OUTLINE
REVOLVING CREDIT
AGREEMENT DTD 6/1/84

Borrower: GAF Corporation

Facility: $100,000,000 Unsecured Revolving Credit

Expiration Date: 12/31/86

Purpose: Working Capital

Rate: MHTCo. Prime or LIBOR* + 3/4%
*2, 3 or 6 months (Reg D costs to be included in rate and are for account of borrower)

Post Default Rate: MHTCo. Prime + 2%

Commitment Fee: 1/2% p.a.

Facility Fee: 1/2% p.a.

Participants:	MHTCO. (Agent)	$ 25,000,000	25%
	Morgan	15,000,000	15%
	Irving	15,000,000	15%
	Chase	10,000,000	10%
	Continental Illinois	10,000,000	10%
	CBT	10,000,000	10%
	Security Pacific	10,000,000	10%
	Centerre	5,000,000	5%
	TOTALS:	$100,000,000	100%

Reference Banks for LIBOR: MHT, Chase, Morgan

Computation Basis:

1. Prime Loans, Commitment Fee and Facility Fee: Actual days/365 or 366
2. Eurodollar Loans: Actual days/360

Interest and Fee Payment Dates:

1. Prime Loans, Commitment Fee and Facility Fee: First day of April, July, October and January. In addition, prime interest shall be payable when principal of prime loans is reduced to zero.

2. Eurodollar Loans: At maturity, unless interest period is 6 months, in which case interest is payable on first day of April, July, October and January and at maturity

Notes: Two separate notes: One for Prime Loans, one for Eurodollar Loans

Borrowing Procedure:

1. Prime Loans:

   a. Two Business Days notice to Agent, prompt notice to participants

   b. $2,000,000 minimum or multiples thereof

2. Eurodollar Loans:

   a. Four Business Days notice to Agent, prompt notice to participants

   b. $10,000,000 minimum or an integral multiple of $1,000,000

Optional Payment Procedure:

1. Prime Loans:

   a. At any time upon two Business Days notice to Agent, prompt notice to participants

   b. $2,000,000 minimum or multiples thereof

2. Eurodollar Loans:

   a. At maturity or upon four Business Days notice to Agent

   b. $10,000,000 minimum or an integral multiple of $1,000,000

   c. Funding losses for payments other than at maturity are for account of borrower

Representations and Warranties:

1. Corporate Existence and Power

2. Corporate Authority

3. Financial Condition: 12/31/83 statements audited by Deloitte Haskins & Sells and unaudited statements dated 4/1/84; no material adverse change

4. Litigation

5. Taxes

6. Governmental Regulation

7. ERISA

8. Regulation U

9. Credit Arrangements

10. Subsidiaries

Conditions Precedent:

1. First Loan:

   a. Certified signatures

   b. Opinion of company counsel

c. Opinion of Special Counsel

d. Loan documents

e. Notes

f. Corporate authorization

g. Use of Proceeds: Pay amounts outstanding under Credit Agreement dated 6/30/82, as amended

2. Each Loan:

a. No Default

b. Representations and Warranties shall be true

c. No material adverse litigation

Affirmative Covenants:

1. a. Unaudited interim statements certified by chief financial officer within 60 days

b. Fiscal statements certified by accountant acceptable to banks and accountant's non-default certificate within 120 days (consolidating statements if applicable. See (F) below.)

c. Compliance computations with fiscal and interim statements

d. Copies of SEC and stockholder reports

e. Quarterly certificate regarding asbestos. Cites prior quarter's payments for asbestos claims, including defense and settlements. Statement regarding management's opinion for continuance of insurance indemnification.

f. Consolidating interim statements, certified by chief financial officer. (Applicable if Building Materials and Chemicals are separately incorporated as wholly owned subsidiaries.)

g. Other information reasonably requested

2. Access to books and inspection

3. Prompt notice of all litigation and all governmental proceedings except (i) litigation arising out of the ordinary course of business and (ii) litigation which if adversely determined will not have a material adverse effect on the financial position of the company

4. Immediate notice of Default

5. Payment of taxes and claims

6. Maintenance of properties and insurance

7. Maintenance of Existence; Conduct of Business: The Company shall and shall cause each of its Subsidiaries to preserve and maintain its corporate existence (except as permitted by Negative Covenant Item #10) and all of its material operating licenses, rights, privileges and franchises necessary or desirable in the normal conduct of its business except: (A) mergers of Subsidiaries into the Parent or (B) if such termination, loss, abandonment, or modification does not have a materially adverse effect on the Banks hereunder

8. Written notice within 15 business days if any insurance carrier discontinues asbestos related claim payments or notifies company that such payments shall be discontinued

9. (If applicable) monthly borrowing certificate, showing use of loan proceeds by Building and Chemical subsidiaries.

Negative Covenants:

1. Working Capital not less than:

6/1/84-6/1/85	$60,000,000	plus 90% of new long term debt since 4/1/84
Thereafter	$75,000,000	

2. Current Ratio not less than:

6/1/84-6/1/85	130%	plus .4% for each $1,000,000 of new long term debt since 4/1/84
Thereafter	140%	

3. Net Worth not less than $170,000,000 plus 50% of Net Income since 4/1/84

4. Total Debt for Borrowed Money (including capitalized leases) shall not exceed at any time: 90% of Tangible Net Worth

5. Limitation on contingent obligations: Guarantees, letters of credit and surety bonds are limited to 22% of Net Worth. No limitation for Contingent Obligations covering: GAF Insurance Ltd., workmans compensation insurance, or to fulfill EPA requirements.

6. Short Term Debt shall not exceed the lower of $30,000,000 or the sum of $10,000,000 plus the availability under the R/C (Short Term Debt shall not include liabilities arising under a Receivables Purchase Facility relating to a seasonal dating program)

7. No prepayment of Long Term Debt, except:

   (i) prepayments related to this agreement,
   (ii) prepayments related to any required sinking fund, mandatory prepayment,
   (iii) payments made out of a concurrent funding operation, and
   (iv) prepayments limited to $6,000,000 required under the terms of Tax-Exempt Financings.
   (v) Other debt but limited to "Available Income."

8. Negative pledge clause: Assignments, pledges, liens are not permitted except:

   (i) liens secured in the ordinary course of business,
   (ii) liens existing on 4/1/84,
   (iii) liens in favor of lessors related to Tax-Exempt Financings,
   (iv) purchase money liens,

(v) liens created by Subsidiaries in favor of the Parent, and
(vi) additional liens, provided that the payment of principal and interest on the Loans outstanding and to be outstanding hereunder shall be secured equally and ratably with all other indebtedness or obligations secured by such liens.

9. Stock Payments: Shall not be permitted except:

(i) dividends payable in additional shares of the Company's stock,
(ii) purchases of the Company's stock by the Company to fulfill requirements of the 1975 Stock Option Plan, the 1984 Stock Option Plan, the Plan for the Sale of Restricted and Unrestricted Common Stock to Employees, and the 1984 Employee Stock Purchase Plan,
(iii) purchases of the Company's stock by the Company,
(iv) cash dividends on preferred stock, provided that such dividends do not exceed the annual rate in effect on 4/1/84 and provided that no Default or Event of Default has occurred hereunder or would occur as the result of such payment, and
(v) cash dividends on the Companys common stock.

However, Items (iii) and (v) are limited to a pool of Available Income for such payments, which includes:

a. Available Income is zero at 4/2/84
b. For the calendar year ending 12/31/84: 50% of Net Income (excluding Extraordinary Gains but including Extraordinary Tax Credits) since 4/1/84 shall be added to Available Income. 100% of Net Losses (excluding Extraordinary Gains but including Extraordinary Tax Credits) shall reduce Available Income.
c. From 1/1/85 and thereafter: 50% of Net Income since 1/1/85 shall be added to Available Income. 100% of Net Losses shall reduce Available Income.
d. Deductions for payments/declarations of Common and Preferred Stock dividends permitted in Items (iv) and (v) above since 4/1/84.
e. Deductions for prepayment of debt in 7(v) since 4/1/84.

Such compliance testing and pool calculations shall be made on a calendar quarter basis.

10. Material Sale: Company shall not sell assets, except that up to $20,000,000 of accounts receivable (net of holdback reserves up to 15%) may be sold to support seasonal dating programs. Sale of other assets shall be limited to $25,000,000, excluding the sales of: WNCN; Building Materials plants in St. Louis, Gloucester, Joliet, South Bound Brook, and Kansas City; and the Belgium Building Building Materials and Chemical divisions may separately incorporate but must be wholly owned subsidiaries of the Company

11. Capital Expenditures shall not exceed:

Fiscal 1984:	$ 45,000,000	on a cash basis,
Fiscal 1985:	$ 90,000,000	cumulative since 1/1/84
Fiscal 1986:	$135,000,000	

12. Sales and Leaseback: Limited to the greater of $14,000,000 or 7% of Tangible Net Worth for assets owned as of 4/1/84. For assets acquired after 4/1/84, subject to overall indebtedness limitation.

13. Mergers: The Company shall not nor shall it permit any Subsidiary to be a party to any merger or Consolidation unless (A) immediately thereafter and giving effect thereto, no Default would have occurred and be continuing, and (B) in the case of any merger or consolidation to which the Company is a party, the Company shall be the surviving or continuing corporation.

Events of Default (Immediate):

1. Materially false representation or warranty

2. Failure to pay interest or principal when due

3. Failure to observe Negative Covenants (except those for which a 15 business day grace is provided below)

4. Mergers which are not permitted hereunder

5. Bankruptcy, assignment, dissolution, condemnation, seizure

6. PBGC violations (Reportable Events)

7. Retirement of debt

8. Asbestos Payments: Unreimbursed payments for settlement awards and defense expenses in excess of $5,000,000 from the date of this agreement.

9. Borrowings in excess of limitations

10. Cross-default

11. Violations of Stock Payments

12. Violations of Capital Expenditures

Events of Default (15 business day grace period):

1. Late delivery of financial statements or other required reports

2. Violations of minimum Working Capital

3. Violations of minimum Tangible Net Worth

4. Violations of permitted Liens

Events of Default (30 business day grace period):

1. Violations of all other covenants not specified above

Required Banks: Shall mean Banks holding at least 60% of the Commitments

Legal Expenses: Legal expenses for Simpson Thacher & Bartlett, Special Counsel, are for the account of the Company.

Defined Terms:

A) GAAP: Accounting terms shall have meanings given under Generally Accepted Accounting Principles, as in effect on the date of this agreement

B) Current Liabilities: shall use the GAAP definition, plus outstanding loans under this Agreement

C) Tangible Net Worth: Shall use the GAAP definition but shall exclude accumulated foreign exchange translation adjustments

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REVOLVING CREDIT AGREEMENT dated as of June 1, 1984 among GAF CORPORATION, a Delaware corporation (the "Company"), the several banks parties to this Agreement (collectively, the "Banks"; individually, a "Bank") and MANUFACTURERS HANOVER TRUST COMPANY, a New York banking corporation, as agent for the Banks hereunder (in such capacity, the "Agent").

The parties hereto hereby agree as follows:

SECTION 1. DEFINITIONS

1.1 Defined Terms. As used in this Agreement, the following terms have the following meanings:

"Agreement": this Revolving Credit Agreement, as amended, supplemented or modified from time to time.

"Available Commitment": as to any Bank, at a particular time, an amount equal to the difference between (a) the amount of such Bank's Commitment at such time and (b) the aggregate unpaid principal amount at such time of all loans made by such Bank pursuant to subsection 2.1; collectively, as to all the Banks, the "Available Commitments".

"Borrowing Date": any Business Day or Working Day, as the case may be, specified in a notice pursuant to subsection 2.3 as a date on which the Company requests the Banks to make loans hereunder.

"Business Day": a day other than a Saturday, Sunday or other day on which commercial banks in New York City are authorized or required by law to close.

"Code": the Internal Revenue Code of 1954, as amended from time to time.

"Commitment": as to any Bank, its obligation to make revolving credit loans to the Company pursuant to subsection 2.1 in the amount referred to therein; collectively, as to all the Banks, the "Commitments".

"Commitment Period": the period from and including June 1, 1984 to but not including the Termination Date or such earlier date as the Commitments shall terminate as provided herein.

"Commonly Controlled Entity": an entity, whether or not incorporated, which is under common control with the Company within the meaning of Section 414(b) or (c) of the Code.

"Contingent Obligation": as to any Person, any guarantee of Indebtedness or any other obligation of any other unrelated Person or any assurance with respect to the financial condition of any other unrelated Person, whether direct, indirect or contingent, including without limitation any purchase or repurchase agreement or keep-well, take-or-pay, through-put or other arrangement of whatever nature having the effect of assuring or holding harmless any Person against loss with respect to any obligation of such other unrelated Person; any obligation of such Person guaranteeing or in effect guaranteeing any Indebtedness, leases, dividends or other obligations ("primary obligations") of any other unrelated Person (the "primary obligor") in any manner, whether directly or indirectly, including, without limitation, any obligation of such Person, whether or not contingent, (a) to purchase any such primary obligation or any property constituting direct or indirect security therefor, (b) to advance or supply funds (i) for the purchase or payment of any such primary obligation or (ii) to maintain working capital or equity capital of the primary obligor or otherwise to maintain the net worth or solvency of the primary obligor, (c) to purchase property, securities or services primarily for the purpose of assuring the owner of any such primary obligation of the ability of the primary obligor to make payment of such primary obligation or (d) otherwise to assure or hold harmless the owner of such primary obligation against loss in respect thereof; provided, however, that the term Contingent Obligation shall not include endorsements of instruments for deposit or collection in the ordinary course of business. The amount of any Contingent Obligation shall be deemed to be an amount equal to the stated or determinable amount of the primary obligation in respect of which such Contingent Obligation is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by the Company in good faith.

"<u>Contractual Obligation</u>": as to any Person, any provision of any security issued by such Person or of any agreement, instrument or undertaking to which such Person is a party or by which it or any of its property is bound.

"<u>Current Assets</u>": at any date, the aggregate amount of all assets of the Company which would be classified as current assets in accordance with GAAP.

"<u>Current Liabilities</u>": at any date, the aggregate amount of all liabilities of the Company (including tax and other proper accruals) which would be classified as current liabilities, and, for purposes of this Agreement, including the outstanding principal amounts of the Notes, all as determined in accordance with GAAP.

"<u>Default</u>": any of the events specified in Section 7, whether or not any requirement for the giving of notice, the lapse of time, or both, or any other condition, has been satisfied.

"<u>Dollars</u>" and "<u>$</u>": dollars in lawful currency of the United States of America.

"<u>Domestic Lending Office</u>": initially, the office of a Bank designated as such in Schedule I hereto; thereafter, such other office of such Bank, if any, located within the United States which shall be making or maintaining MHTC Rate Loans.

"<u>ERISA</u>": the Employee Retirement Income Security Act of 1974, as amended from time to time.

"<u>Eurodollar Lending Office</u>": initially, the office of a Bank designated as such in Schedule I hereto; thereafter, such other office of such Bank, if any, which shall be making or maintaining Eurodollar Loans.

