



MINUTES
of the
TECHNICAL & RESEARCH COMMITTEE MEETING
NATIONAL INSULATION MANUFACTURERS ASSOCIATION
New York, N. Y. September 18, 1962

Rock and Slag Section

Glass Section

The meeting was called to order at 9:15 A. M. with the following in attendance:

W. Acker
W. Gubar
P. L. Losse
K. M. Ritchie
R. L. Schneider
J. M. Barnhart

Johns-Manville Sales Corp.
Gustin-Bacon Mfg. Company
The Eagle-Picher Company
Baldwin-Ehret-Hill, Inc.
Owens-Corning Fiberglas Corp.
NIMA

PROPOSED REVISIONS TO ASTM SPECIFICATIONS

Reports on letter ballots have been received on the following proposed revisions to ASTM specifications:

1. ASTM C-300, C-281, C-378, C-262 and C-280; no negative ballots received, and therefore will be forwarded to either C-16 Committee or the Administrative Committee on Standards for further action.
2. ASTM C-392 - Mineral Fiber Block or Board Thermal Insulation for Elevated Temperatures.

ASTM C-263 - Mineral Fiber Blanket Insulation (Metal-Mesh Covered) (Industrial Type)

Comments received on these specifications were of an editorial nature and will be discussed when the appropriate ASTM C-16 Subcommittee meets.

REVISIONS TO FEDERAL SPECIFICATIONS

The Elevated Temperature specification and Low Temperature specification were reviewed and revised in accordance with the comments received during discussion. The revised specification will be circulated to the Committee for approval and/or comments.

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PROPOSED FEDERAL SPECIFICATION ON DUCT LINERS

Mr. Ernst is to be asked to write the specification including the requirements contained in the duct liner specification written by the Prefabricated Duct Committee.

PERFORMANCE STANDARD FOR FACINGS

Mr. Gubar will present the completed document at the next Committee meeting.

PROPOSED REVISIONS TO MIL-I-742

Comments are to be sent to Mr. Barnhart in order that NIMA can send them to the Bureau of Ships.

The subject of fiber diameter in specifications was discussed. It was decided that the various agencies whose specifications contain fiber diameter will be asked to delete the requirement as fiber diameter is not a physical requirement. As long as the material meets the physical requirements in the specification the fiber diameter is unimportant.

Mr. Barnhart was asked to poll the manufacturers to determine what fiber diameters (diameter ranges) are applicable to fine fiber, textile fiber and wool fiber products.

COMMERCIAL STANDARDS

The Committee decided that CS-105 and CS-117 were out of date and no longer served a useful purpose, and suggests that the documents be rescinded. The Rock & Slag manufacturers and Glass manufacturers will be polled on this subject.

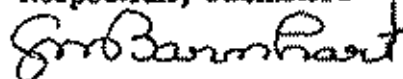
OTHER BUSINESS

1. It was asked that consideration be given to revising ASTM C-157.
2. The Bureau of Standards is to be asked if it is feasible for them to set up standards of measuring fiber diameter by the Micronaire method.

ADJOURNMENT

There being no further business, the meeting was adjourned.

Respectfully submitted


J. M. Barnhart

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MINUTES
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TECHNICAL & RESEARCH COMMITTEE MEETING
NATIONAL INSULATION MANUFACTURERS ASSOCIATION
New York, N. Y. September 18, 1962

Molded Section

Chairman H. P. Hoopes called the meeting to order at 9:15 A. M. with the following in attendance:

H. P. Hoopes	Fibreboard Paper Products Corp.
L. L. Collogne	Mundet Cork Corp.
Burt Tower	Johns-Manville Sales Corp.
W. P. Sinclair	Pittsburgh Corning Corp. (Unibestos)
V. L. Miller	Pittsburgh Corning Corp.
A. Kevlin	Owens-Corning Fiberglas Corp.
D. A. Davis	The Ruberoid Company
E. F. Ott, Jr.	Keasbey & Mattison Co.
W. R. Seipt	Keasbey & Mattison Co.

TUBING (COPPER) O. D. SIZES

At our last meeting we agreed to poll the members whether or not to adopt the ASTM Table of IPS O. D.'s for Copper Tubing. The returns of the April 23 ballot were 5 in favor, 2 opposed. V. L. Miller said his tubing sizes do not now conform to this proposal. W. R. Sinclair commented that the Unibestos Tubing O. D.'s are not the same as IPS for at least up to the 3 inch nominal ID sizes. It was decided to defer further action until the next meeting. In the interim, the two dissenting members will determine from their companies what the possibilities are for them to produce tubing O. D.'s to the IPS system of nesting sizes.

