

IN THE CIRCUIT COURT OF MOBILE COUNTY, ALABAMA

ZEBEDEE YOUNG,

Plaintiff,

v.

FARRELL LINES, INC.,
et al.,

Defendants.

Civil Action No. CV-88-3345



DEFENDANT COMBUSTION ENGINEERING, INC.'S
RESPONSES TO THIRD PARTY PLAINTIFFS AND
CROSS CLAIMANTS INTERROGATORIES, REQUEST FOR
ADMISSIONS AND REQUEST FOR PRODUCTION

PRELIMINARY STATEMENT AND GENERAL OBJECTIONS

Defendant Combustion Engineering, Inc.'s responses to these Interrogatories, Requests for Production of Documents ("Document Requests") and Request for Admission each incorporate this Preliminary Statement and these General Objections.

Combustion Engineering, Inc. began manufacturing asbestos-containing insulation products on June 5, 1963 and discontinued the manufacture of all such products on August 30, 1972. As a result, its responses to these Interrogatories, Document Requests and Request for Admission respond within that time frame. To the extent that these Interrogatories, Document Requests and Request for Admission call for information, documents or admissions outside of that time frame, this Defendant objects on the grounds that they are overly broad, unduly burdensome, seek information neither relevant nor material to the subject matter of this case, and are not reasonably calculated to lead to the discovery of admissible evidence.

Combustion Engineering, Inc. makes the following additional General Objections to each of these Interrogatories, Document Requests and Request for Admission:

1. This Defendant objects to these Interrogatories to the extent that they purport to require it to "identify" documents on the grounds that such requests to "identify" are overly broad, unduly burdensome and oppressive.

2. This Defendant objects to these Interrogatories, Document Requests and Request for Admission to the extent that information, documents or admissions subject to the attorney/client privilege and/or which constitute privileged attorney work product are sought.

3. This Defendant objects to the definitions provided with these Interrogatories, Document Requests and Request for Admission as being overly broad, unduly burdensome and calculated to harass this Defendant rather than lead to the discovery of admissible evidence. This Defendant asserts that all terms should be given their usual and ordinary interpretation.

4. This Defendant objects to those Interrogatories, Document Requests and Request for Admission that request information, documents or admissions regarding the ultimate sales or distribution of products ever manufactured by this Defendant, which sales did not occur in Alabama and that did not directly affect the sale or distribution of products in Alabama, and which may not lead to the discovery of admissible evidence regarding product shipments that may have been utilized at job sites where Plaintiff is claiming exposure, because information, documents or admissions sought regarding other sales or distribution of Combustion

Engineering, Inc.'s products are irrelevant and immaterial and not reasonably calculated to lead to the discovery of admissible evidence.

1. State your correct legal name and identify all subsidiaries, divisions, predecessors and/or successors which come within the meaning of Definition B above and for whom you will respond herein.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, this Defendant states that its correct legal name is Combustion Engineering, Inc. Furthermore, and without waiving this objection, this Defendant states that its asbestos-containing insulation products were manufactured, distributed and sold by a subsidiary, Refractory and Insulation Corporation, a Delaware Corporation, from June, 1963 until 1967, when the name of the subsidiary was changed to R&I Ramtite Corporation. On December 31, 1967, R&I Ramtite merged into Combustion Engineering, Inc., and the asbestos-containing insulation products were thereafter manufactured, distributed and sold by the C.E. Refractories division of Combustion Engineering, Inc. This Defendant does not have any predecessors as it understands that term.

2. State whether you have ever engaged in the marketing, manufacture, mining and/or sale of asbestos containing products, and if so, for each of your divisions, predecessors or affiliates, please provide the following information:

(a) The trade name or brand name of each of those products which were mined, manufactured, marketed, and/or sold and the percentage and type of asbestos content;

(b) The dates of supply and a description of the physical appearance of the named products, including its color, texture and dimensions and if there was any change in its physical appearance then provide the date of the change and state how it was changed;

RESPONSE: This Defendant manufactured, sold and distributed asbestos-containing insulation products. This Defendant did not mine asbestos.

(a) See Exhibit A.

(b) See Exhibit A for dates of supply. For the most part, this Defendant's asbestos-containing insulation products were white or off-white in color; also, see Exhibit A. The only substantive alteration to this Defendant's asbestos-containing insulation products was the deletion of asbestos from all of its manufactured products by August 30, 1972.

3. Were any of the products identified in response to the foregoing Interrogatories used or designed for use in ship construction, boiler insulation or repair, other vessel maintenance, construction or repair? If so, please provide the following additional information:

(a) Identify each such product and state the dates of its use;

(b) Identify the shipyards or ship repair facilities to whom each such product was supplied;

(c) Identify any Third-Party Plaintiffs, Defendants or other vessel owners or operators to whom each such product was directly supplied.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence as it is not limited to jobsites or time periods relevant to Plaintiff's employment and alleged exposure. Without waiving this objection, this Defendant states that actual use of its asbestos-containing insulation products varied according to industry practice. The products were generally intended to be used for thermal insulation.

4. Before releasing any asbestos containing products which you sold, manufactured, marketed or mined, were any tests conducted on them to determine potential health hazards involved in the use of the materials contained in those products? If so, please provide the results of such tests.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome, seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence, and it is improper as to form in that it assumes objectionable facts. Without waiving this objection, this Defendant states that to the best of its knowledge, no such tests were conducted.

5. Please describe fully and in detail the packaging of each asbestos containing product manufactured or sold by this Third Party Defendant or any entity mentioned in response to Interrogatory Number 1, and for each product, set forth in verbatim all wording on each product and the dates of any changes and the changes.

RESPONSE: This Defendant has no records regarding packaging used other than Exhibit A which lists type of packaging used and names of products and Exhibit B which is a copy of the warning printed, stamped or stenciled on all the packaging of this Defendant's asbestos-containing insulation products beginning in 1969. During the time that this Defendant manufactured asbestos-containing insulation products the warnings were not altered or changed in any manner.

6. You are requested to produce a drawing or photograph of all logos on said container or packaging and the dates of any changes and all changes for the foregoing products.

RESPONSE: See Exhibit C which contains the only extant photograph of the asbestos-containing insulation products manufactured by this Defendant of which this Defendant is aware.

7. Do you contend that Plaintiff, Third Party Plaintiff, Cross-Claimant, other Third Party Defendants and/or Defendants improperly used your products? If so, please set out in detail in what respect those products were improperly used.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence. Without waiving this

objection, this Defendant states that it has not been determined that each Plaintiff, Third Party Plaintiff, cross-claimant, other Third Party Defendants and/or Defendants used asbestos-containing insulation products manufactured by this Defendant. Discovery is ongoing. When discovery is completed, all proper contentions will be made.

8. On what date did you or your insurers first become aware that inhalation of asbestos fibers by human beings could cause adverse health consequences? Please describe fully and in detail the manner in which you acquired such knowledge.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome, seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence and also is improper as to form in that it assumes objectionable facts. Without waiving this objection, this Defendant states that it has no records or other information regarding how it first became aware of certain alleged potential health hazards associated with the use and/or fabrication of asbestos-containing products. Nonetheless, this Defendant had become aware of certain alleged potential health hazards associated with the use and/or fabrication of asbestos-containing products by 1969 when it began to use warnings.

9. At any time have you or any entity mentioned in response to Interrogatory Number 1 placed any warning, caution or other statement on any asbestos containing product which you sold, distributed or manufactured, advising anyone of a potential health hazard associated with the use of said product? If so, please provide the following information for each such asbestos product:

- (a) The precise location of such statement or warning, including size and color;
- (b) The exact contents, including all changes or modifications;
- (c) The dates of its appearance on each said product on which it was placed.

RESPONSE: Yes.

- (a) The warnings were prominently displayed on the packaging.

(b) See Exhibit B. During the time that this Defendant manufactured asbestos-containing insulation products the warnings were not altered or changed in any manner.

(c) This Defendant began using the warnings in 1969 (exact date unknown) and continued to use them until the products no longer contained asbestos or were discontinued.

10. Identify all ship chandlers, shipyards, vessel operators, and marine contractors to which you sold or distributed asbestos or asbestos insulation materials at any time up to the present.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is overly broad, unduly burdensome, and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence as it is not limited to jobsites or time periods relevant to Plaintiff's employment and alleged exposure.

11. Please state whether you ever provided a warning directly to the marine industry, steamship companies, seamen's unions, other unions, or shipyards, concerning the danger of exposure to asbestos fiber inhalation as a result of the use of your asbestos products. If so, please state for each such occasion:

(a) The date(s) and content of each such warning;

(b) The means of communication and identification of the persons providing the warning.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, see response to Interrogatory No. 9.

12. Do you admit that exposure to asbestos dust by human beings is a health hazard?

RESPONSE: This Defendant objects to the form of this request on the grounds that it improperly requires this Defendant to express an expert medical opinion

which this Defendant is not qualified to do. Therefore, this Defendant cannot admit or deny this request.

13. If you do not admit that exposure to asbestos dust is a health hazard, state the facts upon which you base your opinion.

RESPONSE: See response to Request No. 12.

14. Please state whether this Third Party Defendant or anybody on behalf of this Third Party Defendant ever conducted or sponsored or contributed financially to any studies or research to determine if the inhalation of asbestos fibers may be harmful. If so, please identify the researcher and the results of said research. You are requested to produce documentation of the foregoing.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, this Defendant states that to the best of its knowledge, its response is no.

15. Do you contend that while the Plaintiff worked in or around insulation products containing asbestos he/she was aware, or should have been aware that the inhalation of asbestos fibers was associated with pulmonary disease, injury or damage? If so, please state:

(a) The specific manner in which you contend or believe he/she first became aware;

(b) The specific source upon which you rely to support such belief or contention.

RESPONSE: When discovery is completed, all proper contentions will be made.

16. Do you contend that Plaintiff, Defendants, Third Party Plaintiff, Cross-Claimant, and/or Third Party Defendants were aware or should have been aware of the dangers associated with the use of your products, and nevertheless proceeded unreasonably to make use of the product? If so, please state each and every fact and the source of same upon which you base this contention.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome and seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, this Defendant states that it has not been determined that each Plaintiff, Third Party Plaintiff, cross-claimant, other Third Party Defendants and/or Defendants used asbestos-containing insulation products manufactured by this Defendant. Discovery is ongoing. When discovery is completed, all proper contentions will be made.