"<u>Eurodollar Loans</u>": loans hereunder at such time as they are made and/or being maintained at a rate of interest based upon the LIBO Rate.

"<u>Event of Default</u>": any of the events specified in Section 7, <u>provided</u> that any requirement for the giving of notice, the lapse of time, or both, or any other condition, has been satisfied.

"Funded Debt": all Indebtedness maturing one year or more from the date of the creation thereof and all Indebtedness directly or indirectly renewable or extendible, at the option of the obligor, by its terms or by the terms of any instrument or agreement relating thereto, to a date one year or more from the date of the creation thereof.

"GAAP": generally accepted accounting principles in the United States of America applied in the preparation of the financial statements for the year ended December 31, 1983 referred to in subsection 3.1.

"Governmental Authority": any nation or government, any state or other political subdivision thereof, and any entity exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government.

"Indebtedness": as to any Person, at a particular time, (a) indebtedness for borrowed money or for the deferred purchase price of property or services in respect of which such Person is liable, contingently or otherwise, as obligor, guarantor or otherwise, or in respect of which such Person otherwise assures a creditor against loss, excluding Indebtedness of the Company relating to GAF/Huls Chemie (GmbH), (b) obligations under leases which shall have been or should be, in accordance with GAAP, recorded as capital leases in respect of which obligations such Person is liable, contingently or otherwise, as obligor, guarantor or otherwise, or in respect of which obligations such Person assures a creditor against loss and (c) any obligation of such Person or a Commonly Controlled Entity to a Multiemployer Plan.

"Initial Borrowing Date": the first Borrowing Date the Banks are requested to make a loan to the Company hereunder.

"Interest Payment Date": (a) as to any MHTC Rate Loan, the first day of each April, July, October and January commencing on the first of such days to occur after an MHTC Rate Loan is made or Eurodollar Loans are converted to MHTC Rate Loans, (b) as to any Eurodollar Loan in respect of which the Company has selected an Interest Period of two or three months, the last day of such Interest Period and (c) as to any Eurodollar Loan in respect of which the Company has selected a longer

Interest Period than the periods described in clause (b) the first day of each April, July, October and January falling within such Interest Period and the last day of such Interest Period.

"Interest Period":

(a) initially, the period commencing on, as the case may be, the borrowing or conversion date with respect to such Eurodollar Loan and ending two, three or six months thereafter, as selected by the Company, as the case may be, in its notice of borrowing as provided in subsection 2.3 or its notice of conversion as provided in subsection 2.7; and

(b) thereafter, each period commencing on the last day of the next preceding Interest Period applicable to such Eurodollar Loan and ending two, three or six months thereafter, as selected by the Company by irrevocable notice to the Agent not less than four Working Days prior to the last day of the then current Interest Period with respect to such Eurodollar Loan;

provided that, all of the foregoing provisions relating to Interest Periods are subject to the following:

(A) if any Interest Period would otherwise end on a day which is not a Working Day, that Interest Period shall be extended, to the next succeeding Working Day unless the result of such extension would be to carry such Interest Period into another calendar month in which event such Interest Period shall end on the immediately preceding Working Day;

(B) any Interest Period that would otherwise extend beyond the Termination Date shall end on the Termination Date;

(C) if the Company shall fail to give notice as provided above, the Company shall be deemed to have selected an Interest Period of three months for the affected Eurodollar Loan;

(D) any Interest Period that begins on the last Working Day of a calendar month (or on a day for which there is no numerically corresponding day in the calendar month at the end of such Interest Period) shall end on the last Working Day of a calendar month; and

(E) for purposes of determining the availability of Interest Periods such Interest Periods shall be deemed available if (a) each of the Reference Banks quotes a rate to the Agent as provided in the definition of LIBO Rate and (b) the Required Banks shall not have advised the Agent that the LIBO Rate as determined by the Agent on the basis of such quotes will not adequately and fairly reflect the cost to such Banks of maintaining or funding their loans bearing interest at the LIBO Rate for such Interest Period. If a requested Interest Period shall be unavailable in accordance with the foregoing sentence, the Company shall be deemed to have requested an MHTC Rate Loan.

"<u>LIBO Rate</u>": with respect to each Interest Period pertaining to Eurodollar Loans, the rate per annum equal to the quotient of (a) the average (rounded upwards to the nearest whole multiple of one sixteenth of one percent) of the respective rates notified to the Agent by the Reference Banks as the rate at which each of their Eurodollar Lending Offices is offered Dollar deposits two Working Days prior to the beginning of such Eurodollar Interest Period in the interbank eurodollar market where the foreign currency and exchange operations of such Eurodollar Lending Office are customarily conducted at 10:00 a.m., New York time, for delivery, on the first day of such Interest Period for the number of days comprised therein and in an amount equal to the amount of the Eurodollar Loan of such Reference Bank to be outstanding during such Interest Period, divided by (b) a number equal to 1.00 minus the aggregate of the rates (expressed as a decimal fraction) of the maximum statutory reserve requirements current on the date two Working Days prior to the beginning of such Interest Period (including, without limitation, basic, supplemental, marginal and emergency reserves under any regulations of the Board of Governors of the Federal Reserve System or other Governmental Authority having jurisdiction with respect thereto), as now and from time to time hereafter in effect, dealing with reserve requirements prescribed for eurocurrency funding (currently referred to as "Eurocurrency liabilities" in Regulation D of such

Board) maintained by a member bank of such System (such LIBO Rate to be adjusted to the nearest or next higher 1/100 of one percent).

"Lien": any mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, lien (statutory or other), or preference, priority or other security agreement or preferential arrangement of any kind or nature whatsoever (including, without limitation, any conditional sale or other title retention agreement, any financing lease having substantially the same economic effect as any of the foregoing, and the filing of any financing statement under the Uniform Commercial Code or comparable law of any jurisdiction).

"MHTC Rate": the rate of interest publicly announced by Manufacturers Hanover Trust Company in New York, New York from time to time as its prime rate.

"MHTC Rate Loans": loans hereunder at such time as they are made and/or being maintained at a rate of interest based upon the MHTC Rate.

"Multiemployer Plan": a Plan which is a multiemployer plan as defined in Section 4001(a)(3) of ERISA.

"Net Worth": at any time, an amount equal to the par value (or value stated on the books) of the capital stock of all classes of the Company and its Subsidiaries on a consolidated basis plus (or minus in the case of a deficit) the amount of the surplus, whether capital or earned, of the Company and its Subsidiaries on a consolidated basis, less any capital stock of the Company held by the Company, all as determined in accordance with GAAP.

"Note": each promissory note issued by the Company pursuant to subsection 2.2; collectively, the "Notes".

"PBGC": the Pension Benefit Guaranty Corporation established pursuant to Subtitle A of Title IV of ERISA.

"Person": an individual, partnership, corporation, business trust, joint stock company, trust, unincorporated association, joint venture, Governmental Authority or other entity of whatever nature.

"<u>Plan</u>": any pension plan which is covered by Title IV of ERISA and in respect of which the Company or a Commonly Controlled Entity is an "employer" as defined in Section 3(5) of ERISA.

"<u>Receivables Purchase Facility</u>": any facility entered into between the Company and any financial institution for the sale of the Company's accounts receivable with or without limited recourse to the Company.

"<u>Reference Banks</u>": Manufacturers Hanover Trust Company, The Chase Manhattan Bank (National Association) and Morgan Guaranty Trust Company of New York.

"<u>Reportable Event</u>": any of the events set forth in Section 4043(b) of ERISA or the regulations thereunder.

"<u>Required Banks</u>": at a particular time, the holders of at least 60% of the aggregate unpaid principal amount of the Notes, or, if no amounts are outstanding under the Notes, Banks having at least 60% of the aggregate amount of the Commitments.

"<u>Requirement of Law</u>": as to any Person, the Certificate of Incorporation and By-Laws or other organizational or governing documents of such Person, and any law, treaty, rule or regulation, or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"<u>Responsible Officer</u>": the Chairman, the Vice Chairman or any Executive Vice President of the Company or, with respect to financial matters, the chief financial officer of the Company.

"<u>Single Employer Plan</u>": any Plan which is not a Multiemployer Plan.

"<u>Subsidiary</u>": as to any Person, a corporation (other than GAF Insurance Ltd.), of which shares of stock having ordinary voting power (other than stock having such power only by reason of the happening of a contingency) to elect a majority of the board of directors or other managers of such corporation are at the time owned, or the management of which is otherwise controlled, directly, or indirectly through one or more intermediaries, or both, by such Person.

"Tangible Net Worth": at any date, (a) the Net Worth of the Company less (b) intangible assets of the Company, all computed in accordance with GAAP except that for purposes of this Agreement, accumulated foreign exchange translation adjustments shall be excluded.

"Tax Exempt Financing": Indebtedness in respect of which the Company and/or one or more Subsidiaries are directly or indirectly liable arising from transactions providing for the issuance of securities, the interest on which at the date of issuance was or was intended to be tax exempt and the proceeds of which have been or are to be made available to or for the benefit of the Company and/or one or more Subsidiaries.

"Termination Date": December 31, 1986.

"Working Capital": the excess of Current Assets over Current Liabilities.

"Working Day": any day on which dealings in foreign currencies and exchange between banks may be carried on in the place where each Reference Bank's Eurodollar Lending Office is located and in New York, New York.

1.2 Other Definitional Provisions. (a) All terms defined in this Agreement shall have the defined meanings when used in the Notes or any certificate or other document made or delivered pursuant hereto.

(b) As used herein and in the Notes, and any certificate or other document made or delivered pursuant hereto, accounting terms relating to the Company and its Subsidiaries not defined in subsection 1.1, and accounting terms partly defined in subsection 1.1 to the extent not defined, shall have the respective meanings given to them under GAAP.

(c) The words "hereof", "herein" and "hereunder" and words of similar import when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision of this Agreement, and section, subsection, schedule and exhibit references are to this Agreement unless otherwise specified.

SECTION 2. AMOUNT AND TERMS OF COMMITMENTS

2.1 Commitments. (a) Subject to the terms and conditions hereof, each Bank severally agrees to make revolving credit loans (the "Loans") to the Company from time to time during the Commitment Period in an aggregate principal amount at any one time outstanding not to exceed the amount set opposite such Bank's name in Schedule I, as such amount may be reduced as provided herein. During the Commitment Period the Company may use the Commitments by borrowing, prepaying the Loans in whole or in part, and reborrowing, all in accordance with the terms and conditions hereof.

(b) The Loans may be (i) Eurodollar Loans, (ii) MHTC Rate Loans or (iii) part Eurodollar Loans, and/or part MHTC Rate Loans, as determined by the Company and notified to the Agent in accordance with subsection 2.3; provided that no Eurodollar Loan shall be made after the day that is two months prior to the Termination Date. Eurodollar Loans shall be made and maintained by each Bank at its Eurodollar Lending Office, and MHTC Rate Loans shall be made and maintained by each Bank at its Domestic Lending Office.

2.2 Notes. The Loans made by each Bank pursuant hereto shall be evidenced by two promissory notes of the Company, substantially in the form of Exhibits A-1 and A-2, respectively, with appropriate insertions as to date and principal amount (individually, a "Note"; collectively, the "Notes"), payable to the order of such Bank and collectively representing the obligation of the Company to pay the lesser of (a) the amount of the Commitment of such Bank or (b) the aggregate unpaid principal amount of all Loans made by such Bank of the type evidenced by such Note, with interest thereon as prescribed in subsection 2.8. Each Bank is hereby authorized to record the date and amount of each Loan (or conversion) made by such Bank, and the date and amount of each payment or prepayment of principal thereof, and in the case of Notes evidencing Eurodollar Loans, the Interest Period and interest rate with respect thereto, on the schedule annexed to and constituting a part of its relevant Notes and any such recordation shall constitute prima facie evidence of the accuracy of the information so recorded. One Note evidencing Eurodollar Loans of a Bank shall be held by the Eurodollar Lending Office of such Bank and one Note evidencing MHTC Rate Loans of a Bank shall be held by the Domestic Lending Office of such Bank. Each Note shall (a) be dated the Initial Borrowing Date, (b) be stated to mature on the Termination Date and (c) bear interest for the period from the date thereof to the Termination Date on the unpaid principal amount thereof from time to time outstanding at the applicable interest rate per annum determined as provided in subsection 2.8(a) through (c). Interest on each Note shall be payable as specified in subsection 2.8(d).

2.3 Procedure for Borrowing. The Company may borrow under the Commitments during the Commitment Period on any Working Day if the borrowing is a Eurodollar Loan or on any Business Day if the borrowing is a MHTC Rate Loan; provided that the Company shall give the Agent irrevocable notice (which notice must be received by the Agent prior to 11:00 A.M., New York City time), (a) four Working Days prior to the requested borrowing date, in the case of Eurodollar Loans, and (b) two Business Days prior to the requested borrowing date, in the case of MHTC Rate Loans specifying (i) the amount to be borrowed, (ii) the requested borrowing date, (iii) whether the borrowing is to be a Eurodollar Loan or a MHTC Rate Loan or a combination thereof, and (iv) if the loan is to be entirely or partly a Eurodollar Loan, the length of the Interest Period for such Eurodollar Loan. Each borrowing pursuant to the Commitments shall be in an aggregate principal amount of the lesser of (a) $2,000,000 or an integral multiple thereof, in the case of MHTC Rate Loans and $10,000,000 or an integral multiple of $1,000,000 in the case of Eurodollar Loans or (b) the Available Commitments. Upon receipt of such notice from the Company the Agent shall promptly notify each Bank thereof. Each Bank will make the amount of its pro rata share of each borrowing available to the Agent for the account of the Company at the office of the Agent set forth in subsection 9.2 at 11:00 A.M. on the Borrowing Date requested by the Company in funds immediately available to the Agent as the Agent may direct. The proceeds of all such Loans will then be made available to the Company by the Agent at the office of the Agent specified in subsection 9.2 by crediting the account of the Company on the books of such office of the Agent with the aggregate of the amount made available to the Agent by the Banks and in like funds as received by the Agent.

2.4 Commitment Fee; Facility Fee. (a) The Company agrees to pay to the Agent for the account of each Bank a commitment fee for the Commitment Period computed at the rate of 1/2% per annum on the average daily amount of the Available Commitment of such Bank during the period for which payment is to be made, payable quarterly on the 1st day of each April, July, October and January and on the Termination Date or such earlier date as the Commitments shall terminate as provided herein, commencing on the first of such dates to occur after the commencement of the Commitment Period.

(b) The Company agrees to pay the Agent for the account of each Bank a facility fee for the Commitment Period, computed at the rate of 1/2% per annum on the daily average amount of such Bank's Commitment, whether used or unused, during the period for which payment is to be made, payable quarterly on the 1st day of each April, July, October and January and on the Termination Date or such earlier date as the Commitments shall terminate as provided herein, commencing on the first of such dates to occur after the commencement of the Commitment Period.