Mr. Hoopes pointed out that in some tubing sizes, using IPS O. D.'s, the thicknesses are considerably above the nominal thickness. He suggested each member talk to their management about the possibility, in such cases, for an economy in material by using the next lower IPS O. D. and thereby reduce the thickness to something nearer nominal.

TRUENESS AND SQUARENESS OF PIPE AND BLOCK

Since an ASTM proposal for block has been balloted and will be discussed by their Subcommittee T-VIII next week, there would be no need for us to consider it at our meeting today.

Six photographs of Paul Losse's were presented illustrating the different types of misfits which can occur between pipe covering half-sections on an application. It was agreed that these photographs were necessary to identify the type of misfit and to show the means for measuring its extent. However, the one illustrating a tapered longitudinal joint opening should show the one end strapped tightly and the other "open" end as being free for measuring the extent of this gap.

INTERIM FEDERAL SPECIFICATION HH-1-00551b

This interim specification for cellular glass covers four classes based upon factory applied finishes (jacketing). It was explained that NIMA go on record as opposing any specification in which the jackets, constitute a part of the specification. If jackets are desired for one use or another or are a necessary part of the insulation, than such jackets should only be listed as to their availability or reference be made to specifications, if and when such specifications are issued for the jackets themselves. Jack Barnhart will take up this item with the proper Government agency.

PROPOSED MILITARY SPECIFICATION MIL-1-2781D

The proposed draft of MIL-1-2781D for pipe, dated 29 June 1962 was reviewed with the following changes recommended:

Par 1.2, Grade I

Change "600 F" to 550 F and
delete "Class b - compounded".
Reinstate the Grade II of MIL-1-2781C, but
delete "Class c - Fibrous" and
delete "Class d - Compounded"

Par 1.2, Grade III

Delete "Class e - Compounded"
"Class f - Fibrous"

Mr. Sinclair opposed our eliminating these definitive terms, "Compounded" and "Fibrous". The group, however, preferred to strike out any reference to compositions and to substitute in their place the following classification wherein each one is identified by its maximum density. If this is not satisfactory to the Military, then we would agree to retain the existing terms. If retained, however, we would ask for an additional paragraph to define these terms. The classification we propose on the basis of density is:

Grade I - Temperatures up to 550 F
Grade II - Temperatures up to 750 F
Type I - 13 density maximum
Type II - 15 density maximum

Grade III - Temperatures up to 1200 F

Type I - 13 density maximum

Type II - 20 density maximum

Type III - 26 density maximum

The group at this point raised a question which Jack Barnhart is to present
"Are there any needs of any Government Agency for insulation for pipe
temperatures above 1200 F?"

Par 2.2 Other Publications

Under the ASTM list of specifications their latest revision should
be used rather than tying one down to a specific date of issue.
(Also: follow thru in any applicable subsequent paragraphs.)

The ASTM C-421 title should be changed to Weight Loss by Tumbling
of Preformed insulation, Method of Test For.

Include the ASTM C-356 Linear Shrinkage of Preformed High
Temperature Thermal Insulation Subject to Soaking Heat, Method
of Test For.

Par 3.1

delete "as long as it" and substitute that

Par. 3.2 Reinsert some modified OPL testing procedure and acceptance
method.

Par 3.2.1

At the beginning of the first sentence insert Thermal

Par 3.2.3

change "Pipe Covering ----" to Thermal Pipe Insulation----

Par 3.3, Table III

change "Mechanical Stability" to Weight Loss by Tumbling
delete the requirements for mechanical stability for Grade III, Class f.
Burt Tower objected to the "k" factors and will write Jack Barnhart
of J-M's recommendations.

Par 4.2.2 & 4.2.3

NIMA objects to the high level of testing required herein. Each
member company agreed to send Jack Barnhart their proposal for
a more reasonable (i.e. economical) level of testing.

Par 4.2.3.1 (a) thru (e)

Amplify to emphasize that a test failure occurs if the average of the
sample exceeds the specified limit. As an example the following
underlined words would be added:

"The average density of the sample exceeds the specified
maximum value."

Par 4.2.3.1 (c)

change title to Weight Loss by Tumbling.

insert new paragraph: 4.2.4 - Action in Case of Failure (see MIL-STD-105, par. 12.2).