17. Please identify any person you expect to call as an expert witness at the trial of this case and with respect to each, please state:

(a) His specialty or field of expertise and a summary of his education, training and experience;

(b) The subject matter on which the expert is expected to testify; and the substance of the facts and opinions upon which the expert is expected to testify;

(c) A summary of the grounds for each such opinion;

(d) Whether a written or oral report was rendered, and if so, designate which and state the date or dates of the report. You are requested to produce copies of each written report.

(e) Whether this expert has testified on your behalf on any other occasion, and if so, the date, style of the case and court.

RESPONSE: Because discovery in this matter is ongoing, this Defendant is unable to identify its witnesses at this time, but will timely identify such witnesses and relevant information regarding their testimony and produce the requested documents prior to trial.

18. Please identify all witnesses (excluding experts listed in response to the foregoing interrogatory) you expect to call at trial of this case, and all other persons believed to be knowledgeable with respect to the allegations of your affirmative defenses.

RESPONSE: Because discovery in this matter is ongoing, this Defendant is unable to identify its witnesses at

this time, but will timely identify such witnesses prior to trial.

19. You are requested to produce copies of all documents supplied to your experts, or other witnesses, which are used in preparing their opinions or other testimony.

RESPONSE: See response to Interrogatory Nos. 17 and 18.

20. Do you contend that the United States of America, through its agents, servants or employees, contributed in any way to the injuries or illnesses complained of in Plaintiff's Complaint? If so, please provide each and every fact upon which you base this contention.

RESPONSE: When discovery is completed, all proper contentions will be made.

21. Do you contend that Third Party Plaintiffs and/or Defendants through acts or omissions contributed to the injuries and illnesses complained of in the Plaintiffs' Complaint? If so, please state all facts upon which you base this contention.

RESPONSE: When discovery is completed, all proper contentions will be made.

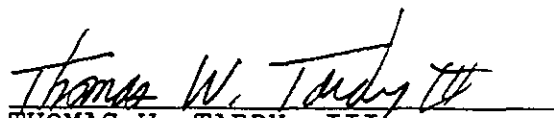
22. State the names, present employer and addresses of all individuals contributing information to the answers to these Interrogatories.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is overly broad, unduly burdensome and violates the privileges accorded to attorney-client communications and to attorney work product. Moreover, in preparing these responses, reference has been made to responses prepared in the course of litigation pending over many years. These responses were based on conversations and document reviews occurring throughout this period.

23. Identify each physician, epidemiologist, or other expert that you have contacted or consulted with the intent to use such person as an expert witness or medical consultant.

RESPONSE: This Defendant objects to this interrogatory on the grounds that it is vague, overly broad, unduly burdensome, seeks information which is neither relevant to the subject matter of this case nor reasonably calculated to lead to the discovery of admissible evidence and seeks protected attorney work product.

AS TO OBJECTIONS:


THOMAS W. TARDY, III
PATRICK D. ~~McMURTRAY~~

ATTORNEYS FOR COMBUSTION
ENGINEERING, INC.

Address of Said Attorneys:

Post Office Drawer 1532
121 North State Street
Jackson, Mississippi 39215-1532

OF COUNSEL:

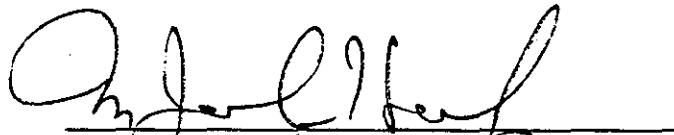
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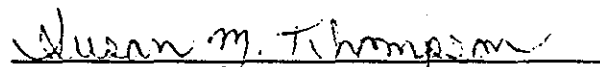
VERIFICATION

STATE OF CONNECTICUT)
) ss:
COUNTY OF HARTFORD)

M. John Hornik, of Combustion Engineering, Inc., being first duly sworn, says that he is authorized to execute this affidavit on behalf of Combustion Engineering, Inc. and that the foregoing Responses of Defendant Combustion Engineering, Inc. to Interrogatories, Request for Admissions and Request for Production by Third Party Plaintiffs and Cross Claimants are true based upon his information and belief.


M. John Hornik

Sworn to before me and subscribed in my presence this 10th
day of August, 1992.


Notary Public

300:777
(AL/White)

SUSAN M. THOMPSON
NOTARY PUBLIC
My Commission Expires March 31, 1993

EXHIBIT A

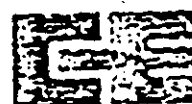
<u>INSULATING BLOCK</u>	<u>C-E START</u>	<u>ESTIMATED STOP</u>	<u>PERCENT AND TYPE OF ASBESTOS</u>	<u>CONTAINER</u>
(m) #12 Insulating Block (R)	1963	1966	6.2(A)	Cardboard Carton
(m) #19 Insulating Block (R)	1963	1966	4.6(A)	Cardboard Carton
(m) Griptex* Mineral Wool Block (R)	1964	1972	2.0(C)	Cardboard Carton
(m) Kaiser M. Block (D)	Unknown	1971	2.0(C)	Cardboard Carton
<u>INSULATING CEMENTS</u>				
(m) Stic-tite* (R)-(D)	1963	8/30/72	38.6-42.2(C)	50 lb. bags
(m) Super Stic-tite (R)-(D)	1963	8/30/72	9.89-10.2(C)	50 lb. bags
(m) Super Finish Stic-tite (R)	1963	6/27/72	11.5-13.1(C)	50 lb. bags
(m) Super Finish (R)	8/10/65	1/10/68	14.2(C)	40 lb. bags
(m) Super 711 (D)	1964	6/27/72	13.7(C)	50 lb. bags
(m) Kaiser Plastic Insulation (D)	1964	1971	13.7(C)	50 lb. bags
(m) Utility Thermal Finish Cement (D)	1964	2/28/72	5.0(C)	50 lb. bags
(m) Kaiser Hard Top (D)	1964	2/28/72	5.0(C)	50 lb. bags
(m) Casing Cement (D)	1964	1969	5.0(C)	50 lb. bags
(m) MHD Finishing Cement (D)	1964	1968	68.03(C)	50 lb. bags
(m) Pyroscat* Fireproofing Cement (D)	1964	6/8/72	3.0(C)	50 lb. bags
(m) Hilite Insulating Cement (D)	1964	1968	9.1(C)	50 lb. bags
(m) A-1199 Insulating Cement (R)	1963	1966	43.4(C)	50 lb. bags

<u>INSULATING REFRACTORIES</u>	<u>C-E START</u>	<u>ESTIMATED STOP</u>	<u>PERCENT AND TYPE OF ASBESTOS</u>	<u>CONTAINER</u>
Lite Wate 22 (W)	1969	6/26/72	10.0(C)/ 27.0(C)	50 lb. bags
Lite Wate 50 (W)	1969	1972	10.0(C)	50 lb. bags
<u>PRODUCTS DISTRIBUTED BY C-E</u>				
Asbestos Rope	1964	1965	100.00(C)	ried 100 ft.
1) Permaseal (fibers in emulsion)	1964	1974	Approx. 3.0(C)	5 & 54 gal. steel containers
2) Weatherkote (fibers in emulsion) (Thermalkote since 1976)	1963	1977	Approx. 3.0(C)	5, 30 & 55 gal. steel containers
3) Duriseal (fibers in emulsion)	1964	1973	Approx. 3.0(C)	5, 30 & 55 gal. steel containers
4) Thermal Coat (fibers in emulsion)	1964	1964	Approx. 3.0(C)	5, 30 & 55 gal. steel containers
5) Air Check (fibers in emulsion)	1963	1971	Approx. 3.0(C)	5, 30 & 55 gal. steel containers

KEY:

INDUSTRIAL INSULATIONS

TECHNICAL DATA



REFRACTORIES

A DIVISION OF COMBUSTION ENGINEERING, INC.

500° ROPE IS A COMMERCIAL GRADE, WHITE CHRYSOTILE ASBESTOS FIBER.

1000° ROPE IS A PURE 98/100% WHITE CHRYSOTILE ASBESTOS FIBER.

APPLICATIONS OF C-E ASBESTOS ROPE . . HERE ARE SOME OF THE MANY SERVICES

STEEL MILLS AND FOUNDRIES

Uses for C-E Asbestos Rope are almost endless. Sealing molds, vacuum-pouring equipment (where leakage can ruin an entire billet), sand molds off from pouring ladles, calking joints in large cores which must be segmented.

ATOMIC ENERGY

1000° is standard in the industry because it withstands an integrated neutron flux of 10^{19} NTV units.

MARINE SERVICE

C-E Asbestos Rope is essential in the Engine Room for general boiler service such as calking, filling and expansion joints, wrapping hard-to-reach steam lines and in emergencies, for quick repair of damaged steam lines.

GENERAL INDUSTRY

Anywhere heat sealing is required, whether heat-treating furnaces, boilers or processing operations.

POWER PLANTS

Between boiler walls and brick-work to allow for expansion and contraction, wrapping steam and exhaust lines where space limitations preclude formed insulation, covering small ducts, calking hard-to-reach spaces, insulating hot pipes passing through fire-walls and bulkheads. It is the standard for use in grooves for door sealing, between boiler sections, expansion joints and in handling hot gases.

ASBESTOS ROPE CAN HANDLE EFFICIENTLY AND ECONOMICALLY

CHEMICAL INDUSTRIES

C-E 1000° rope is successfully used as calking rope for bell and spigot joints in chemical lines. Because it contains no organic components, it is used as yarning rope for water lines. In addition to its heat-resistance, the chemically inert characteristics have made it a "standard" in other chemical-handling operations such as packing for carboy-stoppers, and in Cryogenic services, and other applications where this property is required.

ALUMINUM PLANTS

Anywhere the control of heat and sealing is needed—heat-treating ovens, grooves for door sealing, pouring ladles, vacuum seals on crucibles, and in many other dry heat-sealing applications, C-E Rope is recommended.



REFRATORIES

A DIVISION OF COMBUSTION ENGINEERING, INC.

Technical Bulletin

GRIPTEX BLOCK INSULATION

Griptex® is a major development in insulation offering a unique combination of characteristics. Special mineral fibers combined with high temperature bonding materials, provide practical advantages. The embossed hard finish surface provides superior handling strength and stronger adhesion of cement finishes. The combination of flexibility and high strength make impaling over welded pins easy, without pre-drilling. The neutral PH of Griptex Block assures against corrosive action. This particularly is important when used in conjunction with aluminum jacketing.