2.5 Termination or Reduction of Commitments. The Company shall have the right, upon not less than three Business Days' notice to the Agent, to terminate the Commitments or, from time to time, reduce the amount of the Commitments; provided that (a) any such reduction shall be accompanied by prepayment of Loans made hereunder, together with accrued interest on the amount so prepaid to the date of such prepayment, to the extent, if any, that the amount of such Loans then outstanding exceeds the amount of the Commitments as then reduced and, (b) any such termination of the Commitments shall be accompanied by prepayment in full of the Loans then outstanding hereunder, together with accrued interest thereon to the date of such prepayment, and the payment of any unpaid commitment fee or facility fee then accrued hereunder. Any such reduction shall be in an amount of $10,000,000, or a whole multiple thereof, and shall reduce permanently the amount of the Commitments then in effect.

2.6 Optional Prepayments; Mandatory Prepayments. (a) The Company may, as provided in this subsection, at any time and from time to time, prepay the Loans made hereunder, in whole or in part, without premium or penalty, upon at least four Working Days' irrevocable notice to the Agent with respect to Eurodollar Loans and upon at least two Business Days' irrevocable notice to the Agent with respect to MHTC Rate Loans, specifying the date and amount of prepayment and whether the prepayment is of Eurodollar Loans or MHTC Rate Loans or a combination thereof, and if of a combination thereof the amount of prepayment allocable to each. Upon receipt of such notice the Agent shall promptly notify each Bank thereof. Partial prepayments with respect to (a) Eurodollar Loans shall be in an aggregate principal amount of $10,000,000, or an integral multiple of

$1,000,000, and (b) MHTC Rate Loans shall be in an aggregate principal amount of $2,000,000, or an integral multiple thereof.

(b) The Company shall, at any time that the outstanding principal amount of the Loans exceeds the Commitments as reduced pursuant to subsection 2.5, prepay the Loans ratably in the amount of such excess, together with accrued interest on the amount prepaid.

2.7 Conversion Options. (a) The Company may elect from time to time to convert Eurodollar Loans to MHTC Rate Loans by giving the Agent at least two Business Days' prior irrevocable notice of such election, provided that any such conversion of Eurodollar Loans shall only be made on the last day of an Interest Period with respect thereto. The Company may elect from time to time to convert MHTC Rate Loans to Eurodollar Loans by giving the Agent at least four Working Days' prior irrevocable notice of such election. Upon receipt of such notice, the Agent shall promptly notify each Bank thereof. On the date on which such conversion is being made each Bank shall take such action as is necessary to transfer its portion of such Loans to its Domestic Lending Office or its Eurodollar Lending Office, as the case may be. All or any part of outstanding Eurodollar Loans and MHTC Rate Loans may be converted as provided herein, provided that partial conversions with respect to (i) Eurodollar Loans shall be in an aggregate principal amount of $2,000,000 or an integral multiple thereof and (ii) MHTC Rate Loans shall be in an aggregate amount of $10,000,000 or an integral multiple of $ 1,000,000.

(b) Any Eurodollar Loans may be continued as such upon the expiration of an Interest Period with respect thereto by compliance by the Company with the notice provisions contained in subsection 2.3 hereof; provided, that no Eurodollar Loan may be continued as such when any Default or Event of Default has occurred and is continuing, but shall be automatically converted to a MHTC Rate Loan on the last day of the last Interest Period for which a LIBO Rate was determined by the Agent on or prior to the Agent's obtaining knowledge of such Default or Event of Default; the Agent shall notify the Banks promptly that such automatic conversion contemplated by this subsection 2.7(b) will occur.

2.8 Interest Rate and Payment Dates. (a) The Eurodollar Loans shall bear interest for each Interest Period with respect thereto on the unpaid principal amount thereof at a rate per annum equal to the LIBO Rate determined for each Interest Period in accordance with the terms hereof plus 3/4%.

(b) The MHTC Rate Loans shall bear interest for the period from and including the date thereof until maturity on the unpaid principal amount thereof at a rate per annum equal to the MHTC Rate.

(c) If all or a portion of the principal amount of any of the Loans made hereunder shall not be paid when due (whether at the stated maturity, by acceleration or otherwise), such Loan, if a Eurodollar Loan, shall be converted to a MHTC Rate Loan at the end of the last Interest Period therefor for which the Agent shall have determined, on or prior to the date such unpaid principal amount became due, a LIBO Rate. Any such overdue principal amount shall bear interest at a rate per annum which is 2% above the rate which would otherwise be applicable pursuant to subsection 2.8(a) or (b) from the date of such non-payment until paid in full (as well after as before judgment).

(d) Interest shall be payable in arrears on each Interest Payment Date.

2.9 Computation of Interest and Fees. (a) Commitment fees, facility fees and interest in respect of the MHTC Rate Loans shall be calculated on the basis of a 365 (or 366 as the case may be) day year for the actual days elapsed. Interest in respect of the Eurodollar Loans shall be calculated on the basis of a 360 day year for the actual days elapsed. The Agent shall as soon as practicable notify the Company and the Banks of each determination of a LIBO Rate. Any change in the interest rate on a Note resulting from a change in the MHTC Rate shall become effective as of the opening of business on the day on which such change in the MHTC Rate shall become effective. The Agent shall as soon as practicable notify the Company and the Banks of the effective date and the amount of each such change in the MHTC Rate.

(b) Each determination of an interest rate by the Agent pursuant to any provision of this Agreement shall be conclusive and binding on the Company and the Banks in the absence of manifest error. The Agent shall, at the request of the Company, deliver to the Company a statement showing the quotations given by the Reference Banks and the computations used by the Agent in determining any interest rate pursuant to subsection 2.8(a).

(c) If any Reference Bank's Commitment shall terminate (otherwise than on termination of all the Commitments), or, as the case may be, Loans made by it hereunder are assigned, prepaid or repaid for any reason whatsoever, such Reference Bank shall thereupon cease to be a Reference Bank and, if as a result of the foregoing, there shall only be one Reference Bank remaining, then the Agent (after consultation with the Company and the Banks) shall, by notice to the Company and the Banks, designate another Bank as a Reference Bank so that there shall at all times be at least two Reference Banks.

(d) If any of the Reference Banks shall be unable or shall otherwise fail to provide notice of a rate to the Agent, the interest rate shall be determined on the basis of the rate or rates provided in notices of the remaining Reference Banks.

2.10 Inability to Determine Interest Rates. In the event that the Agent shall have determined (which determination shall be conclusive and binding upon the Company) that by reason of circumstances affecting the interbank eurodollar market, adequate and reasonable means do not exist for ascertaining the LIBO Rate applicable pursuant to subsection 2.8(a) for any Interest Period with respect to (a) a proposed Loan that the Company has requested be made as a Eurodollar Loan, (b) a Eurodollar Loan that will result from the requested conversion of a MHTC Rate Loan into a Eurodollar Loan or (c) the continuation of Eurodollar Loans beyond the expiration of the then current Interest Period with respect thereto, the Agent shall forthwith give telex or facsimile notice of such determination, confirmed in writing, to the Company and the Banks at least two days prior to, as the case may be, the requested Borrowing Date for such Eurodollar Loan, the conversion date of such MHTC Rate Loan or the last day of such Interest Period. If such notice is given (i) any requested Eurodollar Loan shall be made as an MHTC Rate Loan, (ii) any MHTC Rate Loan that was to have been converted to a Eurodollar Loan shall be continued as an MHTC Rate Loan, and (iii) any outstanding Eurodollar Loan shall be converted, on the last day of the then current Interest Period with respect thereto, to an MHTC Rate Loan. Until such notice has been withdrawn by the Agent, no further Eurodollar Loan shall be made nor shall the Company have the right to convert a MHTC Rate Loan to a Eurodollar Loan.

2.11 Pro Rata Treatment and Payments. (a) Each borrowing by the Company from the Banks, each payment (including each prepayment) by the Company on account of the principal of and interest on the Notes and on account of any commitment fee or facility fee hereunder and any reduction of the Commitments of the Banks hereunder shall be made pro rata according to the original Commitments. All payments (including prepayments) to be made by the Company on account of principal, interest and fees shall be made without set-off or counterclaim and shall be made to the Agent on behalf of the Banks at the Agent's office located at (i) 1275 Avenue of the Americas, New York, New York 10020, in the case of MHTC Rate Loans and fees for the account of the Domestic Lending Offices of the Banks and (ii) 1275 Avenue of the Americas, New York, New York 10020, in the case of Eurodollar Loans, for the account of the Eurodollar Lending Offices of the Banks which shall then be maintaining Eurodollar Loans, in each case in lawful money of the United States of America and in immediately available funds. The Agent shall distribute such payments to the Banks promptly upon receipt in like funds as received. If any payment hereunder (other than payments on the Eurodollar Loans) becomes due and payable on a day other than a Business Day, such payment shall be extended to the next succeeding Business Day and, with respect to payments of principal, interest thereon shall be payable at the then applicable rate during such extension. If any payment on a Eurodollar Loan becomes due and payable on a day other than a Working Day, the maturity thereof shall be extended to the next succeeding Working Day unless the result of such extension would be to extend such payment into another calendar month in which event such payment shall be made on the immediately preceding Working Day.

(b) Unless the Agent shall have been notified in writing by any Bank prior to a borrowing date that such Bank will not make the amount which would constitute its pro rata share of the borrowing on such date available to the Agent, the Agent may assume that such Bank has made such amount available to the Agent on such borrowing date and the Agent may, in reliance upon such assumption, make available to the Company a corresponding amount. If such amount is made available to the Agent on a date after such borrowing date, such Bank shall pay to the Agent on demand an amount determined pursuant to the New York Clearing House Rules On Interbank Compensation, as such Rules are in effect from time to time. A certificate of the Agent submitted to any Bank with respect to any amounts owing under this subsection 2.11(b) shall be conclusive, absent manifest error. If such Bank's pro rata share is not in fact made available to the Agent by such Bank within three Business Days of such borrowing date, the Agent shall be entitled to recover such amount with interest thereon at the rate per annum applicable to MHTC Rate Loans hereunder, on demand, from the Company. Notwithstanding the foregoing, nothing in this subsection 2.11(b) shall in any manner limit the rights of the Company to seek recovery or maintain a cause of action against any defaulting Bank.

2.12 Taxes. All payments made by the Company under this Agreement shall be made free and clear of, and without reduction for or on account of, any present or future income, stamp or other taxes, levies, imposts, duties, charges, fees, deductions, withholdings, now or hereafter imposed, levied, collected, withheld or assessed by any country (or by any political subdivision or taxing authority thereof or therein) excluding income and franchise taxes of the United States of America or any political subdivision or taxing authority thereof or therein (including Puerto Rico), and the country in which any Bank's Eurodollar Lending Office may be located or any political subdivision or taxing authority thereof or therein (such non-excluded taxes being called "Foreign Taxes"). If any Foreign Taxes are required to be withheld from any amounts payable to any Bank hereunder or under the Notes, the amounts so payable to such Bank shall be increased to the extent necessary to yield to such Bank (after payment of all Foreign Taxes) interest or any such other amounts payable hereunder at the rates or in the amounts specified in this Agreement and the Notes. Whenever any Foreign Tax is payable by the Company, as promptly as possible thereafter, the Company shall send to the Agent, for the account of such Bank, a certified copy of an original official receipt showing payment thereof. If the Company fails to pay any Foreign Taxes when due to the appropriate taxing authority or fails to remit to the Agent, for the account of the Banks, the required receipts or other required documentary evidence, the Company shall indemnify the Banks for any incremental taxes, interest or penalties that may become payable by any Bank as a result of any such failure.

2.13 Illegality. Notwithstanding any other provisions herein, if any law, regulation, treaty or any change therein or in the interpretation or application thereof, shall make it unlawful for any Bank to make or maintain Eurodollar Loans as contemplated by this Agreement, (a) the Commitment of such Bank hereunder to make Eurodollar Loans or convert MHTC Rate Loans to Eurodollar Loans shall forthwith be cancelled and (b) such Bank's Loans then outstanding as Eurodollar Loans, if any, shall be converted automatically to MHTC Rate Loans at the maturity of such Loans or within such earlier period as required by law. The Company hereby agrees promptly to pay any Bank, upon its demand, any additional amounts necessary to compensate such Bank for any costs incurred by such Bank in making any conversion in accordance with this subsection 2.13, including, but not limited to, any interest or fees payable by such Bank to lenders of funds obtained by it in order to make or maintain its Eurodollar Loans hereunder (such Bank's notice of such costs, as certified to the Company through the Agent, to be conclusive absent manifest error).

2.14 Requirements of Law. In the event that any law, regulation, treaty or any change therein or in the interpretation or application thereof or compliance by any Bank with any request or directive (whether or not having the force of law) from any central bank or other Governmental Authority, agency or instrumentality:

(i) does or shall subject any Bank to any tax of any kind whatsoever with respect to this Agreement, any Note or any Loans made hereunder, or change the basis of taxation of payments to such Bank of principal, commitment fee, interest or any other amount payable hereunder (except for changes in the rate of tax on the overall net income of such Bank);

(ii) does or shall impose, modify or hold applicable any reserve, special deposit, compulsory loan or similar requirement against assets held by, or deposits or other liabilities in or for the account of, advances or loans by, or other credit extended by, or any other acquisition of funds by, any office of such Bank which are not otherwise included in the determination of the LIBO Rate hereunder;

(iii) does or shall impose on such Bank any other condition;

and the result of any of the foregoing is to increase the cost to such Bank of making, renewing or maintaining advances or extensions of credit or to reduce any amount receivable thereunder then, in any such case, the Company shall promptly pay such Bank, upon its demand, any additional amounts necessary to compensate such Bank for such additional cost or reduced amount receivable which such Bank deems to be material as determined by such Bank with respect to this Agreement, the Note or the Loans made hereunder. If a Bank becomes entitled to claim any additional amounts pursuant to this subsection, it shall promptly notify the Company, through the Agent, of the event by reason of which it has become so entitled. A certificate as to any additional amounts payable pursuant to the foregoing sentence submitted by a Bank, through the Agent, to the Company shall be conclusive in the absence of manifest error.

2.15 Indemnity. The Company agrees to indemnify each Bank and to hold such Bank harmless from any loss or expense which such Bank may sustain or incur as a consequence of (a) default by the Company in payment of the principal amount of or interest on the Eurodollar Loans of such Bank, including, but not limited to, any such loss or expense arising from interest or fees payable by such Bank to lenders of funds obtained by it in order to maintain its Eurodollar Loans hereunder, (b) default by the Company in making a borrowing or conversion after the Company has given a notice in accordance with subsection 2.3 or 2.7 hereof, and (c) default by the Company in making any prepayment after the Company has given a notice in accordance with subsection 2.6 hereof or a prepayment of a Eurodollar Loan on a day which is not the last day of an Interest Period with respect thereto, including, but not limited to, any such loss or expense arising from interest or fees payable by such Bank to lenders of funds obtained by it in order to maintain its Eurodollar Loans hereunder. This covenant shall survive termination of this Agreement and payment of the outstanding Notes.