Par 4.3.4

change title to Weight Loss by Tumbling

Par 4.3.6

In the last sentence change "Mechanical Stability" to Weight Loss by Tumbling

Par 5.1

This whole section on packing should be revised both for overseas and for domestic shipment and will be handled by the NIMA Packaging Committee.

PROPOSED MILITARY SPECIFICATION MIL-I-2819D

The proposed draft of MIL-I-2819D for blocks, dated 1 August 1962 was reviewed and the following changes desired:

Par 1.2, Class 1

change "600 F" to 550 F

Par 2.2, Other Publications

under the ASTM list of specifications, their latest revision should be used rather than tying each one down to a specific date of issue (Also: follow thru in any applicable subsequent paragraphs).
ASTM C-421, change title to Weight Loss by Tumbling of Preformed Insulation, Method of Test For,
include ASTM C-356, Linear Shrinkage of Preformed High Temperature Thermal Insulation Subject to Soaking Heat, Method of Test For.

Par 3.1

delete "as long as it" and substitute that

Par 3.2

~~reinsert~~ some modified QPL testing procedure and acceptance method.

Par 3.3 Table I

reinstate the class 3 of MIL-I-2819C.

change "Mechanical Stability" to Weight Loss by Tumbling

Uttley Smith raised these questions:

"Why do the mechanical stability requirements differ from pipe (2781D)?"

"Why do density & 'k' at 700 F for Class 2 differ from the pipe (2781D, Grade III, Class e, Type I)?"

"Why not have loss in weight after soaking heat for 6 hrs. at

1200 F¹ for Class 2 materials 14% max. (It is now 12%)
W. Seipt wanted to revert to the 'k' values of the Class 4 materials as they are specified in 2819C.

Par 4.2.2 & 4.2.3

NIMA objects to the high level of testing required herein. Each member company agreed to send Jack Barnhart their proposal for a more reasonable (i. e. economic) level.

Par. 4.2.3.2 (a) thru (e)

Amplify to emphasize that a test failure occurs if the average of the sample exceeds the specified limit. As an example the following underlined would be added.

"The average density of the sample exceeds the specified maximum value".

Par 4.2.3.2 (b) Compressive Strength

change to read Compressive strengths less than the minimum value when tested as specified.

Par 4.2.3.2 (c)

change title to Weight Loss by Tumbling.

insert new paragraph 4.2.4 - Action in Case of Failure (See MIL - STD-105, par 12.2)

Par 4.3.6

Change title to Weight Loss by Tumbling

Par 5.1

This whole section on packing should be revised both for overseas and for domestic shipment and will be handled by the NIMA Packaging Committee.

Respectfully submitted

Willard P. Seipt
Acting Secretary

MINUTES
of the
TECHNICAL & RESEARCH COMMITTEE MEETING
NATIONAL INSULATION MANUFACTURERS ASSOCIATION
Chicago, Ill. March 9, 1962

The meeting was called to order at 9:00 A. M. with the following in attendance:

H. P. Hoopes, Chairman	Fibreboard Paper Products Co.
L. L. Collogne	Mundet Cork Corp.
T. S. Clousing	M. H. Detrick Company
C. E. Ernst	Johns-Manville Sales Corp.
W. Gubar	Qustin-Bacon Mfg. Company
P. L. Losse	The Eagle-Picher Company
V. L. Miller	Pittsburgh Corning Corp.
E. F. Ott	Keasbey & Mattison Company
W. R. Seipt	Keasbey & Mattison Company
W. P. Sinclair	Union Asbestos & Rubber Co.
U. W. Smith	Baldwin-Ehret-Hill, Inc.
D. W. Wingerter	Johns-Manville Sales Corp.
R. C. Pariett	NIMA
J. M. Barnhart	NIMA

BASIS OF CALCULATING HEAT TRANSFER

A write up on this subject, dated 2/14/62, circulated to the Committee prior to the meeting was discussed. Several revisions were proposed. The write up with these revisions will be circulated to the Committee for approval and/or comments.

DEFINITIONS

The list of definitions applicable to thermal insulating materials dated 11/28/61 was discussed. Only minor editorial changes were made. This Recommended Practice is attached hereto.

COMMON BASIS OF PRESENTING ECONOMIC THICKNESS

It was explained that when examining the table of "B" factors in the Economic Thickness Manual irregularities in the values of "B" can produce an economic thickness table that would not rise continually, i.e., could drop back at certain pipe sizes.

Mr. Barnhart was asked to talk to Mr. W. C. Turner and try to ascertain as to why this happens. (Mr. Turner said that the primary reason this occurs is due to the sudden increase in costs of insulation for various pipe sizes.)