Hydraulic setting cements and castable refractories may be applied directly to Griptex Block without premature loss of mixing water needed for proper hydration.

EFFICIENT

The felted fiber core of Griptex Block offers the maximum buffering action against heat penetration up to 1800°F. The thermal conductivity at 200°F. means temperature is .37 BTU; at 600°F. it is .49 BTU.

APPLICATION METHODS

Griptex may be simply impaled over standard welded pins and secured with speed clips or may be secured in place with metal bands. A sharp knife is the only tool needed to fabricate Griptex to fit irregular shaped equipment. Simply press over bolt heads and projections without additional cutting. Outdoor applications should be weatherproofed.

RECOMMENDED USES

BOILERS

Drums
Headers
Walls
Economizers
Air Preheaters

FURNACES

Heating
Heat Treating
Forging
Annealing
Normalizing

OVENS, KILNS & DRYERS
FIREPROOFING
TANKS & VESSELS

TURBINES & PUMPS
FAN HOUSING
DUCTS & BREECHINGS

SPECIFICATION REFERENCES

High Temperature mineral fiber block insulation shall be GRIPTEX complying with the performance requirements of ASTM C-392, Class 2; Federal Specification HH-1-564 and/or Commercial Standard CS-117 of the U. S. Department of Commerce.

*A C-E trade name.

CE REFRATORIES, A DIVISION OF COMBUSTION ENGINEERING, INC.

VALLEY FORGE, PENNSYLVANIA 19481

215-783-0450

TWX 510-660-4837

A SMOOTH, ONE-COAT PLASTIC FINISH INSULATION

Super Finish Stic-Tite provides a smooth, hard, fibrous finish covering for insulating blankets, block, standard Stic-Tite and other insulations. It is a dry, finely ground, pure white mixture of high quality mineral wool and diatomaceous earth which, when mixed with the proper amount of water, is ready for instant use. Like standard Stic-Tite, it forms a spongy mass of dead air cells which stops air infiltration and resultant heat loss.

NO ROUGHING COAT—FINISHES SMOOTH

Super Finish Stic-Tite is applied in a single coat. *It can be troweled very smooth* for pleasing white appearance. No roughing coat is needed, thereby saving materials and labor. It does not shrink or crack. There is no pointing up or patching necessary after Super Finish Stic-Tite has dried.

USE SUPER FINISH STIC-TITE

WHEN a perfectly smooth, one-coat plastic finish insulation is specified for temperatures up to 1700°F.

WHEN necessary to cover blankets, block or standard Stic-Tite in order to provide a smooth, hard, white surface.

DOESN'T COME OFF

Super Finish Stic-Tite adheres strongly to overhead, vertical and curved surfaces and rounded corners. Once it has dried, the bond is unaffected by vibration, impact or moisture.

CAN BE APPLIED ON COLD OR HOT SURFACES

Because it doesn't shrink during drying, Super Finish Stic-Tite can be applied directly to cold or hot metal or brick surfaces up to 175°F. It dries hard, without shrinking, in about 2 hours. When applied to hotter surfaces, a rough coat of standard Stic-Tite is recommended.

GOES A LONG WAY

Super Finish Stic-Tite gives excellent coverage. One hundred pounds cover an 80 sq. ft. surface with a 1/2" thick layer; 120 sq. ft. with a 3/8" thick layer; or 160 sq. ft. with a 1/4" thick layer. This is by far the lowest cost coverage of any other one-coat finish insulation available.

HOW TO APPLY SUPER FINISH STIC-TITE

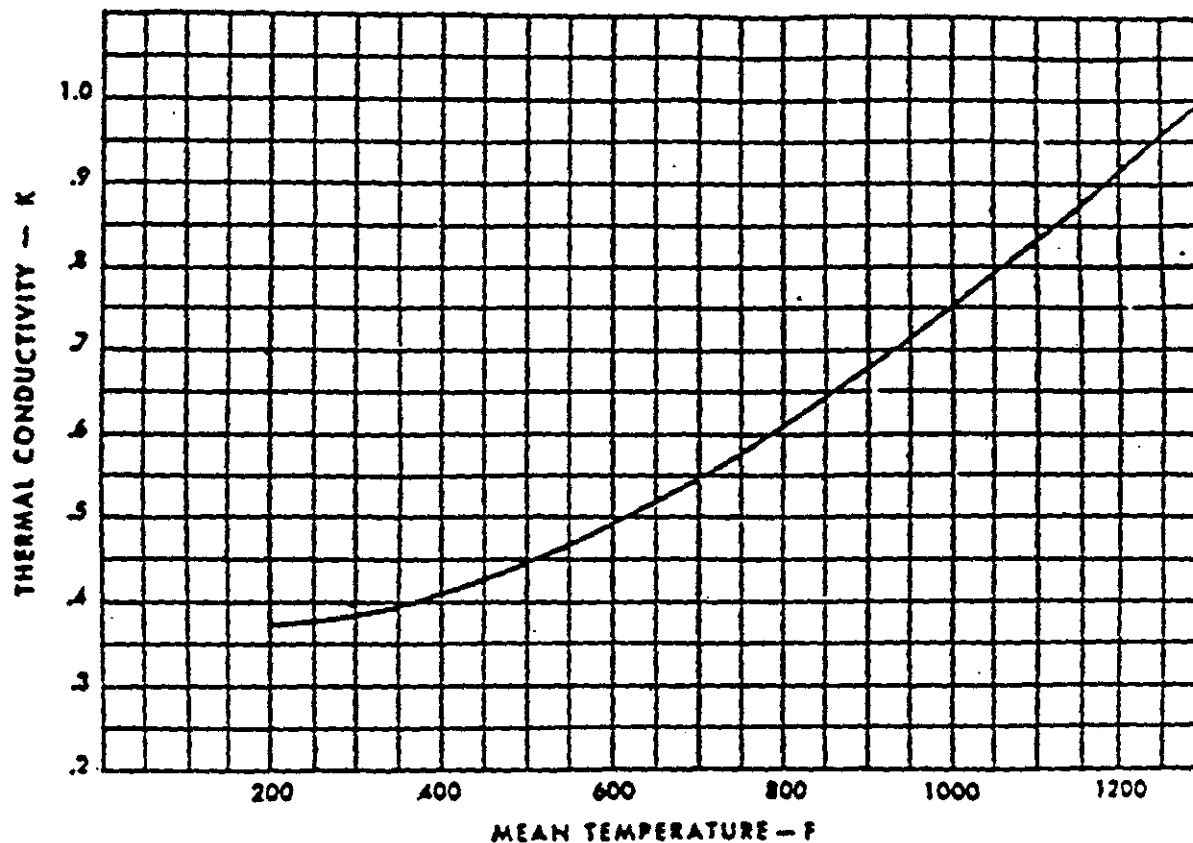
1. Mix Super Finish Stic-Tite thoroughly with 5 to 6 gals. fresh water per 25 lb. bag.
2. Allow the cement mix to soak for one-half hour before using to insure maximum workability.
3. Mix no more than will be applied in 4 hours.
4. If any of the batch has dried out, do not remix it with water or fresh, dry material as the resultant finish will not be hard. Use only fresh batches.
5. For smoothest finish, trowel the cement to at least 3/8" thickness.
6. Where used as a finish coat over an insulating cement roughing coat, be sure the undercoat has set overnight before applying Super Finish Stic-Tite.
7. Where a given area cannot be finished in a continuous application, the joints should be feather-edged.

SUMMARY OF PHYSICAL PROPERTIES

Use Limit
Sintering Temperature
Thermal Conductivity
Compressive Strength
Density
Stability
Resistance to Moisture
Resistance to Corrosion
Handling Characteristics

Up to 1800°F.
2100°F.
See Accompanying Graph
18 psi
1.25 lbs./bd. ft.
Inert - durable
Water-repellant
Non-corrosive
Excellent

THermal CONDUCTIVITY - GRIPTEX BLOCK



STANDARD SIZES

6"x12"	12"x12"	12"x36"
6"x18"	12"x18"	18"x24"
6"x36"	12"x24"	24"x36"

thicknesses range from 1" to 4"—in 1/2" increments.

TEAR TAPE CARTON

Griptex block is packaged in the new . . . easy open . . . tear tape carton. This easy open carton simply zips in half, forming two convenient containers . . . less waste . . . less damage . . . less lost time.

SUPER 711 Insulating Cement is a mixture of high temperature mineral fibers specially processed into resilient wool nodules, combined with asbestos and suitable binders to form a high temperature plastic insulation. Water added according to directions gives a trowelable consistency that is ready for application on equipment to be operated at temperatures up to 1800°F.

WIDE USAGE

SUPER 711 is a versatile material for many types of insulation requirements. Applied over block or blanket insulations, it fills open joints and provides a monolithic surface for whatever type of subsequent finish is specified. Its plastic flexibility permits application directly to regular or curved surfaces - such as valves, fittings, tanks and vessels.

EASY TO APPLY

SUPER 711 has excellent adhesive qualities. Its increased stickability means a better job in less time, from wet to dry. Will not slip or roll under trowel application and may be easily gun applied. This superior workability is a result of fine mineral nodules, special manufacturing methods and quality control.

MAXIMUM COVERAGE - LOW SHRINKAGE

SUPER 711 Insulating Cement assures maximum coverage and low shrinkage. The resilient nodules of mineral fiber do not collapse when mixed with water. See table of Physical Properties for coverage.