2.16 Use of Proceeds. The proceeds of the Loans made on the Initial Borrowing Date hereunder shall be used by the Company for the payment in full of all amounts outstanding under the Credit Agreement dated as of June 30, 1982, as amended, between the Company and The Chase Manhattan Bank (National Association), as Agent for the several Banks listed therein and any additional or subsequent Loans made hereunder shall be used for working capital purposes.

SECTION 3. REPRESENTATIONS AND WARRANTIES

In order to induce the Banks to enter into this Agreement and to make the Loans herein provided for, the Company hereby covenants, represents and warrants to the Agent and to each Bank that:

3.1 Financial Condition. The consolidated balance sheet of the Company and its consolidated Subsidiaries as at December 31, 1983 and the related consolidated statements of income and retained earnings and changes in financial position for the fiscal year ended on such date, certified by Deloitte Haskins & Sells, copies of which have heretofore been furnished to each Bank, are complete and correct and present fairly the consolidated financial condition of the Company and its consolidated Subsidiaries as at such date, and the consolidated results of their operations and changes in financial position for the fiscal year then ended. The unaudited consolidated balance sheet of the Company and its consolidated Subsidiaries as at April 1, 1984 and the related unaudited consolidated statements of income and retained earnings and changes in financial position for the quarter ended on such date, certified by a Responsible Officer, copies of which have heretofore been furnished to each Bank, are complete and correct and present fairly the consolidated financial condition of the Company and its consolidated Subsidiaries as at such date, and the consolidated results of their operations and changes in financial position for the quarter then ended (subject to normal year-end audit adjustments). All such financial statements, including the related schedules and notes thereto, have been prepared in accordance with GAAP applied consistently throughout the periods involved (except as approved by such accountants or Responsible Officer, as the case may be, and as disclosed therein). Neither the Company nor any of its consolidated Subsidiaries has any material Contingent Obligation, contingent liabilities or liability for taxes, long-term lease or unusual forward or long-term commitment, which is not reflected in the foregoing statements or in the notes thereto.

3.2 No Change. Since December 31, 1983 there has been no material adverse change in the business, operations, assets or financial or other condition or, in the good faith judgment of the Company, prospects of the Company and its Subsidiaries taken as a whole, except as disclosed in Schedule II hereto.

3.3 Corporate Existence; Compliance with Law. Each of the Company and its Subsidiaries (a) is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation, (b) has the corporate power and authority and the legal right to own and operate its property, to lease the property it operates and to conduct the business in which it is currently engaged, (c) is duly qualified as a foreign corporation and in good standing under the laws of each jurisdiction where its ownership, lease or operation of property or the conduct of its business requires such qualification (or if not so qualified, such failure to be qualified will not have a material adverse effect on the business, assets or financial condition of the Company and its Subsidiaries taken as a whole), and (d) is in compliance with all Requirements of Law except to the extent that the failure to comply therewith could not, in the aggregate, have a material adverse effect on the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole, and could not materially adversely affect the ability of the Company to perform its obligations under this Agreement and the Notes.

3.4 Corporate Power; Authorization; Enforceable Obligations. The Company has the corporate power and authority and the legal right to make, deliver and perform this Agreement and the Notes and to borrow hereunder and has taken all necessary corporate action to authorize the borrowings on the terms and conditions of this Agreement and the Notes and to authorize the execution, delivery and performance of this Agreement and the Notes. No consent or authorization of, filing with, or other act by or in respect of any Governmental Authority, is required in connection with the borrowings hereunder or with the execution, delivery, performance, validity or enforceability of this Agreement or the Notes. This Agreement has been, and each Note will be, duly executed and delivered on behalf of the Company and this Agreement constitutes, and each Note when executed and delivered will constitute, a legal, valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally.

3.5 No Legal Bar. The execution, delivery and performance of this Agreement and the Notes, the borrowings hereunder and the use of the proceeds thereof, will not violate any Requirement of Law or any material Contractual Obligation of the Company or any of its Subsidiaries, and will not result in, or require, the creation or imposition of any Lien on any of its or their respective properties or revenues pursuant to any Requirement of Law or material Contractual Obligation.

3.6 No Material Litigation. No litigation, investigation or proceeding of or before any arbitrator or

Governmental Authority is pending or, to the knowledge of the Company, threatened by or against the Company or any of its Subsidiaries or against any of its or their respective properties or revenues (a) with respect to this Agreement or the Notes or any of the transactions contemplated hereby, or (b) which, if adversely determined, would have a material adverse effect on the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole except as disclosed in the Company's report on Form 10-K for the year ended December 31, 1983 under the heading "Item 3. Legal Proceedings" or in its report on Form 10-Q for the first quarter of 1984 (copies of which have heretofore been furnished to the Banks), or in Schedule III hereto.

3.7 No Default. Neither the Company nor any of its Subsidiaries is in default under or with respect to any Contractual Obligation in any respect which could be materially adverse to the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole, or which could materially adversely affect the ability of the Company to perform its obligations under this Agreement and the Notes. No Default or Event of Default has occurred and is continuing.

3.8 Ownership of Property; Liens. Each of the Company and its Subsidiaries has good record and marketable title in fee simple to or valid leasehold interests in all its real property set forth in the Company's report on Form 10-K for the year ended December 31, 1983, and good title to all its other property, and none of such property is subject to any Lien, except as permitted in subsection 6.2.

3.9 No Burdensome Restrictions. No Contractual Obligation of the Company or any of its Subsidiaries and no Requirement of Law materially adversely affects, or insofar as the Company may, in its good faith judgment, reasonably anticipate may so affect, the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole except as to matters previously disclosed by the Company to the Banks.

3.10 Taxes. Each of the Company and its Subsidiaries has filed or caused to be filed all tax returns which to the knowledge of the Company are required to be filed, and has paid all taxes shown to be due and payable on said returns or on any assessments made against it or any of its property and all other taxes, fees or other charges imposed on it or any of its property by any Governmental

Authority the non-payment of which would, by virtue of any collection process therefor, have a material adverse affect upon the Company or the Company and its Subsidiaries taken as a whole (except in each case other than those the amount or validity of which is currently being contested in good faith or an extension of which is sought by appropriate proceedings and with respect to which reserves in conformity with GAAP have been provided on the books of the Company or its Subsidiaries, as the case may be); and no tax liens have been filed and, to the knowledge of the Company, no claims are being asserted with respect to any such taxes, fees or other charges (other than those being contested or for which an extension has been sought as aforesaid).

3.11 Federal Regulations. Neither the Company nor any of its Subsidiaries is engaged or will engage, principally or as one of its important activities, in the business of extending credit for the purpose of "purchasing" or "carrying" any "margin stock" within the respective meanings of each of the quoted terms under Regulation U of the Board of Governors of the Federal Reserve System as now and from time to time hereafter in effect. No part of the proceeds of any loans hereunder will be used for "purchasing" or "carrying" "margin stock" as so defined or for any purpose which violates, or which would be inconsistent with, the provisions of the Regulations of such Board of Governors. If requested by any Bank or the Agent, the Company will furnish to the Agent and each Bank a statement in conformity with the requirements of Federal Reserve Form U-1 referred to in said Regulation U to the foregoing effect.

3.12 ERISA. No prohibited transaction or accumulated funding deficiency (each as defined in Section 7) or Reportable Event has occurred since January 1, 1983 with respect to any Plan. The present value of all benefits vested under all Single Employer Plans maintained by the Company or a Commonly Controlled Entity (based on those assumptions used to fund the Plans) did not, as of the last annual valuation date, which in the case of any one Plan was not earlier than December 31, 1982, exceed the value of the assets of the Plan allocable to such vested benefits by more than $260,000 provided that if there is any such excess, there is no accumulated funding deficiency). No Multiemployer Plan is in Reorganization as defined in Section 4241 of ERISA or Insolvent as defined in Section 4245 of ERISA.

3.13 Investment Company Act. The Company is not an "investment company" or a company "controlled" by an "investment company", within the meaning of the Investment Company Act of 1940, as amended.

3.14 Subsidiaries. Schedule IV hereto constitutes a complete and correct list of all current Subsidiaries of the Company. Except as disclosed in Schedule IV, (a) the Company and each Subsidiary (except for the qualifying shares of directors or similar ownership requirements imposed by local law) own, free and clear of all liens, charges and encumbrances and rights of others whatsoever, all the shares of capital stock of the Subsidiaries indicated in Schedule IV as owned by the Company or such other Subsidiary, as the case may be, and all such shares are validly issued and fully paid for, and (b) all Subsidiaries are consolidated for purpose of the Company's consolidated financial statements.

3.15 Credit Arrangements. Schedule V hereto constitutes a complete and correct list of all credit agreements, indentures, guarantees and other instruments, agreements and arrangements currently in effect providing for or relating to Funded Debt of the Company or any Subsidiary, (provided that no such credit agreement, indenture, guarantee, instrument, agreement or arrangement is separately disclosed unless the credit in question exceeds or may exceed an aggregate principal or face amount of $500,000, or the equivalent in other currencies at current exchange rates, at any one time). The maximum principal or face amounts of such Funded Debt, outstanding or to be outstanding, are correctly stated in Schedule V, and all mortgages, security interests or other Liens, given or agreed to be given as security therefor are correctly described or indicated therein.

SECTION 4. CONDITIONS PRECEDENT

4.1 Conditions of Initial Loans. The obligation of each Bank to make a Loan hereunder on the Initial Borrowing Date is subject to the satisfaction of the following conditions precedent:

(a) Notes. The Agent shall have received for the account of each Bank two Notes, conforming to the requirements hereof and executed by a duly authorized officer of the Company.

(b) Legal Opinion. The Agent shall have received, with a counterpart for each Bank, an opinion of Robert H. Beber, Esq., general counsel to the Company, dated the Initial Borrowing Date and addressed to the Agent and the Banks, substantially in the form of Exhibit B. Such opinion shall also cover such other matters incident to the transactions contemplated by this Agreement as the Agent or any Bank shall reasonably require.

(c) Borrowing Certificate. The Agent shall have received, with a counterpart for each Bank, a Borrowing Certificate dated the first Borrowing Date, substantially in the form of Exhibit C, with appropriate insertions and attachments satisfactory in form and substance to the Agent and its counsel, executed by the Chairman or Vice Chairman or any Executive Vice President and Secretary or Assistant Secretary of the Company.

(d) Opinion of Special Counsel. The Agent shall have received, with a counterpart for each Bank, an opinion of Messrs. Simpson Thacher & Bartlett, special counsel to the Banks, substantially in the form of Exhibit D.

(e) Corporate Proceedings. The Agent shall have received (with a counterpart for each Bank) a copy, certified by the Secretary or an Assistant Secretary of the Company on the Initial Borrowing Date, of the resolutions of the Board of Directors of the Company authorizing the borrowing herein provided for and the execution, delivery and performance by the Company of this Agreement and the Notes.

(f) Incumbency Certificate. The Agent shall have received (with a counterpart for each Bank) a certificate of the Secretary or an Assistant Secretary of the Company, dated the Initial Borrowing Date, as to the incumbency and signature of the officer or officers signing this Agreement, the Notes, and any other certificate or other document to be delivered pursuant hereto together with evidence of the incumbency of such Secretary or Assistant Secretary.

(g) Corporate Documents. The Agent shall have received a copy of the By-Laws (as amended through the Initial Borrowing Date) of the Company certified by an officer of the Company.

(h) Additional Matters. All other documents and legal matters in connection with the transactions contemplated by this Agreement shall be satisfactory in form and substance to the Agent and the Banks and their counsel.

4.2 Conditions to All Loans. The obligation of each Bank to make any Loan (including the initial Loan) to be made by it hereunder is subject to the satisfaction of the following conditions precedent:

(a) Representations and Warranties. The representations and warranties made by the Company herein or which are contained in any certificate, document or financial or other statement furnished at any time under or in connection herewith, shall be correct on and as of the Borrowing Date for such Loan as if made on and as of such date.

(b) No Default or Event of Default. No Default or Event of Default shall have occurred and be continuing on such date or after giving effect to the Loan to be made on such Borrowing Date.

(c) Borrowing Certificate. The Agent shall have received, with a counterpart for each Bank, a Borrowing Certificate, dated the Borrowing Date for such Loan, substantially in the form of Exhibit C, with appropriate insertions, executed by the Chairman or Vice Chairman or any Executive Vice President and Secretary or Assistant Secretary of the Company.

Each borrowing by the Company hereunder shall constitute a representation and warranty by the Company hereunder as of the date of each such borrowing that the conditions in clauses (a) and (b) of this subsection have been satisfied.

SECTION 5. AFFIRMATIVE COVENANTS

The Company hereby agrees that, so long as the Commitments remain in effect, any Note remains outstanding and unpaid or any other amount is owing to any Bank or the Agent hereunder, the Company shall, and in the case of the agreements set forth in subsections 5.3, 5.4, 5.5 and 5.6 shall cause each of its Subsidiaries to:

5.1 Financial Statements. Furnish to each Bank:

(a) as soon as available, but in any event within 120 days after the end of each fiscal year of the Company, a copy of the consolidated balance sheet of the Company and its consolidated Subsidiaries as at the end of such year and the related consolidated statements of income and retained earnings and changes in financial position for such year, setting forth in each case in comparative form the figures for the previous year, certified without a "going concern" or like qualification or exception, or qualification arising out of the scope of the audit, by independent certified public accountants of nationally recognized standing not unacceptable to the Required Banks;

(b) as soon as available, but in any event not later than 60 days after the end of each of the first three quarterly periods of each fiscal year of the Company, the unaudited consolidated balance sheet of the Company and its consolidated Subsidiaries as at the end of each such quarter and the related unaudited consolidated statements of income and retained earnings and changes in financial position of the Company and its consolidated Subsidiaries for such quarterly period and the portion of the fiscal year through such date, setting forth in each case in comparative form the figures for the previous year, certified by a Responsible Officer (subject to normal year-end audit adjustments);

(c) in the event the Company shall restructure its current corporate structure pursuant to subsection 6.10(g), as soon as available, but in any event not later than 60 days after the end of each of the first three quarterly periods of each fiscal year of the Company, an unaudited consolidating balance sheet of the Company and its Subsidiaries at the end of such fiscal quarter with separate entries for the Company and each of its major Subsidiaries, showing inter-company eliminations, and the related consolidating statements of income and income retained in the business of such entities, showing inter-company eliminations, all for the period from the beginning of such fiscal year to the end of such fiscal quarter; all in reasonable detail, prepared in accordance with GAAP on a basis consistently maintained throughout the period involved and with the prior year (except for such changes as are disclosed in such financial statements in the notes thereto to the extent material) and certified by a Responsible Officer (subject to normal year-end audit adjustments);

all such financial statements to be complete and correct in all material respects and be prepared in reasonable detail and in accordance with GAAP applied consistently throughout the periods reflected therein (except as approved by such accountants or officer, as the case may be, and disclosed therein).