It was decided that smoothing out the values would be justified on the following basis:

COMMON BASIS OF PRESENTING ECONOMIC THICKNESS
(Based on average conditions)

ECONOMIC THICKNESS TABLES
(For pipe and flat insulation)

1. Utility or Power - Full year operation (8760 hrs.)
2. Process - Full year operation (8760 hrs.)
3. Commercial - Full year operation (8760 hrs.)
4. Commercial - Heating Season (5400 hrs.)

Conditions

1. Temperatures
100 F to 1200 F in 100 F increments
Note: Average of range
2. Use nominal thicknesses
3. Pipe sizes - as per preference
4. Average design - ambient still air - 80F
5. Surface coefficient - as per curve shown in Fig. 5, in write up on "Basis of Calculating Heat Transfer Through Thermal Insulation on Pipe & Flat Surfaces" (The basis of which has been taken from the ASHRAE "Guide and Data Book")
6. Depreciation period

	Plant & Insulation
Utility or power	20 yrs.
Process	15 yrs.
Commercial	20 yrs.

7. "F" Factor
 - Utility or power - \$12.00 per lb steam per hr
 - \$9,530 per million Btu per hr
 - Process - \$14.00 per lb steam per hr
 - \$11,110 per million Btu per hr
 - Commercial - \$16.00 per lb steam per hr
 - \$12,700 per million Btu per hr
8. "C" Factor - \$1.30
9. Production cost of steam
 - Utility ex-power - \$.60/1000 lb steam
 - Process - \$.75/1000 lb steam
 - Commercial - \$1.00/1000 lb steam
10. "k" Factors - as per individual manufacturer
11. When using "D" Tables go to nearest higher breakpoint for temperature and "k".

ECONOMIC THICKNESS STUDY (LOW TEMPERATURE)

Mr. Barnhart was asked to ascertain whether the cost data needed by West Virginia University has been obtained. (Mr. W. C. Turner has indicated that the cost data received is adequate, however any further cost data received from manufacturers, contractors, etc., would be helpful).

Mr. Barnhart was asked to arrange a meeting of the special coordinating committee on this subject.

O.D.'S OF THERMAL INSULATION FOR TUBES

The Molded Section reported that their section could not come to an agreement on insulation outside diameters for tubes. Mr. Barnhart was asked to circulate to the Committee the ASTM Table for IPS dated January 31, 1962, requesting approval and/or comments as to the acceptance of the Table for O. D.'s for tubes. The comments are to be returned to the NIMA office within 30 days. A summary of the results will be circulated to the Committee prior to the next T & R Committee Meeting.

OTHER BUSINESS

- (a) Two requests had been received asking for recommendations for supports for cold and refrigerated piping. Mr. Barnhart was asked to write to the individuals informing them that basically the problem was not NIMA's responsibility for such design, and to advise them as to what factors should be taken into account when designing the supports.

(b) Discussion on smoke and fire resistance of insulations and finishes was deferred for the present. The Committee does not feel it should duplicate the work that is being done by ASTM on this subject.

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(c) Mr. W. R. Seipt brought to the attention of the Committee an article entitled "Stainless Failures by Stress Corrosion" featured in Hydrocarbon Processing and Petroleum Refiner, V41, No. 1 (Jan. '62). The article referred to magnesia insulation as a stress corroding material. Mr. Barnhart was asked to write to the Editor of the magazine informing him that his data was wrong and informing him that we would review articles pertaining to insulating materials prior to publication, if he so desires.

(d) Mr. Barnhart informed the Committee that BRAE is planning to publish technical data relating to thermal insulations. The Committee agreed that NIMA and the manufacturers could furnish data to BRAE and the government agencies only those values which were obtained by ASTM test methods.

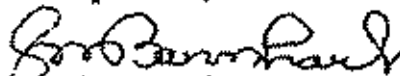
Mr. Barnhart was requested to ask the NIMA Board of Directors as to the policy desired when other consumers request data not substantiated by ASTM test methods.

(e) The subject of QPL was discussed, especially the time and money involved by the manufacturers having tests made for qualification. It was requested that NIMA discuss this subject at the next Government T & R Committee Meeting. (i. e. where do manufacturers go to get reliable tests, can some of the tests be eliminated, etc.)

ADJOURNMENT

There being no further business, the meeting was adjourned.