RECOMMENDED USES

BOILERS

Drums
Headers
Walls
Economizers
Air Preheaters

OVENS, KILNS & DRYERS
VALVES & FITTINGS
TANKS & VESSELS

FURNACES

Heating
Heat Treating
Forging
Annealing
Normalizing

TURBINES & PUMPS
FAN HOUSINGS
DUCTS & BREECHINGS

SPECIFICATION REFERENCES

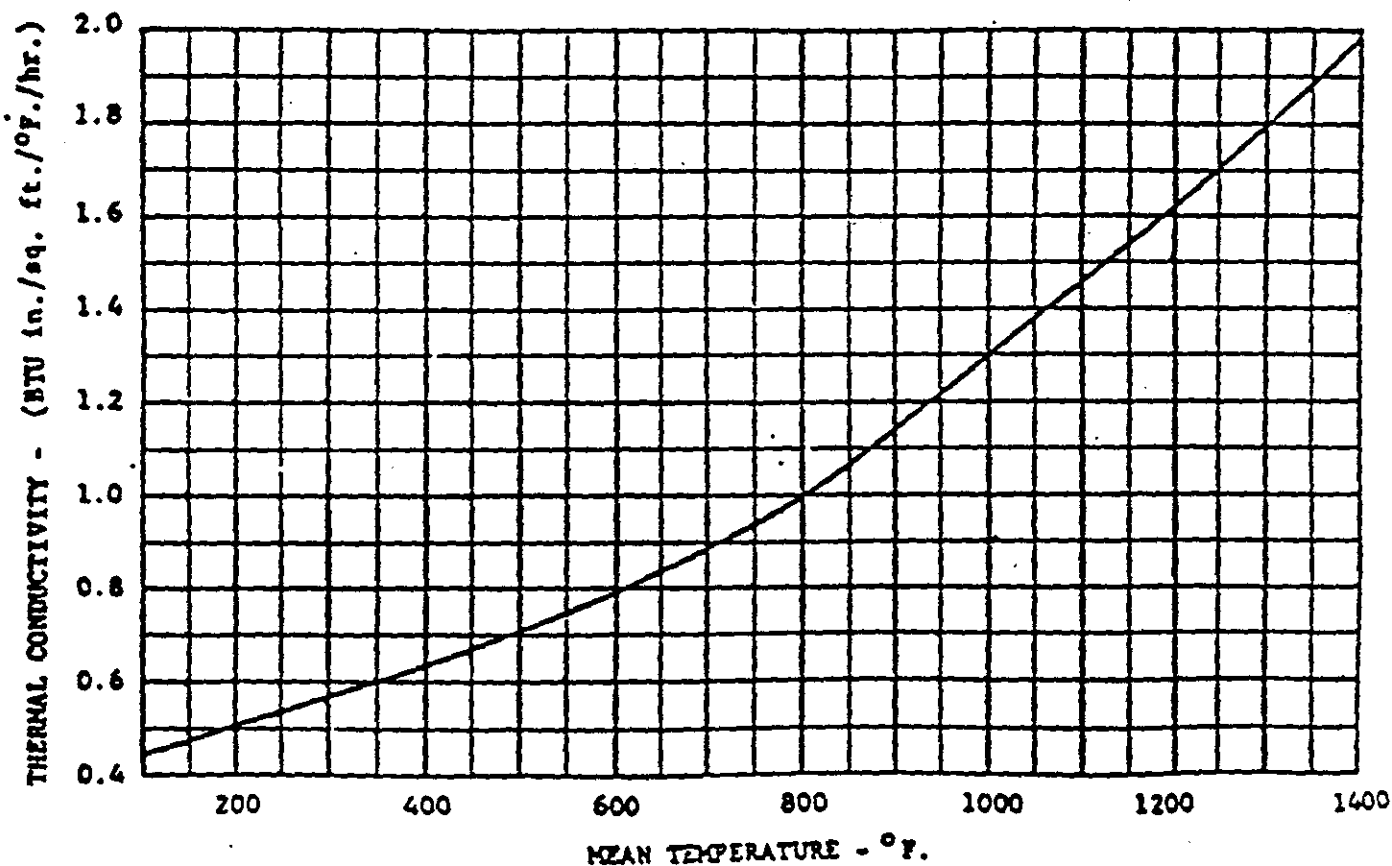
SUPER 711 Mineral Fiber Insulating Cement conforms to ASTM C-195-48; Federal Specification HH-C-168 (Class C); and/or Commercial Standard CS-117 of the U. S. Department of Commerce.

PHYSICAL PROPERTIES OF SUPER 711 INSULATING CEMENT

Service Temperature	1800°F.
Water Ratio	12 gals. per 50 lbs. bag
Dry Coverage	50 sq. ft. 1" thick per 100 lbs.
Material Requirements	2 lbs. per sq. ft. 1" thick
Compressive Strength	45 psi
Density (Applied and Dried)	24 lbs. per cubic foot
Shrinkage (Wet to Dry, by Volume)	15%
Thermal Conductivity	See Chart
Reclaimable to	1000°F.
Adhesion to Steel (Wet)	6 psi
Adhesion to Steel (Dry)	9 psi
Corrosion Resistance to Steel	Non-corrosive
Shipping Containers (Sewn Closure)	50 lb. paper bags

Tabulated values represent typical performance levels of SUPER 711 Insulating Cement - Trowel Grade. SUPER 711 Grade Cement consists of the same basic materials that smaller mineral wool nodules are utilized to facilitate application.

THERMAL CONDUCTIVITY OF SUPER 711 INSULATING CEMENT



Utility Thermal Finish Cement is composed of high quality mineral fiber, hydraulic binders, and other suitable materials. Utility combines the flexibility, high temperature resistance, and excellent insulating qualities of uniformly nodulated mineral fiber with the strength, low shrinkage, and smooth finish of hydraulic setting cement. The result is a quick setting, smooth finish, thermal resistant, single layer insulating finish cement. For temperatures up to 1200° F.

QUICK SETTING

Utility Insulating Finish Cement develops a smooth, durable, protective finish within a few hours after application and without the presence of heat. Subsequent drying produces no excessive surface cracking or shrinkage in thickness, and occasional wetting does no damage after hydraulic set. Long drying periods under normal conditions are eliminated. Saves time in applying weatherproofing paint, or other finishes. Jobs are easier to schedule; scaffolding costs are reduced.

ONE COAT APPLICATION

Utility is normally applied in a single layer application. A second layer is needed only when multiple layer thicknesses are specified. Utility is virtually an all-purpose insulating finish cement, designed primarily for use over Griptex block or blanket insulations. Utility is widely used for insulating valves, fittings, heated equipment, and as an anti-sweat insulation for cold water tanks, pumps, etc.

Utility trowels with a good key on block insulation, blanket insulation and insulating cement. It has good wet adhesion to clean steel surfaces, such as valves and fittings.

PLEASING APPEARANCE

Utility dries to a smooth, light reflectant surface which as an interior finish, requires no further treatment. Utility, however, is easily painted if desired. Outdoor applications should be weather protected. Low temperature applications require a vapor seal type finish.

EXCELLENT THERMAL QUALITIES

Utility has a "K" factor of .79 at 600° F. mean temperature. This excellent insulating value as compared to other finish cements is a very desirable advantage when figuring job and operating costs.

PHYSICAL PROPERTIES

Service Temperature	1200° F.
Water Ratio (Trowel Application)	7 gals. per 50 lb. bag
Dry Coverage (Trowel Application)	37 sq. ft. 1/2" thick per 50 lb. bag
Setting Time	2 to 4 hours average conditions.
Material Requirements (Trowel Application)	1.3 lbs. per sq. ft. 1/2" thick.
Compressive Strength (Air Cured)	135 psi.
Compressive Strength (@ 1200° F.)	105 psi.
Density (Applied and Dried)	35 lbs. per cubic foot.
Shrinkage (Wet to Dry)	Negligible.
"K" Factor at 600° F. Mean Temperature	.79 Btu.
Corrosion Resistance to Steel	Non-corrosive.
Surface Treatment	Easily painted or weatherproofed when required.
Shipping Containers (Sewn Closure)	50 lbs. paper bag.

MIXING

Utility Thermal Finish Cement should be mixed in a clean mortar box or mixer, using approximately 7 gallons of water per 50 lbs. bag for a good troweling consistency over most blocks, blankets, or insulating cements. Because of the hydraulic binder, Utility should not be mixed with water more than two hours in advance of its application. With cold mixing water (below 60° F.) it remains workable up to 4 hrs.

STORAGE

Store in a cool, dry location until ready to use.

Basically there are three types of asphalt mastics used in the insulation field. They are usually classified as water emulsion, solvent cutback, or chemical dispersion types. The thinning agent or dispersion chemical determines which basic classification will be given a particular product, and dictates the end use of the resultant product.

It is important to know which thinning agent is used to determine the useful qualities of a particularly blended asphalt mastic. The quality and/or type of basic asphalt determines the service temperature of the product involved.

WATER EMULSION ASPHALT MASTICS

The water emulsion type of asphalt weather coating such as Thermal Coat, is normally a blend of petroleum asphalt, asbestos fiber and Bentonite clay, emulsified in water.

Water emulsions are primarily used as a breathing mastic, i.e., if suitable pressure is built up beneath its surface, moisture present will pass through to the atmosphere. However, atmospheric pressure is normally not sufficient to pass moisture back through to the insulation, except, of course, on low temperature work. In this case, a vapor barrier type mastic such as Duriseal is essential.

Summer grade water emulsions, because of the water present, will freeze and should be protected at all times prior to and during application. Alcohol is usually added to Winter grade emulsions. The amount used determines the resistance to freezing of the resultant product. Water emulsions should always be stored and used at temperatures above freezing in any event. A water emulsion that has been frozen is useless and will "alligator" if applied.

Water emulsions usually are suitable only for trowel application and are used wherever a breathing mastic is required. Because they lack the adhesive qualities and resiliency of a cutback type mastic, they should be mechanically bonded to poultry netting except on extremely small surfaces. They should be used in conjunction with a cutback or dispersion type flashing compound. Water emulsions can only be repaired with such types of mastics since they do not bond to themselves. It is imperative that they be repaired as soon as possible if a break in the applied surface should occur to insure service life of the product.

Thermal Coat may be applied at temperatures up to 200°F. and will withstand a maximum temperature of 450°F. after drying.

CAUTION:

Water emulsions are soluble in water and should not be applied if there is a possibility of rain washing the product within twelve hours of the initial application time. Keep Winter Grade above 20°F.