5.2 Certificates; Other Information. Furnish to each Bank:

(a) concurrently with the delivery of the financial statements referred to in subsection 5.1(a) above, a certificate of the independent certified public accountants certifying such financial statements stating that in making the examination necessary therefor no knowledge was obtained of any Default or Event of Default, except as specified in such certificate;

(b) concurrently with the delivery of the financial statements referred to in subsections 5.1(a), (b) and (c) above, a certificate of a Responsible Officer (i) stating that, to the best of such officer's knowledge, the Company during such period has observed or performed all of its covenants and other agreements, and satisfied every condition, contained in this Agreement and in the Notes to be observed, performed or satisfied by it; and that such officer has obtained no knowledge of any Default or Event of Default except as specified in such certificate, and (ii) showing in detail the calculations supporting such statement in respect of subsections 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9 and 6.10;

(c) within five Business Days after the same are sent, copies of all financial statements and reports which the Company sends to its stockholders, and within five Business Days after the same are filed, copies of all financial statements and reports which the Company may make to, or file with, the Securities and Exchange Commission or any successor or analogous Governmental Authority;

(d) promptly at the end of each calendar year quarter, a certificate of a Responsible Officer, setting forth in detail all unreimbursed payments made by the Company or any Subsidiary of the Company as at the end of such quarter with respect to claims relating to asbestos litigation, including, but not limited to, payments made for the defense against, or settlement of such claims, together with (i) a statement regarding the Company's opinion as to the continuance of insurance indemnification, (ii) a statement of the aggregate amount of all reimbursed payments made by the Company or any Subsidiary as at the end of such quarter with respect to claims relating to asbestos litigation, including, but not limited to, payments made for the defense against, or settlement of such claims, and (iii) the number of cases represented by such aggregate reimbursed payments; and

(e) promptly, such additional financial and other information as any Bank may from time to time reasonably request.

5.3 Payment of Obligations. Pay, discharge or otherwise satisfy at or before maturity or before they become delinquent, as the case may be, all its material Indebtedness and other material obligations of whatever nature, except, in the case of material Indebtedness other than that described in Section 7(f), when the amount or validity thereof is currently being contested in good faith by appropriate proceedings and reserves in conformity with GAAP with respect thereto have been provided on the books of the Company or its Subsidiaries, as the case may be.

5.4 Conduct of Business and Maintenance of Existence. Continue to engage in substantially the same business of the same general type as now conducted by it, and preserve, renew and keep in full force and effect its corporate existence and take all reasonable action to maintain all rights, privileges and franchises necessary or desirable in the normal conduct of its business except as otherwise permitted pursuant to subsection 6.10; comply with all Contractual Obligations and Requirements of Law except, in the case of Requirements of Law relating to environmental, safety and other standards or controls, to the extent that the failure to comply therewith could not, in the aggregate, have a material adverse effect on the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole.

5.5 Maintenance of Property; Insurance. (a) Keep all property which in the good faith judgment of the Company is useful and necessary in its business in good working order and condition (except as otherwise permitted pursuant to subsection 6.10 hereof); maintain with, in the good faith judgment of the Company, financially sound and reputable insurance companies, having an A.M. Best Company rating of "A" or better, insurance on all its property in at least such amounts and against at least such risks (but including in any event public liability, product liability and business interruption) as are usually insured against in the same general area by companies engaged in the same or a similar business; and furnish to each Bank, upon written request, full information as to the insurance carried.

(b) Upon notification to the Company by any insurance carrier of the discontinuance or proposed discontinuance of payments on behalf of the Company with respect to asbestos related claims, furnish to each Bank written notice thereof not later than 15 Business Days after receipt of such notification.

5.6 Inspection of Property; Books and Records; Discussions. Keep proper books of record and account in which full, true and correct entries in conformity with GAAP and all Requirements of Law shall be made of all dealings and transactions in relation to its business and activities; and permit representatives of any Bank to visit and inspect any of its properties and examine and make abstracts from any of its books and records at any reasonable time and as often as may reasonably be desired, and to discuss the business, operations, properties and financial and other condition of the Company and its Subsidiaries with officers and employees of the Company and its Subsidiaries and with its independent certified public accountants.

5.7 Notices. Promptly give notice to the Agent and each Bank:

(a) of the occurrence of any Default or Event of Default;

(b) of any (i) default or event of default under any Contractual Obligation of the Company or any of its Subsidiaries or (ii) litigation, investigation or proceeding which may exist at any time between the Company or any of its Subsidiaries and any Governmental Authority, which in either case, if adversely determined, would have a material adverse effect on the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole;

(c) of any litigation or proceeding affecting the Company or any of its Subsidiaries, other than (i) arising out of the ordinary course of business, and (ii) if adversely determined would not have a material adverse effect upon the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole;

(d) of the following events, as soon as possible and in any event within 30 days after the Company knows or has reason to know thereof: (i) the occurrence or expected occurrence of any Reportable Event with respect to any Plan, or (ii) the institution of proceedings or the taking or expected taking of any other action by PBGC or the Company or any Commonly Controlled Entity to terminate, withdraw or partially withdraw from any Plan and with respect to a Multiemployer Plan, the Reorganization or Insolvency of the Plan and in addition to such notice, deliver to the Agent and each Bank whichever of the following may be applicable: (A) a certificate of the chief financial officer of the Company setting forth details as to such Reportable Event and the action that the Company or Commonly Controlled Entity proposes to take with respect thereto, together with a copy of any notice of such Reportable Event that may be required to be filed with PBGC, or (B) any notice delivered by PBGC evidencing its intent to institute such proceedings or any notice to PBGC that such Plan is to be terminated, as the case may be; and

(e) of a material adverse change in the business, operations, property or financial or other condition or, in the good faith judgment of the Company, prospects of the Company or any of its Subsidiaries.

Each notice pursuant to this subsection shall be accompanied by a statement of the chief executive officer or chief financial officer of the Company setting forth details of the occurrence referred to therein and stating what action the Company proposes to take with respect thereto. For all purposes of clause (d) of this subsection, the Company shall be deemed to have all knowledge or knowledge of all facts attributable to the administrator of such Plan.

SECTION 6. NEGATIVE COVENANTS

The Company hereby agrees that, so long as the Commitments remain in effect, any Note remains outstanding and unpaid or any other amount is owing to any Bank or the Agent hereunder, the Company shall not, nor in the case of the agreements set forth in subsections 6.2, 6.3, 6.4, 6.5, 6.9, 6.10 and 6.11 shall it permit any of its Subsidiaries to, directly or indirectly:

6.1 Indebtedness. Permit (a) Indebtedness of the Company and its Subsidiaries, on a consolidated basis, at any time to exceed 90% of their consolidated Tangible Net Worth, and (b) Indebtedness which is payable upon demand or within one year after the same was incurred or last renewed (excluding, however, the Loans) by the Company and its Subsidiaries, on a consolidated basis, at any time to exceed the lesser of (i) $30,000,000 or (ii) $10,000,000 plus the aggregate amount of Available Commitments hereunder (or, with respect to either clause (i) or (ii) above, the equivalent in other currencies at current rates of exchange); provided, however, that for purposes of subsection 6.1(b) above, the term Indebtedness shall not include obligations arising under the Receivables Purchase Facility.

6.2 Limitation on Liens. Create, incur, assume or suffer to exist, any Lien upon any of its property, assets, income or profits, whether now owned or hereafter acquired except:

(a) Materialmen's, suppliers', tax and other like liens arising in the ordinary course of business securing obligations which are not overdue or which, if overdue, are being contested in good faith by appropriate proceedings, liens arising in connection with workmen's compensation, unemployment insurance, appeal and release bonds, and other liens incident to the conduct of business or the operation of property or assets and not incurred in connection with the obtaining of any advance or credit.

(b) Liens in existence on April 1, 1984 securing indebtedness or obligations which are listed or referred in Schedule IV and refundings or extensions or renewals of such indebtedness or obligations, provided that said Liens are limited to the same property or assets.

(c) Liens in favor of lessors, sellers or mortgagees arising as incidents to Tax Exempt Financings incurred after April 1, 1984 and refundings, extensions or renewals of such Financings, provided that said Liens are limited to the same property or assets.

(d) Purchase money liens, securing (i) indebtedness incurred after April 1, 1984 and (ii) refundings, extensions and renewals of such indebtedness provided that said liens are limited to the same property or assets.

(e) Liens created by any Subsidiary in favor of the Company and/or one or more other Subsidiaries.

(f) Additional Liens, provided that the payment of principal of and interest on the Loans outstanding and to be outstanding hereunder shall be secured equally and ratably with all other indebtedness or obligations secured by such Liens.

6.3 Limitations on Contingent Obligations. Create, incur, assume or suffer to exist any Contingent Obligation except (a) letters of credit or surety bonds issued on behalf of the Company or any Subsidiary to cover insurance relative to workmen's compensation costs or costs which may become payable under regulations promulgated by the Environmental Protection Agency and (b) other Contingent Obligations of the Company, including for purposes of this subsection 6.3, contingent obligations relating to GAF/Huls Chemie (GmbH), determined in accordance with GAAP; provided such Contingent Obligations shall not in the aggregate exceed 22% of the Company's Net Worth, on a consolidated basis.

6.4 Retirement of Debt. Purchase, acquire, redeem or retire, or make any payment on account of principal of, any Funded Debt of the Company and its Subsidiaries outstanding on the date hereof, except

(a) Prepayments and payments pursuant to this Agreement.

(b) Subject to any subordination provisions applicable to Funded Debt, payments of principal at the stated maturity thereof or as required by the terms of any mandatory sinking fund, serial maturity or mandatory prepayment provision in effect with respect thereto on the date of this Agreement or thereafter entered into with the consent of the Required Banks.

(c) Payments of principal made out of the proceeds of a concurrent refunding operation involving (i) the incurring by the Company, or its respective Subsidiary which is primarily obligated upon the Funded Debt being refunded, of substitute Funded Debt; provided that the aggregate mandatory payments or prepayments on account of such substitute Funded Debt to be made during the period from the date of such refunding to December 31, 1986 shall not exceed the aggregate mandatory payments or prepayments to be made during such period on the Funded Debt being refunded, and (ii) in the case of the refunding of subordinated Funded Debt, the incurring by the Company of at least an equal aggregate principal amount of substitute subordinated Funded Debt.

(d) Payments, not included in clause (b) above, of up to $6,000,000 in aggregate principal amount of Tax Exempt Financings before the scheduled maturity thereof, if required under the terms of the governing instruments or necessary to preserve the tax exempt status of interest on the respective Tax Exempt Financings.

(e) Payments, not included in clauses (a) through (d) above; provided, however, that such payments together with the payments permitted pursuant to subsection 6.9(e) hereof, shall not in the aggregate exceed positive Available Income as determined in accordance with subsection 6.9(e) hereof.

6.5 Capital Expenditures. Make any expenditure for tangible property constituting fixed or capital assets if the aggregate cumulative amount of all such expenditures by the Company and its Subsidiaries during the period subsequent to January 1, 1984 would, by reason of such expenditure, exceed as at the end of any fiscal year specified below, the amount set forth opposite such fiscal year:

Fiscal Year	Amount
1984	$ 45,000,000
1985	90,000,000
1986	135,000,000

6.6. Working Capital. Permit consolidated Working Capital of the Company and its Subsidiaries at any time during each period referred to below, to be less than:

Period	Amount
June 1, 1984 through June 1, 1985	$ 60,000,000
Thereafter	75,000,000;

provided, that each such amount shall be increased by an amount equal to 90% of all Funded Debt incurred after April 1, 1984.

6.7 Net Worth. Permit the Net Worth of the Company at any time to be less than $170,000,000, plus, in respect of each complete fiscal quarter ended after April 1, 1984 in respect of which consolidated Net Income was recorded, 50% of consolidated Net Income of the Company and its Subsidiaries for such quarter; provided, that in no event shall the required minimum Net Worth determined in accordance with this subsection 6.7, as at the end of any quarter be reduced by a consolidated net loss of the Company and its Subsidiaries for any subsequent quarter.

6.8 Current Ratio. Permit the consolidated Current Assets of the Company and its Subsidiaries at any time during each period referred to below, to be less than the percentage of their consolidated Current Liabilities set forth opposite such period:

Period	Percentage of Current Liabilities
June 1, 1984 through June 1, 1985	130%
Thereafter	140%;

provided, that each such Percentage shall be increased by .4% per $1,000,000 of Funded Debt incurred after April 1, 1984.

6.9 Dividends, etc. Directly or indirectly, pay any dividend on any shares of any class of its stock and the Company will not, and will not permit any Subsidiary to, make any payment on account of the purchase, acquisition, redemption or other retirement of any shares of any class of the Company's stock or warrants or options therefor or make any other distributions in respect thereof, whether in cash or in property or in obligations or securities (each such dividend, payment and distribution being below called a "stock payment"), except that any Subsidiary may make stock payments, directly or indirectly, to the Company and the Company may:

(a) Pay any dividends payable solely in shares of any class of its stock.

(b) Acquire, redeem or retire any shares of any class of its stock by exchange (upon conversion or otherwise) for, or out of the proceeds of the substantially concurrent sale of, other shares of its stock, and no such acquisition, redemption or retirement shall be deemed to be a stock payment.

(c) Pay cash dividends, at the rate of $1.20 per share per annum, payable quarterly, upon shares of its preferred stock outstanding on April 1, 1984; provided, that, except for a failure to comply with the provisions of subsection 6.9(e) hereof, no Default or Event of Default shall have occurred and be continuing or would occur immediately after giving effect to each payment of such dividends.

(d) Make cash stock payments in respect to (i) the purchase of common stock to fulfill the requirements of the Company's 1975 Stock Option Plan, the 1984 Stock Option Plan, the Plan for the Sale of Restricted and Unrestricted Common Stock to Employees Who Perform Executive, Administrative or Supervisory Functions (the"Restricted Plan"), and the 1984 Employee Stock Purchase Plan, provided, that at the time of any such purchase (A) no Event of Default shall have occurred and be continuing hereunder and (B) the amount of common stock to be purchased when added to shares already held by the Company, shall not, in the good faith judgment of the Company, exceed the aggregate number of shares forecast by the Company for a 12-month period as necessary to meet its commitments under such plans, (ii) the repurchase of shares of the Company's common stock from employees in accordance with the terms of the Restricted Plan, (iii) the repurchase of options to purchase such common stock or the purchase of common stock in accordance with the stock appreciation rights or similar provisions of the Company's 1975 Stock Option Plan or the 1984 Stock Option Plan when such repurchase or purchases are in connection with options issued pursuant to such plans, and (iv) the repurchase of fractional shares arising from the conversion of preferred stock or indebtedness into the Company's common stock under conversion rights or agreements in effect on April 1, 1984.

(e) Make additional stock payments (not otherwise permitted above in this subsection 6.9); provided that the aggregate amount of all such additional stock payments plus all cash dividends on common and preferred stock paid on or after the date of this Agreement as permitted by clause (c) immediately above shall not exceed positive Available Income (determined as below provided) as at the end of the Company's latest complete fiscal quarter commencing after April 2, 1984. For purposes of this clause (e):

"Available Income" shall be determined on the basis of the following: (A) Available Income may be a positive number, zero or a negative number; (B) Available Income as at the end of the quarter ending April 2, 1984 shall be zero; (C) if Available Income at the end of any then last preceding quarter was zero, a positive number or a negative number, Available Income at the end of the next subsequent quarter shall be determined by adding thereto 50% of net income for such next subsequent quarter; and (D) if Available Income at the end of any then last preceding quarter was zero, a positive number or a negative number, 100% of net loss for any quarter shall reduce Available Income (i.e. increase a negative, or decrease a positive, number) as at the end of the immediately preceding quarter in arriving at Available Income as at the end of such subsequent quarter.

