PLAINTIFF'S EXHIBIT
DUP-398

FIBERBOARD WITH THE ENDS OF THE PANEL PARALLEL TO THE NAIL CHANNELS. THE BATTEN BOARD SHALL BE INSTALLED OVER THE JOINTS IN THE FIBERBOARD SPACING THE NAILS 8" ON CENTERS ON THE LONG SIDE AND 2 FT. ON CENTERS ON THE SHORT SIDE. THE BATTEN BOARD SHALL ALSO BE INSTALLED AROUND THE PERIMETER OF THE CEILING. THE CEILING SYSTEM SHALL BE ARRANGED TO SUPPORT SURFACE MOUNTED LIGHTS. LIGHTS SHALL BE INSTALLED BY OTHERS.

DU

E. I. DU PONT DE NEMOURS AND COMPANY, INC.

Wilmington, Delaware 19898

ENGINEERING DEPARTMENT

THERMAL INSULATION
SPECIFICATION

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APPROVED: J H Hunter DESIGN PROJECT MANAGER DATE: 5/5/71

APPROVED: L L Hurst SECTION SUPERVISOR FOR POWER DATE: 5/5/71

A O McAlister INSULATION ENGINEER C&D SECTION DATE: 5/5/71

Beaumont
Project 7263

Spec.: 5959
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# THERMAL INSULATION SPECIFICATION

Beaumont
Project 7263

A. Contents of Specification, along with applicable Du Pont Standard Engineering Application Specifications, covers requirements for installing insulation on pipe and equipment.

B. The letter(s) or numbers inside the diamond shaped block on drawings, adjacent to pipe or equipment, determine the specification and the application instructions.





C. THICKNESS INDICES
PIPE & EQUIPMENT

Temp. Range
140°F. to 1200°F.

THERMAL INSULATION

ISSUED

REVISED

TABLE V-2

The insulation thickness indices are maximums and are based on maximum surface temperature of 140°F. for the insulation finish.

One inch of Glass Fiber, Codes 112, 112.6 or 206, may be used for Thickness Indices 60 to 76.

| Thickness Index | Nominal Thickness | Pipe Size 1/2 | 1 | 1½ | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | Flat Surf. | Application Pipe | Application Flat |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D21 | 96 | 95 | 89 | 88 | 84 | 81 | 78 | | | | | | | | | 79 | (1) | (2 |
| 1½ | | 121 | 116 | 106 | 106 | 101 | 99 | 97 | 94 | 94 | 93 | 90 | 88 | 88 | 88 | 87 | 91 | | |
| 2 | | 146 | 138 | 138 | 124 | 118 | 113 | 109 | 107 | 106 | 104 | 101 | 100 | 99 | 98 | 98 | 102 | | |
| 2½ | | 165 | 158 | 155 | 141 | 133 | 128 | 122 | 121 | 118 | 116 | 112 | 111 | 110 | 108 | 108 | 112 | | |
| 3 | | | 165 | 165 | 158 | 147 | 144 | 135 | 134 | 130 | 128 | 123 | 122 | 121 | 120 | 118 | 122 | | |
| 3½ | | | | | 165 | 165 | 157 | 149 | 146 | 141 | 139 | 134 | 133 | 132 | 130 | 127 | 132 | | |
| 4 | | | | | | | 165 | 163 | 158 | 150 | 150 | 143 | 142 | 141 | 141 | 136 | 142 | | |
| 4½ | | | | | | | | 165 | 165 | 161 | 160 | 153 | 152 | 150 | 150 | 146 | 150 | | |
| 5 | | | | | | | | | | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | | |

EXAMPLE:

1. Given: 12" pipe, insulation "Thickness Index" 10
2. Look under column for 12" pipe and find:
   for Codes 102 and 106, 10 does not appear in table.
   Next higher "Thickness Index" 15 use 2-1/2"

**Application Specifications**

(1) SW180A
(2) SW185A



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D. Application Instructions.

(3) Tables for materials, insulation thickness and application references.

| Item | Pipe | Equipment |
|---|---|---|
| Application Specification | SN180A | SN185A |
| Finish System No.(s) | | |
| a. Cylindrical portion — | 2 | 2 |
| Fasten with stainless bands and clips, Code 926 | | |
| b. Fitting | 6 or 8 | |
| c. Equipment heads | | 6 or 20 |

Jaxsan 600 may be substituted for the fibrated asphalt emulsion, Code 706. Reinforcing is required for Jaxsan 600, manufactured by Plastic Coatings Corp., Charleston, W. Va. 25304, Phone: 925-3502





E. Material Symbol

1. The description and use of Material Symbol are as follows: Use a Material Symbol for all installations that fulfill following description.

| Material Symbol | Description |
|---|---|
| A | Austenitic Stainless Steel Pipe & Equipment calcium silicate-inhibited, Code 10Z.1 shall be used to insulate all austenitic stainless steel and all rules in SN 180A and SN 185A in regards to austenitic steel shall be adhered to. |
| S | Safety only |

2. The Material Symbol shall be placed in a diamond-shaped block to the right of diamond-shaped block of the "Thickness Index".