CHEMICAL DISPERSION TYPE ASPHALT MASTICS

Chemical dispersion type asphalt mastics, such as PERMISEAL, incorporate a unique combination of the desirable qualities of the water emulsion and cutback types. They normally consist of petroleum asphalt dispersed in a non-flammable chemical with suitable fillers, blended in one consistency suitable for brush, trowel or spray applications. Containing non-flammable solvents, they are fire-safe for use around open flame, welding torches and similar hazardous job conditions. They have the breathing characteristic of a water emulsion for a period of sixty to ninety days after application. This controlled curing process prevents shrinkage of the surface film and permits trapped moisture to escape. The result is a flexible, blister free, vapor seal type coating of exceptional toughness. A good chemical dispersion product is not affected by freezing and resists most acids and alkalis. However, solubility in water is a factor, depending upon humidity conditions, for a period of eight to twelve hours or longer after application. The anodizing and rust inhibiting agents contained in PERMISEAL make this product excellent for metal protection purposes. PERMISEAL has a useful service temperature up to 300°F. and a maximum of 400°F.

CAUTION:

Dispersion type mastics should be treated the same as water emulsion types, in that they should not be applied if there is a danger of rain washing within eight to twelve hours of the application time. Under proper temperature and humidity conditions, PERMISEAL will be dry to touch in four hours or less.

WEATHER COATINGS AND SEALERS

CLASSIFICATION	WATER EMULSION	CHEMICAL DISPERSION
	THERMAL COAT	PERMISEAL
Application Method	Trowel	Brush-Trowel-Spray
Maximum Temperature	450° F.	400° F.
Application Temperature	40° F. to 200° F.	40° F. to 200° F.
Coverage - Wet	5-6 sq. ft., 1/4" thick/gal.	10 sq. ft., 1/4" thick/gal.
Coverage - Dried	5-6 sq. ft., 1/8" thick/gal.	10 sq. ft., 1/8" thick/gal.
Trowel or Flash Coat	1/4" thick wet	1/4" thick wet
Brush or Spray Coat	Trowel only	Brush or Spray two 1/8" thick wet coats reinforced as req'd.
Reinforcement when required	Poultry netting	Suitable fabric
General Use	Breather type weather coating	Weather coating and sealer for insulation, masonry steel, alum.
Adhesive Strength	Should be bonded to poultry netting	Excellent after curing on clean dry surface
Curing for Best Results	Avoid low temperature and high humidity conditions	Avoid low temperature and high humidity conditions
Flame Resistance	Non-flammable	Non-flammable
Freeze Resistance	Protect from freezing	Not affected
Corrosion Resistance	Not inhibited	Inhibited against rust and corrosion
Vapor Resistance	Will breathe	Will breathe during 2-3 month curing period, then becomes vapor-seal
Packaged	5 Gal. 50 Gal. Steel Container	5 gal. and 54 gal. (plastic liner) steel container
Shipping Weight	55 lbs. 550 lbs.	45 lbs. 480 lbs.

Type T-178, T-278

Duriseal Protective Coatings are special blends of mastics, combined with asbestos fiber and mineral fillers to provide an excellent sealing material. Applied over masonry settings, they dry slowly to form a black, fire-resistant, air-tight film that is impervious to water exposure, chemical attack and normal abrasion. Duriseal Coatings also are used in conjunction with Detrick Thermal Coat where a flexible flashing compound is required to seal joints around openings, as a caulking compound, and for low temperature stack linings to prevent corrosion.

STANDARD TEMPERATURE GRADES (To 400 F)

For surface temperatures that will not be operated in excess of 350-400°F the Standard Grades are recommended. Standard Type T-178 is made to a semi-viscous, troweling consistency.

HIGH TEMPERATURE GRADES (To 700 F)

When surface temperatures will exceed 400°F during operation, but not in excess of 700°F, Duriseal High Temperature Coatings should be used.

EASY TO APPLY

Duriseal Coatings may be applied over any cool, clean, dry surface, using suitable membrane between spray coats and for patching purposes. Where used, membrane should be lapped 4" at all joints or around patch applications. For ease of application, the best workable temperature range is 50°F to 100°F. Storage temperature should not exceed 100°F. Duriseal Protective Coatings require no thinning.

COVERAGE

Material requirements are estimated on wet coverage of approximately 5 to 6 square feet (1/4" thick) per gallon.

CONTAINERS

Duriseal Protective Coatings are shipped in 5 or 55 gallon steel containers.

CAUTION:

Surface during application should be above 100°F for indoor applications or 130°F for outdoor applications. Provide adequate ventilation and do not apply in vicinity of open flame, welding arcs, etc.

FOR FIREPROOFING STRUCTURAL STEEL

Pyroscat is a special formulation of high-temperature aggregates, asbestos fibers, hydraulic binder and other materials. These ingredients are factory blended to a uniform dry mixture that is ready for application after mixing with water at the job site. Pyroscat is adapted to application by spraying, casting and trowelling techniques, depending on job conditions.

USES:

Pyroscat provides a lightweight, fire-retardant protective treatment for structural steel columns, beams, tower skirts, LP gas tanks, and other exposed applications in refineries and chemical plants. Pyroscat sets up to a hard, durable sheath capable of withstanding for hours the 2000°F. flame temperatures and high-pressure water streams commonly encountered in industrial fires.

RECOMMENDED THICKNESSES:

Fire-retardant materials are customarily rated in Hours, based on a given thickness used and on the method of application. For example, fire ratings for steel columns represent the number of hours required for heat from a "standard fire" to penetrate the protective treatment as applied, and to increase the steel column temperature to a critical level (1200°F.) The thermal conductivity and heat capacity of a material are of some importance in an ASTM Fire Test. But the ability of the complete treatment to withstand thermal shock without destruction is one of the most significant factors in determining practical fire ratings in industrial installations.

The Pyroscat thicknesses recommended below were determined by physical tests on a series of sprayed, cast and trowelled applications. Tests included direct exposure to 100 psi hose pressure, both before and after subjecting the Pyroscat treatment to severe flame conditions.

THICKNESS OF PYROSCAT**APPROX. FIRE RESISTANCE RATING**

1"	2 Hours
1-3/4"	3 Hours (UL-R-3980)
2"	4 Hours

ADVANTAGES OF PYROSCAT

SAFER WHILE FIGHTING FIRES . . . Many concrete aggregates and common bricks used for fireproofing purposes will spall and shatter when they are heated and subjected to hose stream. Pyroscat remains virtually unaffected after direct flame exposure and saturation with a 200 psi hose stream.

LIGHTER WEIGHT . . . Pyroscat weighs less than 55 lbs./cu. ft. in place, compared to approximately 150 lbs./cu. ft. for conventional concrete fireproofing. Excess dead weight is eliminated. As usually sprayed or trowelled in a protective sheath, Pyroscat weighs about 1/10 as much as formed concrete - at equivalent thickness per running foot.

*A C-E trade name.

ADVANTAGES OF PYROSCAT (Continued)

SPRAY, CAST OR TROWEL . . . Pyroscat is specially formulated to permit installation by spray, trowel and casting techniques, depending on local job conditions. No other fireproofing material is as versatile from an application standpoint. Employs conventional supporting materials and placement. Only the one fireproofing material is required - no need for subsequent finishing layers nor heavy mastic coatings.

DURABLE AND WEATHER-RESISTANT . . . Pyroscat develops great strength from its selected high-temperature aggregates and hydraulic-setting binders. It withstands continued cycles of saturated freeze-and-thaw weathering tests.

SUMMARY OF PHYSICAL PROPERTIES

Coverage (Trowelled)	1.1 cu. ft./50 lb. bag
Material Required (Trowel Application)	45 lbs. per cu. ft.
Air-Cured Weight (After Hydration and Drying)	54.5 lbs. per cu. ft.
Compressive Strength - Air-Cured	1650 psi
Compressive Strength After Firing at 1500°F.	1.5%
Lineal Shrinkage - Air Cured	Less than 1%
Lineal Shrinkage After Firing at 1500°F.	1.5%
Density After Firing at 1500°F.	39.1 lbs. per cu. ft.
Fusion Temperature	2200 F
Thermal Conductivity (k) at 1000°F..Mean Temp.	1.50 Btu
Setting Time	4 to 6 hours
Mixing Water:	
For Spray & Trowel Consistency	3-1/2 Gal. water/50 lbs. bag
For Casting Consistency	5 Gal. water/50 lbs. bag

Curing:

Pyroscat is a cementitious material and should be kept moist during the curing period of 72 hours or longer.

BOILER WALL COATING CEMENT

ELIMINATES AIR INFILTRATION

PREVENTS HEAT LEAKAGE

SAVES FUEL

INCREASES BOILER EFFICIENCY

Air-Check Cement is an asphaltic-asbestos fibre mixture in plastic form for covering the outside of both fire brick and red brick boiler walls. It is also used for pointing up cracks in boiler walls. Its safe, effective limit of usefulness is 350°F.

Air-Check Cement is tough, rubbery, plastic, easy to apply. A 3/16" thick coat troweled over the surface, dries to a thickness of slightly more than 1/8". It remains semi-plastic even though in service for a number of years.

ALL PURPOSE PLASTIC INSULATION

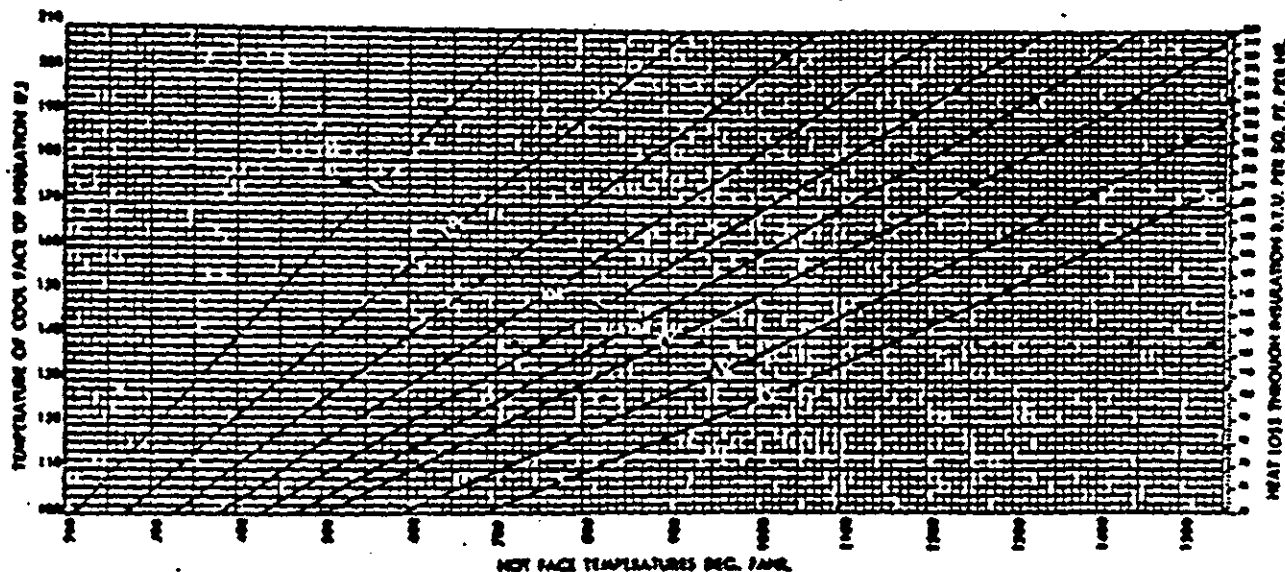
Stic-Tite and Super Stic-Tite plastic insulations are the most versatile insulating materials known. Mixed with water, right on the job, they adhere to any clean surface—and stay on—at all temperatures to 1800° F. They are light, strong and unusually durable.