For the purposes of determining "Available Income" pursuant to this subsection 6.9(e), with respect (i) to the calendar year ending December 31, 1984, 50% of net income since April 1, 1984 shall be added to Available Income and 100% of net losses for such period shall reduce Available Income, and (ii) the period commencing January 1, 1985 and thereafter, 50% of net income since January 1, 1985 shall be added to Available Income and 100% of net losses for such period shall reduce Available Income. Prior to and including December 31, 1984, net income (and net loss, as applicable) shall be determined after taxes, taking into account all extraordinary tax credits but not taking into account extraordinary gains and other like items in accordance with GAAP; subsequent to December 31, 1984, net income (and net loss, as applicable) shall be determined in accordance with GAAP.

6.10 <u>Prohibition of Fundamental Changes, Sales of Assets</u>. Enter into any transaction of acquisition or consolidation or amalgamation, or liquidate, wind up or dissolve itself (or suffer any liquidation or dissolution) convey, sell, lease, assign, transfer or otherwise dispose of, any of its property, business or assets (including, without limitation, receivables and leasehold interests) whether now owned or hereafter acquired, or make any material change in the present method of conducting business except:

(a) any Subsidiary of the Company may be merged or consolidated with any Person; provided, that immediately after giving effect to such merger or consolidation, no Default or Event of Default shall have occurred and be continuing;

(b) the Company may be a party to a merger or consolidation; provided, that the Company shall be the continuing or surviving corporation immediately after giving effect to such merger or consolidation and, no Default or Event of Default shall have occurred or be continuing as a result of such merger or consolidation;

(c) any Subsidiary may sell, lease, transfer or otherwise dispose of any or all of its assets (upon voluntary liquidation or otherwise) to the Company or a wholly-owned Subsidiary of the Company;

(d) the Company or any Subsidiary may sell or discount accounts or chattel paper (as such terms are defined in the Uniform Commercial Code in effect in the State of New York) at face value (determined after deducting any unearned income or finance charges in face amounts) less reserves or "holdbacks" for recourse purposes; provided that (i) such disposition shall be made only for the purpose of enabling the Company to finance its annual seasonal dating program as formally announced by the Company and extending over a period of no more than seven months; provided, further, that in any fiscal year such programs shall be in effect for no more than seven months in such year; (ii) the aggregate value of items (net of holdbacks) so disposed of in respect of any such seasonal program shall not exceed $20,000,000; and (iii) the aggregate amount of recourse liabilities of the Company and its Subsidiaries in respect of any such disposition shall not exceed 15% of the face value (to be determined as aforesaid) of the items disposed of. For purposes of the preceding, customary warranties as to validity, absence of default and the like or responsibilities as to the quality of goods sold shall not be deemed to constitute "recourse", but the assumption of any financial responsibility by way of agreements to repurchase, guaranties, reserves or "holdbacks", agreements to indemnify against credit loss or the like shall be deemed to constitute "recourse";

(e) the Company may sell WNCN, Building Materials plants located in St. Louis and Kansas City, Missouri, Gloucester City and South Bound Brook, New Jersey, Joliet, Illinois and real property owned by GAF (Belgium) N.V.;

(f) the Company may sell or otherwise dispose of assets not referred to in clauses (d) and (e) above; provided, that such sales or dispositions shall not in the aggregate exceed $25,000,000; and

(g) the Company may incorporate as wholly-owned Subsidiaries, its Building Materials Division and/or its Chemical Division; provided, however, that subsequent to such incorporation, such Subsidiary or Subsidiaries may not incur any Indebtedness except for Indebtedness to the Company (other than trade indebtedness incurred in the ordinary course of business) and, provided, further, that the Agent shall receive (i) the financial statements required pursuant to subsection 5.1(c) hereof and (ii) no later than 15 Business Days after the end of each month, a statement as at the end of each month, specifying in reasonable detail the allocation of the proceeds of the Loans made hereunder.

6.11 Sale and Leaseback. Enter into any arrangement with any Person whereby the Company or any of its Subsidiaries shall sell or transfer any property, real or personal, whether now owned or hereafter acquired, and thereafter rent or lease such property or other property which the Company or such Subsidiary intends to use for substantially the same purpose or purposes as the property being sold or transferred except: (a) with respect to assets owned as of April 1, 1984; provided such arrangements in the aggregate shall not exceed the greater of $14,000,000 or 7% of the Company's consolidated Tangible Net Worth; and (b) with respect to any assets acquired subsequent to April 1, 1984; provided, further, such arrangements in the aggregate do not violate the provisions of subsection 6.1 hereof.

SECTION 7. EVENTS OF DEFAULT

Upon the occurrence of any of the following events:

(a) The Company shall fail to pay any principal of or interest on any Note, or any other amount payable hereunder, when due in accordance with the terms thereof or hereof; or

(b) Any representation or warranty made or deemed made by the Company herein or which is contained in any certificate, document or financial or other statement furnished at any time under or in connection with this Agreement shall prove to have been incorrect in any material respect on or as of the date made or deemed made; or

(c) The Company shall default in the observance or performance of any agreement contained in subsections 6.1, 6.3, 6.4, 6.5, 6.8, 6.9, 6.10 and 6.11; or

(d) The Company shall default in the observance or performance of any agreement contained in Sections 5.1, 5.2, 5.5, 6.2, 6.6 and 6.7, and such default shall continue unremedied for a period of 15 days; or

(e) The Company shall default in the observance or performance of any other agreement contained in this Agreement, and such default shall continue unremedied for a period of 30 days; or

(f) The Company or any of its Subsidiaries shall (i) default in any payment of principal of or interest on any Indebtedness (other than the Notes) in respect of money borrowed or capitalized leases or incurred for the deferred purchase price of property or services or evidenced by a note, debenture or other similar written obligation to pay money, or in the payment of any Contingent Obligation, beyond the period of grace (not to exceed 30 days), if any, provided in the instrument or agreement under which such Indebtedness or Contingent Obligation was created; or (ii) default in the observance or performance of any other agreement or condition relating to any such Indebtedness or Contingent Obligation or contained in any instrument or agreement evidencing, securing or relating thereto, or any other event shall occur or condition exist, the effect of which default or other event or condition is to cause, or to permit the holder or holders of such Indebtedness or beneficiary or beneficiaries of such Contingent Obligation (or a trustee or agent on behalf of such holder or holders or beneficiary or beneficiaries) to cause, with the giving of notice if required, such Indebtedness to become due prior to its stated maturity or such Contingent Obligation to become payable; or

(g) (i) The Company or any of its Subsidiaries shall commence any case, proceeding or other action (A) under any existing or future law of any jurisdiction, domestic or foreign, relating to bankruptcy, insolvency, reorganization or relief of debtors, seeking to have an order for relief entered with respect to it, or seeking to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, winding-up, liquidation, dissolution, composition or other relief with respect to it or its debts, or (B) seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or any substantial part of its assets, or the Company or any of its Subsidiaries shall make a general assignment for the benefit of its creditors; or (ii) there shall be commenced against the Company or any of its Subsidiaries any case, proceeding or other action of a nature referred to in clause (i) above which (A) results in the entry of an order for relief or any such adjudication or appointment or (B) remains undismissed, undischarged or unbonded for a period of 60 days; or (iii) there shall be commenced against the Company or any of its Subsidiaries any case, proceeding or other action seeking issuance of a warrant of attachment, execution, distraint or similar process against all or any substantial part of its assets which results in the entry of an order for any such relief which shall not have been vacated, discharged, or stayed or bonded pending appeal within 60 days from the entry thereof; or (iv) the Company or any of its Subsidiaries shall take any action in furtherance of, or indicating its consent to, approval of, or acquiescence in, any of the acts set forth in clause (i), (ii) or (iii) above; or (v) the Company or any of its Subsidiaries shall generally not, or shall be unable to, or shall admit in writing its inability to, pay its debts as they become due; or

(h) (i) Any Person shall engage in any "prohibited transaction" (as defined in Section 406 of ERISA or Section 4975 of the Code) involving any Plan, (ii) any "accumulated funding deficiency" (as defined in Section 302 of ERISA), whether or not waived, shall exist with respect to any Plan, (iii) a Reportable Event shall occur with respect to, or proceedings shall commence to have a trustee appointed, or a trustee shall be appointed, to administer or to terminate, any Single Employer Plan, which Reportable Event or institution of proceedings is, in the reasonable opinion of the Required Banks, likely to result in the termination of such Plan for purposes of Title IV of ERISA, and, in the case of a Reportable Event, the continuance of such Reportable Event unremedied for ten days after notice of such Reportable Event pursuant to Section 4043(a), (c) or (d) of ERISA is given or the continuance of such proceedings for ten days after commencement thereof, as the case may be, (iv) any Single Employer Plan shall terminate for purposes of Title IV of ERISA, or (v) any other event or condition shall occur or exist; with respect to a Single Employer Plan and in each case in clauses (i) through (v) above, such event or condition, together with all other such events or conditions, if any, could subject the Company or any of its Subsidiaries to any tax, penalty or other liabilities in the aggregate material in relation to the business, operations, property or financial or other condition of the Company and its Subsidiaries taken as a whole; or

(i) One or more judgments or decrees shall be entered against the Company or any of its Subsidiaries involving in the aggregate a liability (not paid or fully covered by insurance) of $5,000,000 or more and all such judgments or decrees shall not have been vacated, discharged, appealed or stayed within 60 days from the entry thereof; or

(j) The Company or any Subsidiary of the Company shall make or permit any unreimbursed payments for the settlement of claims, awards, or the costs of defense against third party claims with respect to asbestos-related litigation in an aggregate amount from the date hereof in excess of $5,000,000;

then, and in any such event, (a) if such event is an Event of Default specified in clause (i) or (ii) of paragraph (g) above, automatically the Commitments shall immediately terminate and the loans hereunder (with accrued interest thereon) and all other amounts owing under this Agreement and the Notes shall immediately become due and payable, and (b) if such event is any other Event of Default, either or both of the following actions may be taken: (i) with the consent of the Required Banks, the Agent may, or upon the request of the Required Banks, the Agent shall, by notice to the Company, declare the Commitments to be terminated forthwith, whereupon the Commitments shall immediately terminate; and (ii) with the consent of the Required Banks, the Agent may, or upon the request of the Required Banks, the Agent shall, by notice of default to the Company, declare the loans hereunder (with accrued interest thereon) and all other amounts owing under this Agreement and the Notes to be due and payable forthwith, whereupon the same shall immediately become due and payable. Except as expressly provided above in this Section, presentment, demand, protest and all other notices of any kind are hereby expressly waived.

SECTION 8. THE AGENT

8.1 Appointment. Each Bank hereby irrevocably designates and appoints Manufacturers Hanover Trust Company as the Agent of such Bank under this Agreement, and each such Bank hereby irrevocably authorizes Manufacturers Hanover Trust Company, as the Agent for such Bank, to take such action on its behalf under the provisions of this Agreement and to exercise such powers and perform such duties as are expressly delegated to the Agent by the terms of this Agreement, together with such other powers as are reasonably incidental thereto. Notwithstanding any provision to the contrary elsewhere in this Agreement, the Agent shall not have any duties or responsibilities, except those expressly set forth herein, or any fiduciary relationship with any Bank, and no implied covenants, functions, responsibilities, duties, obligations or liabilities shall be read into this Agreement or otherwise exist against the Agent.

8.2 Delegation of Duties. The Agent may execute any of its duties under this Agreement by or through agents or attorneys-in-fact and shall be entitled to advice of counsel concerning all matters pertaining to such duties. The Agent shall not be responsible for the negligence or misconduct of any agents or attorneys-in-fact selected by it with reasonable care.

8.3 Exculpatory Provisions. Neither the Agent nor any of its officers, directors, employees, agents, attorneys-in-fact or affiliates shall be (i) liable for any action lawfully taken or omitted to be taken by it or such Person under or in connection with this Agreement (except for its or such Person's own gross negligence or willful misconduct), or (ii) responsible in any manner to any of the Banks for any recitals, statements, representations or warranties made by the Company or any officer thereof contained in this Agreement or in any certificate, report, statement or other document referred to or provided for in, or received by the Agent under or in connection with, this Agreement or for the value, validity, effectiveness, genuineness, enforceability or sufficiency of this Agreement or the Notes or for any failure of the Company to perform its obligations hereunder. The Agent shall not be under any obligation to any Bank to ascertain or to inquire as to the observance or performance of any of the agreements contained in, or conditions of, this Agreement, or to inspect the properties, books or records of the Company.

8.4 Reliance by Agent. The Agent shall be entitled to rely, and shall be fully protected in relying, upon any Note, writing, resolution, notice, consent, certificate, affidavit, letter, cablegram, telegram, telecopy, telex or teletype message, statement, order or other document or conversation believed by it to be genuine and correct and to have been signed, sent or made by the proper Person or Persons and upon advice and statements of legal counsel (including, without limitation, counsel to the Company), independent accountants and other experts selected by the Agent. The Agent may deem and treat the payee of any Note as the owner thereof for all purposes unless a written notice of assignment, negotiation or transfer thereof shall have been filed with the Agent. The Agent shall be fully justified in failing or refusing to take any action under this Agreement unless it shall first receive such advice or concurrence of the Required Banks as it deems appropriate or it shall first be indemnified to its satisfaction by the Banks against any and all liability and expense which may be incurred by it by reason of taking or continuing to take any such action. The Agent shall in all cases be fully protected in acting, or in refraining from acting, under this Agreement and the Notes in accordance with a request of the Required Banks, and such request and any action taken or failure to act pursuant thereto shall be binding upon all the Banks and all future holders of the Notes.

8.5 Notice of Default. The Agent shall not be deemed to have knowledge or notice of the occurrence of any Default or Event of Default hereunder unless the Agent has received notice from a Bank or the Company referring to this Agreement, describing such Default or Event of Default and stating that such notice is a "notice of default". In the event that the Agent receives such a notice, the Agent shall give notice thereof to the Banks. The Agent shall take such action with respect to such Default or Event of Default as shall be reasonably directed by the Required Banks; provided that, unless and until the Agent shall have received such directions, the Agent may (but shall not be obligated to) take such action, or refrain from taking such action, with respect to such Default or Event of Default as it shall deem advisable in the best interests of the Banks.