3. An example would be:




4. Please note that Symbol "S" has been included in above tabulation and identified as "Safety Only". This identifies those pipe lines that are normally not insulated but require limited insulation for protection of personnel because of their location. (Hot drain lines and steam trap discharge lines in walking area, etc.). Lines identified thus are to be insulated only to the extent necessary for personnel protection. Normally, insulation is 7 ft above floor or walking area.. Lines or equipment so identified thus are to be insulated only to the extent necessary for personnel protection.

5. The material symbol will not be used when the item being insulated is not austenitic stainless steel.



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F. Approved Materials

| Item | Code | Name | Approved Vendors |
|---|---|---|---|
| 1. | 102.1 | Calcium Silicate-inhibited | a. Thermasil, Ind. Insul. Div., Keene Corporation<br>b. Silicated Thermobestos Johns-Manville Sales Corp.<br>c. Kaylo STS, Owens-Corning Corp.<br>d. Calsilite SS, GAF Corp.<br>e. Super Caltemp, Fibers and Paper Products |
| 2. | 502.1 | Insulating and Finishing Cement | a. Eagle-Picher One-Cote, Eagle Picher Sales Co.<br>b. No. 301, Johns-Manville Sales Corporation<br>c. Super Powerhouse Cement |
| 3. | 706 | Fibrated Asphalt Emulsion | a. HI Mastic No. 90-07 Benjamin Foster Co.<br>b. Thermotex BX Philip Carey Mfg. Co.<br>c. Thermal Kote Flintkote Co.<br>d. Insulmatic Armstrong C&S Corp. |
| 4. | 709 | Fibrated Asphalt Cutback | a. C.I. Mastic 60-26, Benjamin Foster Company<br>b. Nokorode Seal-Kote, Lion Oil Company<br>c. Weatherproof Plastic A C & S, Inc. |
| 5. | 710 | Glass Cloth | a. Style 1659/Geon, J. P. Stevens<br>b. Sealfas Open Weave Glass Cloth, Benjamin Foster Company<br>c. Type 209 10 x 10, Permo Glas-Mesh |





F. Approved Materials (Cont'd)

| Item | Code | Name | Approved Vendors |
|---|---|---|---|
| 6. | 712 | Finish Cement | a. 352, Johns-Manville Sales Corp.<br>b. 7M Cement, Ind. Insul Div., Keene Corporation |
| 7. | 716 | Smooth Aluminum Jacket | a. .061" thick smooth aluminum with 0.003" thick polyethylene and 50 lb. kraft paper by Preformed Metal Products Co. |
| [illegible] | 734 | PVA Mastic | Sealfas GPM 35-00<br>Benjamin Foster Company<br>Alternate Material - Jaxsan 600<br>Plastic Coatings Corp., Charleston, [illegible] Va. 25304 Phone: 925-3502 |
| [illegible] | [illegible] | [illegible] | [illegible] Silicate, Technical [illegible], I&B Dept.<br>[illegible] |
| [illegible] | [illegible] | [illegible] | [illegible]<br>[illegible]<br>[illegible]<br>[illegible]<br>d. [illegible] |

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F. Approved Materials (Cont'd)

| Item | Code | Name | Approved Vendors |
|---|---|---|---|
| 11. | 806 | Asphaltic Sealer | a. Flextra Sealant 90-116, Benjamin Foster Co.<br>b. Pan Seal No. 10 B&B Engg. and Supply Co.<br>c. Butter Asphalts - 100 and -95, Lion Oil Co. |
| 12. | 807 | Nonsetting Sealer and Flushing Compound | a. Elastolar (95-44 or 95-49) by Benjamin Foster Co. |

13. Soft annealed stainless steel wire and bands, Type 430 Min. 16% chrome preferred, Type 304 acceptable

| | Code | Description |
|---|---|---|
| a. | 921 | 18 gauge wire |
| b. | 922 | 15 gauge wire |
| c. | 926 | 3/8" x 0.015" bands and seals - pipe |
| d. | 927 | 3/4" x 0.015" bands and seals - equip. |

J. Reference Standard Engineering Specifications

| Item | Appl. Std. | Title |
|---|---|---|
| 1. | SN180A | Insulation Systems for Hot Pipe, 140 to 1200°F |
| 2. | SN185A | Insulation Systems for Hot Equipment, 140 to 1200°F |
| 3. | SN213P | Flange Covers |



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