Both Stic-Tites are a powerful barrier against heat loss. Composed of a special mixture of mineral wool and diatomaceous earth, the applied and dried material forms a spongy mass of billions of dead air cells, uniform in size and well isolated from each other. This stops air infiltration and resultant heat transmission.

HOW TO SELECT THE RIGHT THICKNESS

Estimate the operating temperature of your installation, (hot face). Follow the hot face temperature (bottom of chart) vertically until it intersects the line connecting the cool face (left hand column) or B.T.U. loss (right hand column). Use the amount of Stic-Tite indicated on the curve nearest the point of intersection.

For example, assume operating temperature is 825° F. and a cool face of 139° or 126 B.T.U. loss is desired. Follow the 825° line vertically until it intersects the horizontal 139° and 126 B.T.U. loss lines. The intersection is nearest the 3-1/2" Stic-Tite curve. Therefore, 3-1/2" of Stic-Tite should be used. At the same operating temperature if a cool face of 124° or B.T.U. loss of 96 is desired, the intersection would be nearest the 5" Stic-Tite curve. Therefore, 5" of Stic-Tite should be used.



WHERE STIC-TITE IS USED

Air heaters	Elbows	Hot air lines	Steam pumps
Burner casings	Flanges	Hot piping	Tanks
Boiler, front, side and rear walls	Feed water heaters	Hot water heaters	Tube doors
Breechings	Furnace and Oven; walls, floors, roofs	Kettles	Uptakes
Cookers	Gas generators	Reaction vessels	Valves and fittings
Drum heads	Hot air ducts	Regenerator faces	All irregular surfaces
		Steam heaters	

CAN BE USED ON ALL SURFACES

Stic-Tite adheres strongly and permanently to metal (special inhibitors help prevent rusting of metal surface), tile, brick, insulating block and blankets or other clean surfaces, hot or cold. It can be used in difficult places where other types of insulation are unsuitable—on intricate piping, on elbows and flanges, on slanting vertical or curved surfaces and rounded corners. Stic-Tite provides a monolithic, seamless, jointless covering which can be troweled perfectly smooth for appearance.

EXCELLENT ADHESION—REALLY "STAYS ON"

Stic-Tite adheres permanently without lifting off or shaking loose even when subjected to severe vibration, abrasion or impact.

STOPS HEAT LOSS

The spongy mass of dead air cells checks air infiltration—prevents heat loss. Since dry Stic-Tite does not shrink or form cracks, the high insulating efficiency is never impaired.

EASY TO APPLY

Stic-Tite, mixed with the proper amount of water, forms an easily workable, plastic mass which can be troweled or safely applied with the bare hands. The usual practice is to apply first a roughing coat over the area to be covered, then trowel smooth around joints, over the surface and elbows, curves, etc.

LARGE COVERAGE

Since Stic-Tite dries with practically no shrinkage (an inch of Stic-Tite applied wet remains practically an inch thick when dry), less is required to provide sufficient insulating thickness. Mixed and applied as directed, 100 lbs. of the material cover 45 sq. ft. with a 1" thick layer.

CAN BE REUSED

If used at temperatures below 900°F., old Stic-Tite can be removed from equipment, crushed, mixed with clean water and reapplied like new Stic-Tite. This makes equipment repairs less costly since the insulation can be saved. Reclaimed Stic-Tite is equal to the new product in insulating efficiency, adhesion and plasticity.

SAVES LABOR AND MATERIALS

Stic-Tite is so easy to apply on all types of regular and irregular surfaces and over other insulations that labor cost is very low. Skilled men are not needed. Since Stic-Tite adheres so strongly, reinforcing wires and other supports are unnecessary when used up to 1-1/2" thick.

CONVENIENT PACKING

Stic-Tite is shipped dry in heavy, lined, dustless paper bags containing 25 lbs. and 50 lbs. each. It does not deteriorate in dry storage—can be kept indefinitely if dampness or wet places are avoided.

HOW TO APPLY

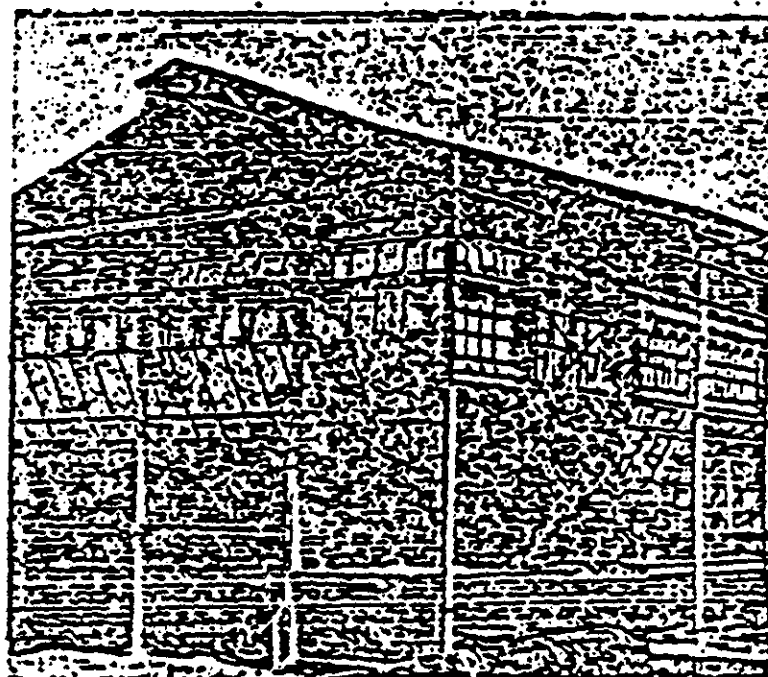
1. Each 50# bag should be mixed with 12 gallons (100 lbs.) of fresh water.
2. After thoroughly mixing, Stic-Tite can be applied immediately, but better results can be obtained by allowing it to soak for at least a half hour or longer.
3. All surfaces to be covered should be free of paint, dust, dirt and grease.
4. Roughing coats can be applied by hand or trowel or combination of hand and trowel.
5. If hot surfaces are to be insulated with Stic-Tite, the material should be spotted in place with a trowel and dragged down to a feather edge. The spotted material will dry quickly and then a rough coat about 1" thick can be applied over and between the spots.
6. On cold surfaces for covering up to 1-1/2" thick, after being mixed according to directions on the bag, Stic-Tite should be applied by spreading it over the surface to as even a thickness as possible. After the rough coat has dried out, a finish coat up to 1/2" thick can be applied over the rough surface and finished with a trowel to a smooth, attractive finish. Stic-Tite can be used up to 1-1/2" thick without reinforcing.
7. For covering over 1-1/2" thick, apply a rough coat about 1" thick. When rough coat is dry apply another 1" coat and continue until desired thickness is obtained. Each coat should be dried before additional coats are applied. Prior to application of finish coat, we recommend reinforcing with #20 gauge 2" mesh chicken wire.
8. Finish coats should be applied from 1/4" to 1/2" thick, troweled to a smooth, hard finish. Where desired, Stic-Tite finish can be painted. Best results are obtained by painting with a glue sizing and paint over this.
9. If more Stic-Tite is mixed than can be used, the left over material can be laid aside and remixed with water at a later date when it is required.

Water Ratio (Trowel Application)
 Dry Coverage (Trowel Application)
 Setting Time
 Material Requirements (Trowel Application)
 Compressive Strength (Air Cured)
 Compressive Strength (@1200°F)
 Abrasion Factor (Air Cured)
 Density (Applied and Dried)
 Shrinkage (Wet to Dry)
 "K" Factor at 600°F. Mean Temperature
 Corrosion Resistance to Steel
 Surface Treatment
 Shipping Containers (Sewn Closure)

1200°F.
 7 gals. per 50 lb. bag.
 37 sq. ft. 1/2" thick per 50 lb. bag
 2 to 4 hrs. average conditions.
 1.3 lbs. per sq. ft. 1/2" thick.
 135 psi.
 105 psi.
 98 seconds (MHD Method 102).
 35 lbs. per cubic foot.
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 Easily painted or weatherproofed
 when required.
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Utility Gunned on Balloon Flue.

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REFRACTORY & INSULATION CORPORATION

625 ILLINOIS AVE.
 AURORA, ILLINOIS

PORT KENNEDY
 PENNSYLVANIA



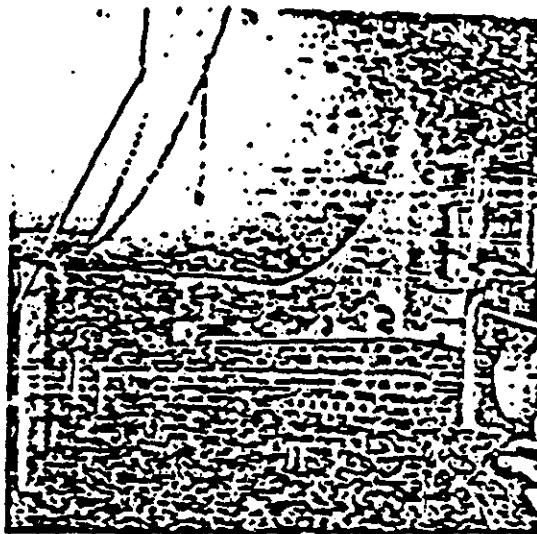
REFRACTORY & INSULATION CORPORATION

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REFRACTORY & INSULATION CORPORATION

SUPER 711 INSULATING CEMENT

Trowel or Gun Grade

TECHN. AL DATA

SUPER 711 Insulating Cement is a mixture of high temperature mineral fibers specially processed into resilient wool nodules, combined with asbestos and suitable binders to form a high temperature plastic insulation. Water added according to directions gives a trowelable consistency that is ready for application on equipment to be operated at temperatures up to 1800°F.