8.6 Non-Reliance on Agent and Other Banks. Each Bank expressly acknowledges that neither the Agent nor any of its officers, directors, employees, agents, attorneys-in-fact or affiliates has made any representations or warranties to it and that no act by the Agent hereinafter taken, including any review of the affairs of the Company, shall be deemed to constitute any representation or warranty by the Agent to any Bank. Each Bank represents to the Agent that it has, independently and without reliance upon the Agent or any other Bank, and based on such documents and information as it has deemed appropriate, made its own appraisal of and investigation into the business, operations, property, financial and other condition and creditworthiness of the Company and made its own decision to make its loans hereunder and enter into this Agreement. Each Bank also represents that it will, independently and without reliance upon the Agent or any other Bank, and based on such documents and information as it shall deem appropriate at the time, continue to make its own credit analysis, appraisals and decisions in taking or not taking action under this Agreement, and to make such investigation as it deems necessary to inform itself as to the business, operations, property, financial and other condition and creditworthiness of the Company. Except for notices, reports and other documents expressly required to be furnished to the Banks by the Agent hereunder, the Agent shall not have any duty or responsibility to provide any Bank with any credit or other information concerning the business, operations, property, financial and other condition or creditworthiness of the Company which may come into the possession of the Agent or any of its officers, directors, employees, agents, attorneys-in-fact or affiliates.

8.7 Indemnification. The Banks agree to indemnify the Agent in its capacity as such (to the extent not reimbursed by the Company and without limiting the obligation of the Company to do so), ratably according to the respective amounts of their original Commitments, from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements of any kind whatsoever which may at any time (including without limitation at any time following the payment of the Notes) be imposed on, incurred by or asserted against the Agent in any way relating to or arising out of this Agreement, or any documents contemplated by or referred to herein or the transactions contemplated hereby or any action taken or omitted by the Agent under or in connection with any of the foregoing; provided that no

Bank shall be liable for the payment of any portion of such liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements resulting solely from the Agent's gross negligence or wilful misconduct. The agreements in this subsection shall survive the payment of the Notes and all other amounts payable hereunder.

8.8 Agent in Its Individual Capacity. The Agent and its affiliates may make loans to, accept deposits from and generally engage in any kind of business with the Company as though the Agent were not the Agent hereunder. With respect to its loans made or renewed by it and any Note issued to it, the Agent shall have the same rights and powers under this Agreement as any Bank and may exercise the same as though it were not the Agent, and the terms "Bank" and "Banks" shall include the Agent in its individual capacity.

8.9 Successor Agent. The Agent may resign as Agent upon 10 days' notice to the Banks. If the Agent shall resign as Agent under this Agreement, then the Required Banks shall appoint from among the Banks a successor agent for the Banks which successor agent shall be approved by the Company, whereupon such successor agent shall succeed to the rights, powers and duties of the Agent, and the term "Agent" shall mean such successor agent effective upon its appointment, and the former Agent's rights, powers and duties as Agent shall be terminated, without any other or further act or deed on the part of such former Agent or any of the parties to this Agreement or any holders of the Notes. After any retiring Agent's resignation hereunder as Agent, the provisions of this Section 8 shall inure to its benefit as to any actions taken or omitted to be taken by it while it was Agent under this Agreement.

SECTION 9. MISCELLANEOUS

9.1 Amendments and Waivers. With the written consent of the Required Banks, the Agent and the Company may, from time to time, enter into written amendments, supplements or modifications hereto for the purpose of adding any provisions to this Agreement or the Notes or changing in any manner the rights of the Banks or of the Company hereunder or thereunder, and with the consent of the Required Banks the Agent on behalf of the Banks may execute and deliver to the Company a written instrument waiving, on such terms and conditions as the Agent may specify in such instrument, any of the requirements of this Agreement or the Notes or any Default or Event of Default and its consequences; provided, however, that no such waiver and no such amendment, supplement or modification shall (a) extend the maturity of any Note, or reduce the rate or extend the time of payment of interest thereon, or reduce the principal amount thereof, or change the amount or terms of any Bank's Commitment or amend, modify or waive any provision of this subsection or reduce the percentage specified in the definition of Required Banks, or consent to the assignment or transfer by the Company of any of its rights and obligations under this Agreement, in each case without the written consent of all the Banks, or (b) amend, modify or waive any provision of Section 8 without the written consent of the then Agent. Any such waiver and any such amendment, supplement or modification shall apply equally to each of the Banks and shall be binding upon the Company, the Banks, the Agent and all future holders of the Notes. In the case of any waiver, the Company, the Banks and the Agent shall be restored to their former position and rights hereunder and under the outstanding Notes, and any Default or Event of Default waived shall be deemed to be cured and not continuing; but no such waiver shall extend to any subsequent or other Default or Event of Default, or impair any right consequent thereon.

9.2 Notices. All notices, requests and demands to or upon the respective parties hereto to be effective shall be in writing or by telegraph or telex or facsimile and, unless otherwise expressly provided herein, shall be deemed to have been duly given or made when delivered by hand, or when deposited in the mail, air postage prepaid, or, in the case of telegraphic notice, when delivered to the telegraph company, or, in the case of telex or facsimile notice, when sent, answerback or confirmation received, addressed as follows in the case of the Company and the Agent, and as set forth in Schedule I in the case of the other parties hereto, or to such address or other address as may be hereafter notified by the respective parties hereto and any future holders of the Notes:

The Company: GAF Corporation
1361 Alps Road
Wayne, New Jersey 07470
Attention: Chief Financial Officer
Telex: 130374
Answerback: GAF WANE

The Agent: Manufacturers Hanover Trust Company
1275 Avenue of the Americas
New York, New York 10020
Attention: Alan B. Hendrickson
Telex: 01-2211 or 12-8145
Facsimile: (212) 581-2036
Answerback: MHTCO (A) (B) NYK (C) 609

provided that any notice, request or demand to or upon the Agent or the Banks pursuant to subsections 2.3, 2.5, 2.6 and 2.7 shall be prior and shall not be effective until received.

9.3 No Waiver; Cumulative Remedies. No failure to exercise and no delay in exercising, on the part of the Agent or any Bank, any right, remedy, power or privilege hereunder, shall operate as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege. The rights, remedies, powers and privileges herein provided are cumulative and not exclusive of any rights, remedies, powers and privileges provided by law.

9.4 Survival of Representations and Warranties. All representations and warranties made hereunder and in any document, certificate or statement delivered pursuant hereto or in connection herewith shall survive the execution and delivery of this Agreement and the Notes.

9.5 Payment of Expenses and Taxes. The Company agrees (a) to pay or reimburse the Agent for all its out-of-pocket costs and expenses incurred in connection with the development, preparation and execution of, and any amendment, supplement or modification to, this Agreement and the Notes and any other documents prepared in connection herewith, and the consummation of the transactions contemplated hereby and thereby, including, without limitation, the fees and disbursements of counsel to the Agent, (b) to pay or reimburse each Bank and the Agent for all its costs and expenses incurred in connection with the enforcement or preservation of any rights under this Agreement, the Notes and any such other documents, including, without limitation, fees and disbursements of counsel to the Agent and to the several Banks, (c) to pay, indemnify, and to hold each Bank and the Agent harmless from, any and all recording and filing fees and any and all liabilities with respect to, or resulting from any delay in paying, stamp and other taxes, if any, which may be payable or determined to be payable in connection with the execution and delivery of, or consummation of any of the transactions contemplated by, or any amendment, supplement or modification of, or any waiver or consent under or in respect of, this Agreement, the Notes and any such other documents, and (d) to pay, indemnify, and hold each Bank and the Agent harmless from and against any and all other liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements of any kind or nature whatsoever with respect to the execution, delivery, enforcement, performance and administration of this Agreement, the Notes and any such other documents (all the foregoing, collectively, the "indemnified liabilities"), provided, that the Company shall have no obligation hereunder with respect to indemnified liabilities arising from (i) the gross negligence or wilful misconduct of any such Bank, (ii) legal proceedings commenced against any such Bank by any security holder or creditor thereof arising out of and based upon rights afforded any such security holder or creditor solely in its capacity as such, or (iii) legal proceedings commenced against any such Bank by any other Bank. The agreements in this subsection shall survive repayment of the Notes and all other amounts payable hereunder.

9.6 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the Company, the Banks, the Agent, all future holders of the Notes and their respective successors and assigns, except that the Company may not assign or transfer any of its rights under this Agreement without the prior written consent of each Bank.

9.7 Adjustments; Set-off.

(a) If any Bank (a "benefitted Bank") shall at any time receive any payment of all or part of its Loans, or interest thereon, or receive any collateral in respect thereof (whether voluntarily or involuntarily, by set-off, pursuant to events or proceedings of the nature referred to in clause (g) of Section 7, or otherwise) in a greater proportion than any such payment to and collateral received by any other Bank, if any, in respect of such other Bank's Loans, or interest thereon, such benefitted Bank shall purchase for cash from the other Banks such portion of each such other Bank's loan, or shall provide such other Banks with the benefits of any such collateral, or the proceeds thereof, as shall be necessary to cause such benefitted Bank to share the excess payment or benefits of such collateral or proceeds ratably with each of the Banks; provided, however, that if all or any portion of such excess payment or benefits is thereafter recovered from such benefited Bank, such purchase shall be rescinded, and the purchase price and benefits returned, to the extent of such recovery, but without interest. The Company agrees that each Bank so purchasing a portion of another Bank's Loan may exercise all rights of payment (including, without limitation, rights of set-off) with respect to such portion as fully as if such Bank were the direct holder of such portion.

(b) In addition to any rights and remedies of the Banks provided by law, each Bank shall have the right, without prior notice to the Company, any such notice being expressly waived by the Company to the extent permitted by applicable law, upon the filing of a petition under any of the provisions of the federal bankruptcy act or amendments thereto, by or against; the making of an assignment for the benefit of creditors by; the application for the appointment, or the appointment, of any receiver of, or of any of the property of; the issuance of any execution against any of the property of; the issuance of a subpoena or order, in supplementary proceedings, against or with respect to any of the property of; or the issuance of a warrant of attachment against any of the property of; the Company, to set-off and apply against any indebtedness, whether matured or unmatured, of the Company to such Bank, any amount owing from such Bank to the Company, at or at any time after, the happening of any of the above mentioned events, and the aforesaid right of set-off may be exercised by such Bank against the Company or against any trustee in bankruptcy, debtor in possession, assignee for the benefit of creditors, receiver, or execution, judgment or attachment creditor of the Company, or against anyone else claiming through or against the Company or such trustee in bankruptcy, debtor in possession, assignee for the benefit of creditors, receivers, or execution, judgment or attachment creditor, notwithstanding the fact that such right of set-off shall not have been exercised by such Bank prior to the making, filing or issuance, or service upon such Bank of, or of notice of, any such petition; assignment for the benefit of creditors; appointment or application for the appointment of a receiver; or issuance of execution, subpoena, order or warrant. Each Bank agrees promptly to notify the Company and the Agent after any such set-off and application made by such Bank, provided that the failure to give such notice shall not affect the validity of such set-off and application.

9.8 Counterparts. This Agreement may be executed by one or more of the parties to this Agreement on any number of separate counterparts and all of said counterparts taken together shall be deemed to constitute one and the same instrument. A set of the copies of this Agreement signed by all the parties shall be lodged with the Company and the Agent.

9.9 Governing Law. This Agreement and the Notes and the rights and obligations of the parties under this Agreement and the Notes shall be governed by, and construed and interpreted in accordance with, the law of the State of New York.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed and delivered in New York, New York by their proper and duly authorized officers as of the day and year first above written.

GAF CORPORATION

By: s/ James T. Sherwin
Vice Chairman

MANUFACTURERS HANOVER TRUST COMPANY, as Agent and as a Bank

By: s/ Alan B. Hendrickson
Vice President

THE CHASE MANHATTAN BANK (NATIONAL ASSOCIATION)

By: s/ Barbara W. Pettus
Second Vice President

MORGAN GUARANTY TRUST COMPANY OF NEW YORK

By: s/ Richard F. Johnson
Vice President

MORGAN GUARANTY TRUST COMPANY
OF NEW YORK, CHANNEL ISLANDS
BRANCH

By: s/ Scott P. Howard
Vice President

IRVING TRUST COMPANY

By: s/ James K. Downey
Assistant Vice President

CONTINENTAL ILLINOIS NATIONAL
BANK AND TRUST COMPANY OF
CHICAGO

By: s/ Neil R. Gunn
Vice President

THE CONNECTICUT BANK AND TRUST
COMPANY, NATIONAL ASSOCIATION

By: s/ John A. Stanley
Vice President

SECURITY PACIFIC NATIONAL BANK

By: s/ J. Mathew Schneider
Vice President

CENTERRE BANK NATIONAL ASSOCIATION

By: s/ John J. Dwyer, Jr.
Vice President

JAN 1 1981

Research Department:

Directors of Research Department at GAF:

Dr. Leon Katz	______	through 1967
Dr. Frederick Grosser	1967	through 1969
Dr. Robert Meyers	1969	through 1972
Dr. Simon Kantor	1972	through present

Directors of Research Department at Ruberoid

Edward Duke	______	through 1947
Clarence Eckert	1947	through 1958
Philip S. Bettoli	1958	through 1967

Products:

See attached list.

JAN 1 1981

G A F CORPORATION

THE ENCLOSED INFORMATION HAS BEEN OBTAINED FROM A VARIETY OF ANSWERS TO INTERROGATORIES PROPOUNDED BY VARIOUS PLAINTIFF'S IN ASBESTOS RELATED SUITS.

JAN 1 1981

G A F CORPORATION

CORPORATE STATUS:

1886 Standard Paint Co. incorporated in New York

1905 Standard Paint Co. incorporated

3/10/21 name change to THE RUBEROID CO.

1929 American I. G. Chemical Corp. incorporated in Delaware

1939 name changed to General Aniline & Film Corp.

3/23/67 merger of THE RUBEROID CO. and GENERAL ANILINE & FILM CORP

1968 name change G A F CORPORATION

1 1981

G A F CORPORATION

MANUFACTURING PLANTS:

Gloucester, New Jersey - 1940's - mid '70's

Hyde Park, Vermont - 1936 - 9/75

Southbound Brook, New Jersey - 1962 - 9/71

Erie, Pennsylvania - 1928 - present

RAW ASBESTOS SUPPLIERS:

1933 - 1978 - Johns-Manville and Cape Asbestos Corp. and other companies whose names cannot be recalled.

MINE INTERESTS:

1936 Operated a chrysotile mine in Hyde Park, Vermont
Sold this mine in 1974 (while still in operation)

1936 Operated a processing mill in connection with the Hyde Park, Vermont mine. Sold mill in 1974 (while still in operation).

JAN 1 1981

G A F CORPORATION

MEMBERSHIPS:

National Insulation Manufacturers Association, Inc.

Asbestos Cement Product Association

American Society of Testing Materials

Asbestos Information Association of North America

(dates unknown)

NET WORTH/NET PROFIT/ VOLUME SALES:

Available at corporation offices.

INSURANCE:

Available at corporation offices.

SALES DISTRIBUTION:

GAF has no corporate records which show that it distributed, as that term is commonly used, industrial insulation products containing asbestos in California.

GAF did not have control over others who may have shipped or sold GAF industrial insulation products containing asbestos to or in California

JAN 1 1981

G A F CORPORATION

PRODUCTS/PACKAGING:

GAF ceased use of asbestos in 1972.

