell - entitled as follows:

- 1.) "Economic Thickness of Thermal Insulating Materials" by J. Barnhart
and
- 2.) "Requirements for Selection and Use of Thermal Insulation in the Petrochemical Industry" by W. C. Turner.

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Additionally, it was learned at the Tulsa meeting that the ASTM C-16 Committee on Thermal and Cryogenic Insulating Materials (Frank A. Govan, Chairman) is setting up two (2) new committees; 1) Design Committee, and 2) Geographical Design Subcommittee. These committees should become functional within the near future. It does not appear necessary for Shell to place a man on the ASTM C-16 Committee, although general knowledge of their activities should be maintained.

Research Project

Shell Research at Bellaire are currently conducting thermal conductivity tests of various insulation materials under contract for Shell Canada. It was agreed that the Engineering Council Office would contact Bellaire Research to advise that we are interested in the Shell Canada insulation materials program and are solicitous of any testing information which they develop.

Recommendations (Scope)

The suggestion was made that Shell departments need to know what insulation materials specifications have to be met, in order to procure acceptable insulation products for on-going and future construction projects. Although the work contractor is initially responsible for purchasing and installing insulation materials, Shell assumes the responsibility upon acceptance of the completed facilities. Insulation materials have been treated as a stable commodity in the past, but these increasingly scarce engineering materials will evidently demand more of Shell's time in the future. It was reported that the T.I.M.A. (Thermal Insulation Materials Association) report entitled "Econ I" on insulation materials economic thicknesses should not be used, since it gives misleading results. Since defining all the pertinent and appropriate basic data for insulation materials is very important to all Shell engineering functions, there was general agreement that Shell should develop a guide that would uniformly define basic parameters for engineering insulation materials.

Recommendations (Criteria)

The following insulation materials information needs should be covered by the Shell guide, or white paper:

- 1.) Economic Criteria Required for Evaluation of Insulation Materials - (To be set by Shell Management)
- 2.) Insulation Materials Thickness - Thermal Conductivity (k -factors) Values should be determined and charted for three (3) basic types of Insulation Materials:
 - a.) Calcium Silicate
 - b.) Cellular (Fiber) Glass
 - c.) Other Materials
- 3.) Contact Resistances of above Insulation Materials (e.g., aluminum sheathing and insulation)

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