WIDE USAGE

SUPER 711 is a versatile material for many types of insulation requirements. Applied over block or blanket insulations, it fills open joints and provides a monolithic surface for whatever type of subsequent finish is specified. Its plastic flexibility permits application directly to regular or curved surfaces -- such as valves, fittings, tanks and vessels.



EASY TO APPLY

SUPER 711 has excellent adhesive qualities. Its increased stickability means a better job in less time, from wet to dry. Will not slip or roll under trowel application and may be easily gun applied. This superior workability is a result of fine mineral nodules, special manufacturing methods and quality control.

MAXIMUM COVERAGE - LOW SHRINKAGE

SUPER 711 Insulating Cement assures maximum coverage and low shrinkage. The resilient nodules of mineral fiber do not collapse when mixed with water. See table of Physical Properties for coverage.

RECOMMENDED USES

BOILERS

Drums
Headers
Walls
Economizers
Air Preheaters

OVENS, KILNS & DRYERS
VALVES & FITTINGS
TANKS & VESSELS

FURNACES

Heating
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Normalizing

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May, 1964

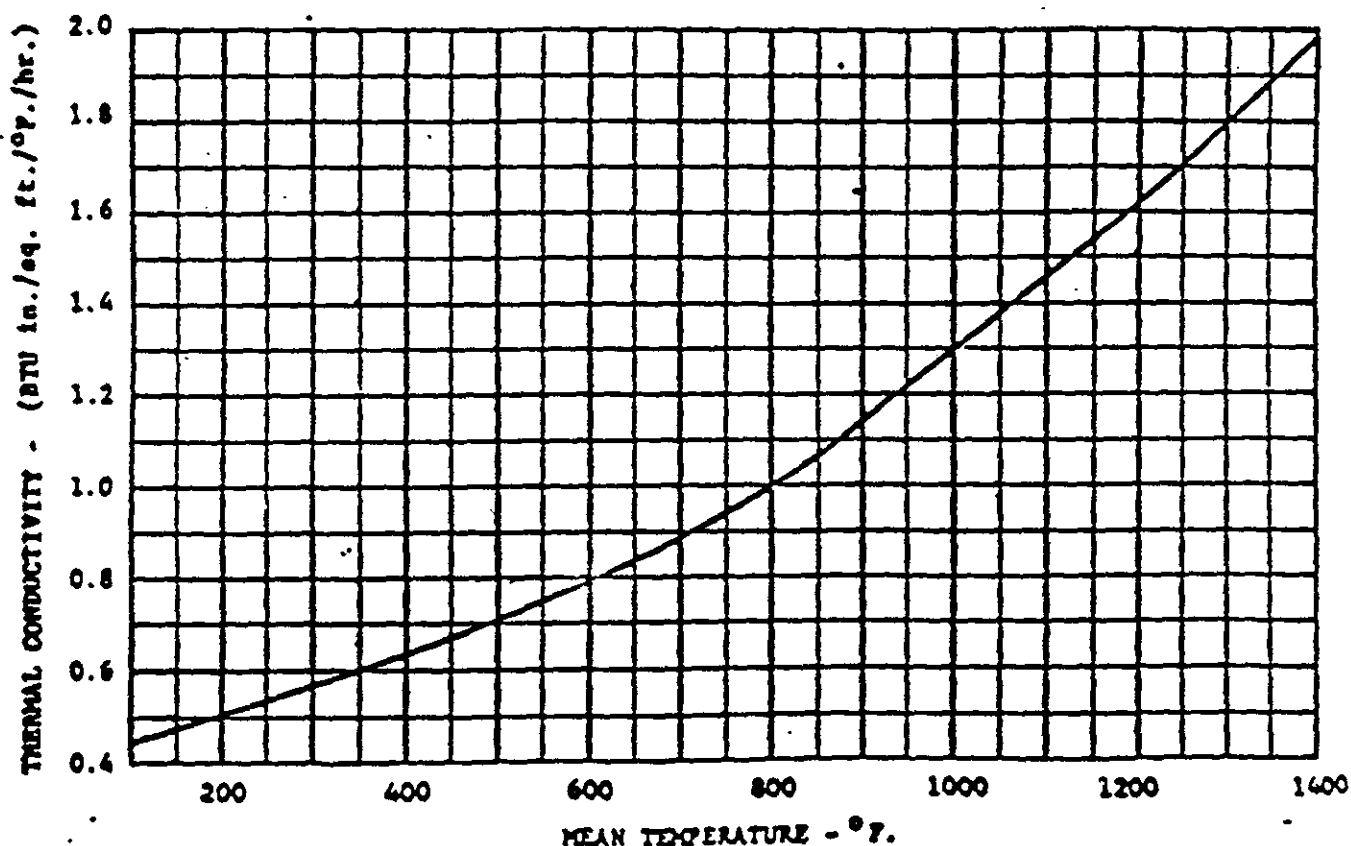
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Corrosion Resistance to Steel	Non-corrosive
Shipping Containers (Sewn Closure)	50 lb. paper bags

Tabulated values represent typical performance levels of SUPER 711 Insulating Cement - Trowel Grade. SUPER 711 "Gun" Grade Cement consists of the same basic materials that smaller mineral wool nodules are utilized to facilitate application.

THERMAL CONDUCTIVITY OF SUPER 711 INSULATING CEMENT



REFRACTORY & INSULATION CORPORATION
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 AURORA, ILLINOIS

PORT KENNEDY
PENNSYLVANIA

**REFRACTORY & INSULATION CORPORATION****PYROSCAT FIREPROOFING CEMENT***Application Details for Steel Columns and Beams***A. Surface Preparation**

1. Remove dirt, scale or loose paint from the surface to be treated, then apply rust preventative paint or coating when specified.
2. For trowel applications to columns and beams, form 3/8" rib lath (or paper-backed lath) to box-in the member. Apply rib lath with ribs turned in and spanned from flange to flange. On members 14" and larger, first weld 1/4" rods across the flanges approximately 12" to 18" on centers to provide additional support for the lath. Secure the lath in place with wire or bands. For gun application, use 2 x 2 #16 paper-backed lath such as Steeltex.
 - a) Provide 2" firestops on columns at 8' to 12' intervals (or as otherwise specified). Form the metal lath into a horizontal shelf extending to and supported at the web. Apply Pyroscat 2" thick in the opening. Provide similar stops at the top elevation of the fireproofing.
 - b) Plasterer's corner bead may be wired to the metal lath, forming and supporting it to attain the total Pyroscat thickness specified. Corner bead shall be of the type having open-mesh legs to facilitate complete filling of the corners. The corner bead may be spaced the proper distance from the flanges by means of corner clips, rods, studs; or Pyroscat may be spotted-in to space the corner bead at specified fireproofing thickness.

B. Application of Pyroscat

1. Mix Pyroscat to recommended consistency with clean, fresh water, before application. Refer to mixing instructions on the bag and use no more water than called for. Mix Pyroscat to a homogeneous plastic mass; avoid over-mixing, particularly with mechanical mixers.
 - a) Apply Pyroscat well into the metal lath, installing approximately 1/2 the total thickness in the scratch coat. Leave the first coat rough or scratch the surface.
 - b) On the underside of beams, the application may be in three coats. Apply a thin scratch coat first to improve adhesion.
 - c) If corner bead was not applied previously, wire it in place when the scratch coat has set.
2. Let the scratch coat harden until well set (4 to 6 hours or longer), then double-back with the finish coat. Apply it flush with the corner bead. Sponge-float the surface to a textured finish or as otherwise specified.
 - a) When application of the finish coat is deferred over night or longer, wet down the scratch coat thoroughly before proceeding with the finish coat.

C. Curing Pyroscat

1. Pyroscat is a cementitious material; to develop its strength, keep it moist for 72 hours or longer. Depending on atmospheric conditions when applied, the required water retention may be accomplished with wet burlap, periodic water spray or a hydrostatic (resin-base) sealer.
2. Following the curing period and when visual moisture has dried, apply a suitable flashing material at all intersecting joints and exposed ends of members treated (Duriseal T-178 Coating).
3. Pyroscat may be painted with (1) masonry paint, (2) two coats of asphalt-base aluminum paint, or (3) other finishes as specified for operating conditions involved. (Note: When conventional masonry paint of the hydrating-type is used, wet down the Pyroscat before painting to insure proper hydration).

ALTERNATES FOR TOWER SKIRTS (VERTICAL)

- A-2 Attach a layer of 1" x 1" square mesh reinforcing, positioned 1" away from the skirt, i. e., at the approximate center of the fireproofing thickness specified.
- a) Trowel or gun Pyroscat solidly through openings in the square mesh, bringing the scratch coat out approximately 1" thick. Start at the bottom of the skirt and work upward. Leave the surface rough, or scratch it when trowel applied.
 - b) Screed strips may be attached temporarily over the square mesh reinforcing, to accurately gauge the thickness of the second layer.
 - c) When fireproofing is applied to skirts of heated vessels while they are in operation, heat conducted to the skirt may prematurely dry the initial layer of Pyroscat. Wet the first coat thoroughly, particularly at the top, before applying the final layer.

ALTERNATES FOR HORIZONTAL TANKS

- A-2 Bolster bars are preferred for anchorage of the reinforcing mesh. The bolster bar selected would have legs extending from the tank surface approximately one-half of the total thickness of Pyroscat to be applied. Form the bolster bars to fit the tank curvature, then weld or wire in place circumferentially approximately 3' on centers. Wire the reinforcing mesh to the bolster bars.
- C-3 When tanks so fireproofed are to be operated below ambient temperature, suitable vapor-sealing treatment is recommended after the Pyroscat has been cured, dried and flashed.

REFRACTORY & INSULATION CORPORATION

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PYROSCAT

For Fireproofing Structural Steel

Pyroscat is a special formulation of high-temperature aggregates, asbestos fibers, hydraulic binder and other materials. These ingredients are factory blended to a uniform dry mixture that is ready for application after mixing with water at the job site. Pyroscat is adapted to application by spraying, casting and trowelling techniques, depending on job conditions.