Respectfully submitted


J. M. Barnhart

3/9/62

NIMA
RECOMMENDED PRACTICE
DEFINITIONS APPLICABLE TO THERMAL INSULATING MATERIALS

COMPOSITIONS

1. Mineral Fibers - A generic term for all non-metallic inorganic fibers. These fibers may be natural, such as asbestos, or may be manufactured, such as rock, slag or glass.
2. 85% Magnesia thermal insulation is composed principally of basic magnesium carbonate with reinforcing mineral fiber.
3. Diatomaceous Silica thermal insulation is composed principally of diatomaceous earth with or without heat-resistant inorganic binder(s) and reinforcing mineral fiber.
4. Calcium Silicate thermal insulation is composed principally of hydrous calcium silicate with reinforcing mineral fiber.
5. Cellular Glass thermal insulation is composed of glass processed by fusion, to form a homogeneous rigid mass of hermetically sealed cells.
6. Amosite Asbestos thermal insulation is composed principally of amosite asbestos fiber with or without heat resistant inorganic binder and filler.
7. Mineral Fiber thermal insulation is composed principally of fibers manufactured from mineral substances such as rock, slag or glass with or without binder.
8. Cellular Plastic thermal insulation is composed of organic materials processed to form a homogeneous mass of cells.

FORMS

1. Pipe insulation is thermal insulation suited for application to cylindrical surfaces of pipe and tubing.
 - (a) Molded-type Pipe Insulation is thermal insulation preformed in cylindrical, semi-cylindrical or segmented sections to fit pipe and tubing.

- (b) Blanket-type Pipe Insulation is flexible thermal insulation furnished flat in sizes to fit around pipe and tubing.
2. Block or Board Insulation is rigid thermal insulation preformed in rectangular units to fit flat surfaces or curved surfaces of diameters above 33 inches.
 3. Insulating Cement is composed of a dry mixture of fibrous, powdery or granular materials which when mixed with water, applied as a plastic mass and dried in place, forms a monolithic thermal insulation.
 4. Finishing Cement is composed of a dry mixture of fibrous, powdery or granular materials, which when mixed with water and applied as a plastic mass to thermal insulation, dries to a smooth, hard, protective surface.
 5. Insulating-Finishing Cement is a dry mixture of fibrous, powdery or granular materials which when mixed with water, applied as a plastic mass, dries to form a monolithic thermal insulation with a smooth, firm surface.
 6. Loose Fill Insulation is thermal insulation composed of a dry mixture of fibrous, powdery, or granular materials for installation between confining surfaces or as a top layer.
 7. Blanket Insulation is flexible thermal insulation that can readily be conformed to curved surfaces, and which is suitably bound together to provide units of substantial area for handling and application and which may be faced or reinforced with confining media.
 8. Felt Insulation is semi-rigid or flexible thermal insulation normally furnished in flat sheets composed of mineral fibers with or without binder.

RECOMMENDED PRACTICE FOR DETERMINING O.D.'s OF RIGID THERMAL INSULATION FOR TUBES

Inasmuch as agreement has not been reached on this subject, a recommendation will not be submitted to ASTM Subcommittee S-VIII at this time. The proposed Table as proposed by PABCO will be distributed to the Committee for comment.

"K" VALUES FOR ASHRAE GUIDE

The present Table appearing in the GUIDE was discussed and several suggested changes were discussed. A revised copy of the Table will be sent to the Committee for approval and/or comments.

ECONOMIC THICKNESS STUDY (COLD STUDY)

Mr. Barnhart reported that the study was in its final stages of completion and should be ready by about November 15, 1962.

TRADE NAMES (BRAB REQUEST)

The request from BRAB for NIMA to furnish trade name data as well as physical characteristics data on members' thermal insulating products was discussed. It was decided that Messrs. H. P. Hoopes, C. E. Ernst, V. L. Miller and J. M. Barnhart would talk to Mr. F. Govan of BRAB at the forthcoming ASTM Meeting to determine the scope and significance of the use the information received.

OTHER BUSINESS

1. The philosophy of QPL in specifications was discussed. It was agreed that the complete elimination of the QPL requirements (MIL-I-2781 and MIL-I-2819) is undesirable.

Mr. T. S. Clousing requested that the elimination of the mechanical stability test in MIL-I-2819 be taken into consideration.

It was deemed advisable that the subject of packaging requirements in government specifications be studied. It was suggested that the Packing Committee meet with the packaging personell from the various government agencies and discuss the subject.

2. It was agreed that the next meeting be held in New York, N. Y., on December 4 & 5, 1962.

ADJOURNMENT

There being no further business, the meeting was adjourned.

Respectfully submitted

J. M. Barnhart
J. M. Barnhart