USES:

Pyroscat provides a lightweight, fire-retardent protective treatment for structural steel columns, beams, tower skirts, LP gas tanks, and other exposed applications in refineries and chemical plants. Pyroscat sets up to a hard, durable sheath capable of withstanding for hours the 2000°F. flame temperatures and high-pressure water streams commonly encountered in industrial fires.

RECOMMENDED THICKNESSES:

Fire-retardent materials are customarily rated in Hours, based on a given thickness used and on the method of application. For example, fire ratings for steel columns represent the number of hours required for heat from a "standard fire" to penetrate the protective treatment as applied, and to increase the steel column temperature to a critical level (1200°F). The thermal conductivity and heat capacity of a material are of some importance in an ASTM Fire Test. But the ability of the complete treatment to withstand thermal shock without destruction is one of the most significant factors in determining practical fire ratings in industrial installations.

The Pyroscat thicknesses recommended below were determined by physical tests on a series of sprayed, cast and trowelled applications. Tests included direct exposure to 100 psi hose pressure, both before and after subjecting the Pyroscat treatment to severe flame conditions.

Thickness of Pyroscat

1"
1-3/4"
2"

Approx. Fire Resistance Rating

2 Hours
3 Hours - (UL-R-3960)
4 Hours

ADVANTAGES OF PYROSCAT

Safer While Fighting Fires.... Many concrete aggregates and common bricks used for fireproofing purposes will spall and shatter when they are heated and subjected to a hose stream. Pyroscat remains virtually unaffected after direct flame exposure and saturation with a 100 psi hose stream.

May, 1964

FOR
PEN

*An R & I trade name.

38a.

ADVANTAGES OF PYROSCAT (Continued)

Lighter Weight... Pyroscat weighs less than 55 lbs./cu. ft. in place, compared to approximately 150 lbs./cu. ft. for conventional concrete fireproofing. Excess dead weight is eliminated. As usually sprayed or trowelled in a protective sheath, Pyroscat weighs about 1/10 as much as formed concrete - at equivalent thickness per running foot.

Spray, Cast or Trowel.... Pyroscat is specially formulated to permit installation by spray, trowel and casting techniques, depending on local job conditions. No other fireproofing material is as versatile from an application standpoint. Employs conventional supporting materials and placement. Only the one fireproofing material is required - no need for subsequent finishing layers nor heavy mastic coatings.

Durable and Weather-Resistant... Pyroscat develops great strength from its selected high-temperature aggregates and hydraulic-setting binders. It withstands continued cycles of saturated freeze-and-thaw weathering tests.

SUMMARY OF PHYSICAL PROPERTIES:

Coverage (Trowelled)	1.1 cu. ft./50 lb. bag
Material Required (Trowel Application)	45 lbs. per cu. ft.
Air-Cured Weight (After Hydration and Drying)	54.5 lbs. per cu. ft.
Compressive Strength - Air-Cured	1650 psi
Compressive Strength After Firing at 1500°F.	1.5%
Lineal Shrinkage - Air Cured	Less than 1%
Lineal Shrinkage After Firing at 1500°F.	1.5%
Density After Firing at 1500°F.	49.1 lbs. per cu. ft.
Fusion Temperature	2200 F
Thermal Conductivity (k) at 1000°F. Mean Temp.	1.50 Btu
Setting Time	4 to 6 hours
Mixing Water:	
For Spray & Trowel Consistency	3-1/2 Gal. water/50 lb. bag
For Casting Consistency	3 Gal. water/50 lb. bag

Curing:

Pyroscat is a cementitious material and should be kept moist during the curing period of 72 hours or longer.

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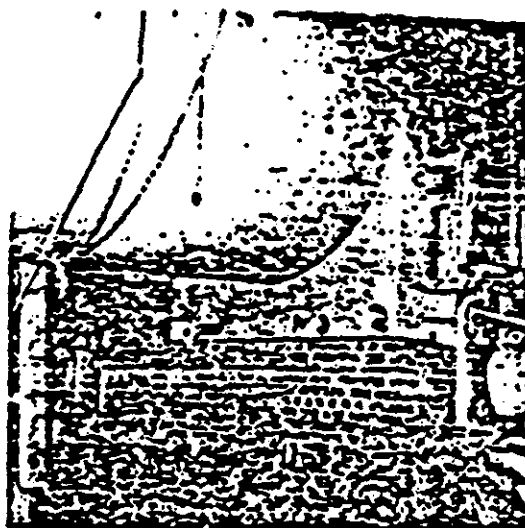
REFRACTORY & INSULATION CORPORATION

UTILITY THERMAL FINISH CEMENT

Utility Thermal Finish Cement is composed of high quality mineral fiber, hydraulic binders, and other suitable materials. Utility combines the flexibility, high temperature resistance, and excellent insulating qualities of uniformly nodulated mineral fiber with the strength, low shrinkage, and smooth finish of hydraulic setting cement. The result is a quick setting, smooth finish, thermal resistant, single layer insulating finish cement. For temperatures up to 1200°F.

QUICK SETTING

Utility Insulating Finish Cement develops a smooth, durable, protective finish within a few hours after application and without the presence of heat. Subsequent drying produces no excessive surface cracking or shrinkage in thickness, and occasional wetting does no damage after hydraulic set. Long drying periods under normal conditions are eliminated. Saves time in applying weatherproofing, paint, or other finishes. Jobs are easier to schedule; scaffolding costs are reduced.



ONE COAT APPLICATION

Utility is normally applied in a single layer application. A second layer is needed only when multiple layer thicknesses are specified. Utility is virtually an all-purpose insulating finish cement, designed primarily for use over Griptex block or blanket insulations. Utility is widely used for insulating valves, fittings, heated equipment, and as an anti-sweat insulation for cold water tanks, pumps, etc.

Utility trowels with a good key on block insulation, blanket insulation and insulating cement. It has good wet adhesion to clean steel surfaces, such as valves and fittings.

PLEASING APPEARANCE

Utility dries to a smooth, light reflectant surface which as an interior finish, requires no further treatment. Utility, however, is easily painted if desired. Outdoor applications should be weather protected. Low temperature applications require a vapor seal type finish.

EXCELLENT THERMAL QUALITIES

Utility has a "K" factor of .79 at 600°F. mean temperature. This excellent insulating value as compared to other finish cements is a very desirable advantage when figuring job and operating costs.

May, 1964

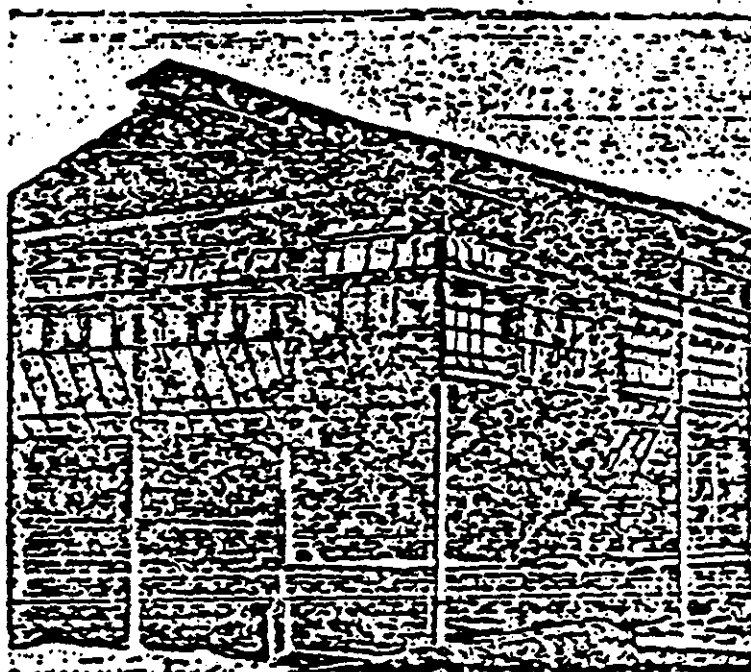
JOHN KENNEDY
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PHYSICAL PROPERTIES

Service Temperature	1200°F.
Water Ratio (Trowel Application)	7 gals. per 50 lb. bag.
Dry Coverage (Trowel Application)	37 sq. ft. 1/2" thick per 50 lb. bag
Setting Time	2 to 4 hrs. average conditions.
Material Requirements (Trowel Application)	1.3 lbs. per sq. ft. 1/2" thick.
Compressive Strength (Air Cured)	135 psi.
Compressive Strength (@1200°F.)	105 psi.
Abrasion Factor (Air Cured)	98 seconds (MHD Method 102).
Density (Applied and Dried)	35 lbs. per cubic foot.
Shrinkage (Wet to Dry)	Negligible.
"K" Factor at 600°F. Mean Temperature	.79 Btu.
Corrosion Resistance to Steel	Non-corrosive.
Surface Treatment	Easily painted or weatherproofed when required.
Shipping Containers (Sewn Closure)	50 lb. paper bag.

MIXING

Utility Thermal Finish Cement should be mixed in a clean mortar box or mixer, using approximately 7 gallons of water per 50 lb. bag for a good troweling consistency over most blocks, blankets, or insulating cements. Because of the hydraulic binder, Utility should not be mixed with water more than two hours in advance of its application. With cold mixing water (below 60°F), it remains workable up to 4 hrs.



Utility Gunned on Balloon Flue.

STORAGE

Store in a cool, dry location until ready to use.

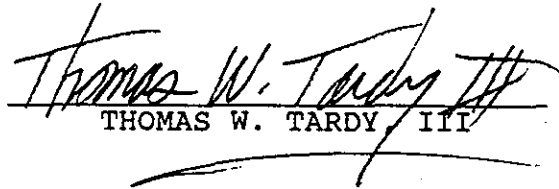
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PENNSYLVANIA**

CERTIFICATE OF SERVICE

I, the undersigned attorney for Third-Party Defendant Combustion Engineering, Inc., do hereby certify that I have this day mailed, by United States mail, postage prepaid, a true and correct copy of the above and foregoing Combustion Engineering, Inc.'s Responses to Third-Party Plaintiffs and Cross-Claimants' Interrogatories, Requests for Admissions and Request for Production to all counsel of record.

THIS, the 14th day of August, 1992.


THOMAS W. TARDY III