Most Ruberoid and GAF industrial thermal insulation products were sold in corrugated cardboard boxes bearing the companies' respective names or logos. Insulating cements were sold in heavy duty bags.

WARNING/HAZAAD LABELS:

In late 1965 or early 1966, Ruberoid began placing the following warning on packages of its industrial thermal insulation products containing asbestos fiber:

> CAUTION
> THIS PRODUCT CONTAINS ASBESTOS FIBER. INHALATION OF ASBESTOS IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL.
> IF DUST IS CREATED WHEN THIS PRODUCT IS HANDLED, AVOID BREATHING THE DUST. IF ADEQUATE VENTILATION CONTROL IS NOT POSSIBLE, WEAR RESPIRATORS APPROVED BY THE U.S. BUREAU OF MINES FOR PNEUMONCONIOSIS PRODUCING DUST.

In 1970, this warning label was changed to read as follows:

> CAUTION
> CONTAINS ASBESTOS FIBER. INHALATION IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL. AVOID BREATING DUST. IF ADEQUATE VENTILATION IS NOT POSSIBLE, WEAR RESPIRATORS APPROVED BY THE U.S. BUREAU OF MINES FOR PNEUMONCONIOSIS PRODUCING DUST.

In approximately 1972, this warning was changed to read as follows:

> CAUTION
> CONTAINS ASBESTOS FIBER. INHALATION IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL. AVOID BREATHING DUST.

In using these warnings, GAF was following other manufacturers who used such cautionary notices after some opinions were expressed by members of the medical profession that there might be a health risk involved in the inhalation of excessive quantities of asbestos fiber. Commencing in 1972, pursuant to the requirements of the Occupational Safety & Health Act of 1970, GAF placed the last notice set out above.

In the mid 1960's, NIMA, of which GAF was a member, commenced dissemination to distributors of asbestos hazard warnings.

GAF CORPORATION

COON case, RESPONSES OF GAF CORPORATION TO PLAINTIFF'S FIRST SET OF INTERROGATORIES, DATED NOVEMBER 21, 1978.

Interrogatory 1: Ruberoid Company, which GAF merged with in 1967, was engaged in manufacturing materials containing asbestos, and distributed those materials.

Interrogatory 3: Defendant states that it did not sell to shipyards at which plaintiff worked during the time he was employed there. That is:

- 1943 - Bethlehem Shipyard, Alameda.
- 1946-1951 - Various jobs at Pabco Company, Emeryville; Todd Shipyard, Alameda, Bethlehem Shipyard, Alameda.
- 1952 - Steamfitter-welder working out of Bakersfield at various jobs.
- 1955 - Steamfitter-welder working out of Local 342, Steamfitter, Concord. (Here approximately 50% of the jobs involved exposure to asbestos on either new constructio or modification to old contruction or repair.

Interrogatory 16: Defendant does not have its sales or manufacturing records for the years plaintiff worked in a shipyard.

Interrogatory 19: No depositions have been taken with respect to litigation filed in Northern California of defendant's employees or former employees.

DG

JAN 1 1981

GAF CORPORATION - IN THE RIVIERA VS. FIBERBOARD CASE

GAF responses to Plaintiff's Interrogatories, dated March 5, 1979, Set 2.

Page 5, Interr. #120 - The predecessor to GAF is Ruberoid. GAF claims that it has no documents which relate to or reflect warranties or disclaimers, limitations, exclusions of warranty concerning the quality user benefits of Ruberoid's asbestos products. GAF did have a technical bulletin regarding the thermal insulation products Calsite, T/NA100 and T/NA100 Vapor Barrier, dated 1968, in which the disclaimer was made that no express or implied warranties were made of the merchantability and fitness of the particular use or purpose of their product.

Interr. #125 - page 11. GAF claims it began placing cautionary instructions on its cartons containing asbestos products in 1965.

Interr. #126 - page 11. GAF claims it has never been a defendant to a worker's compensation claim filed by a thermal industrial insulation worker.

Response of GAF Corporation to Plaintiff's First Set of Interrogatories, dated November 13, 1978.

Interr. #2, page 4 - GAF holds a certificate of authority to do business in California. Its principal place of business is located at 140 W. 51st St., NY NY 10020. On May 26, 1967, GAF merged with the Ruberoid Co., a New Jersey corporation, assuming its assets and liabilities. Ruberoid began themanufacture of industrial thermal insulation products containing asbestos figers in the late 1920s or early 1930s.

Interr. #4, page 6 - GAF and its predecessor Ruberoid manufactured asbestos oproducts at the following places: (1) Gloucester, N.J. from the early 1940's until mid-1970; (2) Hyde Park, VT from 1936 thru Sept. of 1975; (3) Southbound Brook, NJ from 1962 to Sept. 1971; (4) Erie, PA from approximately 1928. Several years ago this facility discontinued the manufacture of industrial insulation products containing asbestos. The persons who were in charge of these manufacturing facilities are either no longer in the employe of GAF or unknown, with the exception of Wayne Paige, who for a period of time was manager of the Hyde Park mine.

Interr. #5, page 7 - GAF has no corporate records which show that it distributed industrial insulation products containing asbestos in California. GAF did not have control over others who may have shipped or sold GAF industrial insulation products containing asbestos to or in California. They claim that they have no available corporate records who might identify these other identities who may have shipped their products to California.

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Interr. #6, page 8 thru page 9 - GAF manufactured the following asbestos-containing products: (1) Calsite - a high temperature pipe covering and built up white block containing approximately 10% amosite and 2% crysotol asbestos fiber and the remainder consisting of hydrous lime silicate and diatomaceous earth; (2) "115" and "214" insulation cement - known generically as 7M and 7K type cements, respectively. These insulating cements were composed entirely of Crysotile asbestos fiber; (3) T/NA-100 Insulation Jacketing - a 2-ply, laminated product consisting of a layer of asbestos paper in which crysotile asbestos products were bonded with neoprene and a layer of polyvinyl floride (Tedlar) plastic film attached by adhesive on one side.(4) asbestos paper and millboard - crysotile insulating paper, used as jacketing or pipe wrap. The contents of these products varied from time to time. All products were white a fibrous.

Interr. #7, page 9 - GAF claims that from 1938 thru 1978, it purchased unknown quantities of asbestos fiber from Johns Manville, Kabesbestos Corporation and other companies whose names can't be recalled.

Interr. #8, page 10 - In late 1965 or early 1966, Ruberoid began placing warning on its packages of industrial thermal insulation products containing asbestos. It's basically the same warning issued by other companies. Their warning was changed in 1970 and again in 1972.

Interr. #9, page 12 - In the mid-1960's, NIMA, of which GAF was a member, commenced dissemination to distributors of asbestos hazard warnings.

Interr. #10, page 12-13 - GAF does not presently manufacture or supply any industrial insulation product containing asbestos.

From 1936 through 1974, Ruberoid began operating a crysotile mine in Hyde Park, Vermont. GAF sold the mine in 1974, at which time it was still in operation.

Interr. #16, page 16 - Ruberoid operated a processing mill in connection with its quarry in Hyde Park, Vermont. GAF believes the mill began production in approximately 1936. GAF sold the mill in 1974.

Interr. #22, page 20 - GAF belonged to National Insulation Manufacturer's Association, Inc. and Asbestos Cement Product Association.

Interr. #24, page 21 - GAF representatives did attend certain meetings of these organizations, but there are no corporate records which showed the dates or subject matters of the meetings.

Interr. #26, page 22 - GAF claims it has no records regarding any studies conducted by it regarding the affect of products containing asbestos on thelungs and physical conditions of employees or others who used their products.

Interr. #28, page 23 - Most Ruberoid and GAF industrial thermal insulation products were sold in corrugated cardboard boxes bearing the company's respective names or logos. The insulating cement was sold in heavy-duty bags. GAF thermal industrial insulation products were sold to distributors by company-employed salesmen. GAF does state that distribution of GAF and Ruberoid products was "infinitesimal" west of the Rocky Mountains.

Interr. #47, page 31 - The Ruberoid Co. was incorporated in New York in 1886, The Standard Paint Co. After several corporate changes, the Standard Paint Co. was incorporated in New Jersey in 1905. The Standard Paint Co. became the Ruberoid Co. on March 10, 1921. After 1966 the executive offices of the Ruberoid Co. were located at 733 3rd Ave., NY, NY. GAF was incorporated in Delaware in 1929 as the American I.G. Chemical Corporation. Its name was changed in 1939 to General Analine and Film Corporationand again in 1968 to GAF Corporation. Its president is Philip B. Dalton.

GAF merged with Ruberoid Co. on March 23, 1967. Ruberoid began manufacturing asbestos contained products in the late 1920's or early 1930's. GAF ceased the manufacture of such products in 1972.

Interr. #51, page 34 - GAF's products were supplied in a ready-to-use form, but Calcelite, TN/A100 asbestos paper and millboard all required cutting where dimensions so dictated. 7M cement and 6D cement required mixing with water and in addition a small amount of ordinary building cement was added at the user's option.

Interr. #53, page 35 - In response to a request for its net profits for each of the years since 1960, GAF offers to make its financial statement for the period 1967 to present available to plaintiff's attorney.

Interr. 56, page 36 - The only time GAF had an insulation material which did not contain asbestos was when Calcelite was changed in July or August of 1971 and briefly placed on the market. Its manufacture was discontinued in the same year.

Interr. #61, page 38 - GAF claims it was aware, although it does not recall on which date, of the threshhold limit values recommended by the American Conference of Governmental and Industrial Hygienists.

Interr. #62, page 38 - In this interrogatory they indicate that the first value that they are able to recall was 5 million particles per cubic foot.

Interr. #69, page 41 - GAF offers to make available to counsel for inspection and copying whatever sales literature for its insulation products containing asbestos that it can locate in its files for the years 1950 thru 1970.

Interr. 70, page 42 - After 1967 the advertising materials for GAF were prepared primarily by Ms. Helen Lofaro, Manager of Sales Services for GAF, then Industrial Products Division, 140 W. 51st St., New York, NY, 10020.

Interr. #71, page 43 - Ruberoid advertised in the magazine "Asbestos" but GAF claims it does not have those on file.

Interr. #78, page 46 - GAF says it does not know the date when it initially established a research department. The following persons have held theposition of Vice President of Research at GAF:

GAF

Name	Date of Service	Present Employer
Dr. Leon Katz	_____ thru 1967	American Can
Dr. Frederick Grosser	1967thru 1969	GAF
Dr. Robert Meyers	1969 thru 1972	Regal Paper
Dr. Simon Kantor	1972 thru present	GAF

Directors of the Research Department at Ruberoid Co.

Edward Duke	____ thru 1947	Retired; address unknown
Clarence Eckert	1947 thru 1958	Deceased
Philip S. Bettoli	1958 thru 1967	GAF

Interr. #83, page 48 - GAF claims that it does and did have, from 1940 thru 1975, insurance against liability for the design manufacture, distribution, and sale of asbestos products.

Interr. #84, page 49 - GAF claims that it will make a schedule of such informationavailable inspection at plaintiff's expense.

Interr. #84 1, page 50 - GAF makes the same offer regarding other lawsuits filed against GAF.

Interr. #84-2, page 50 - GAF's general rule is that records are retained for 7 years.

gaf

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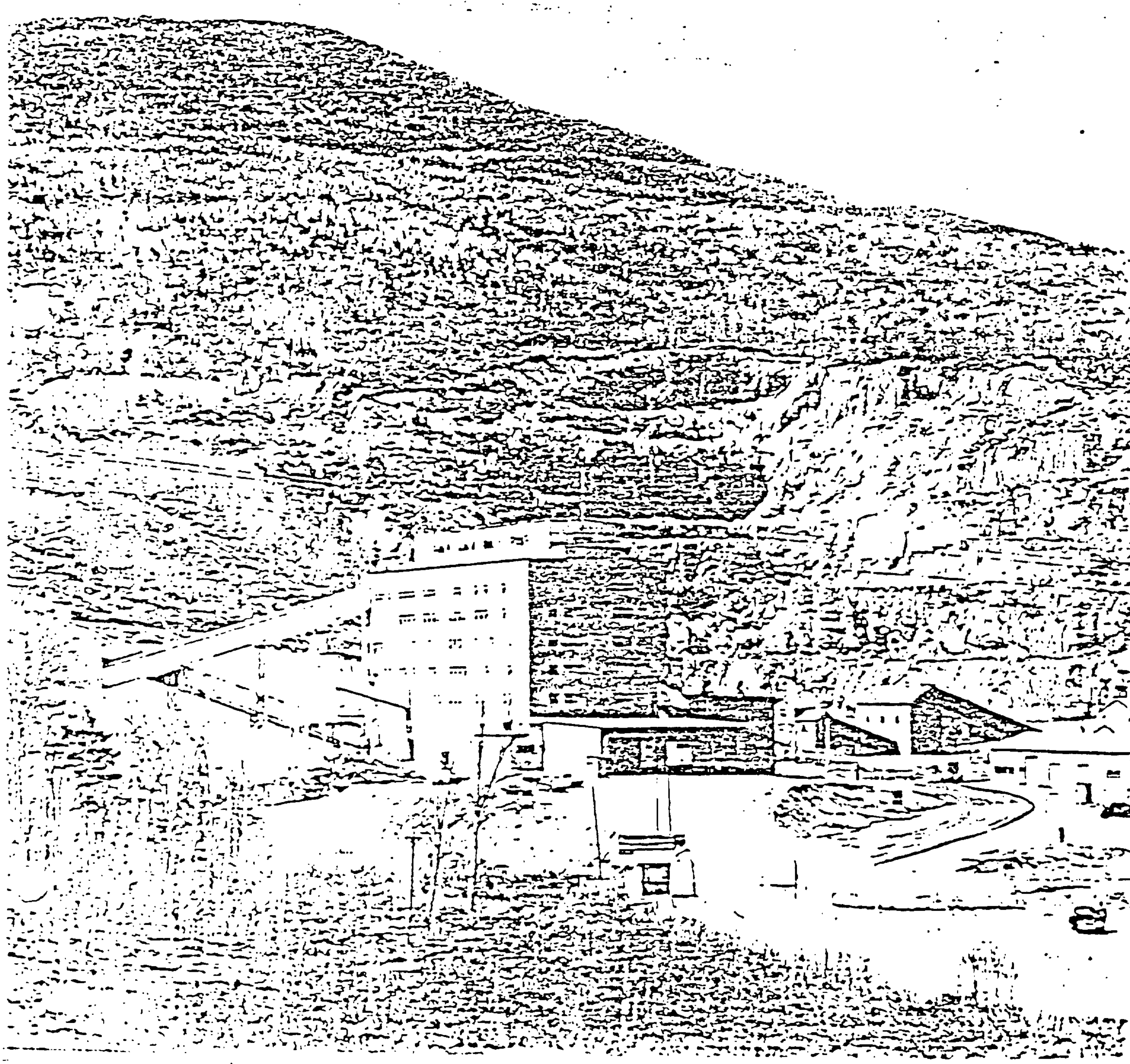
ASBESTOS FIBER

FOR COMMERCIAL AND INDUSTRIAL USES



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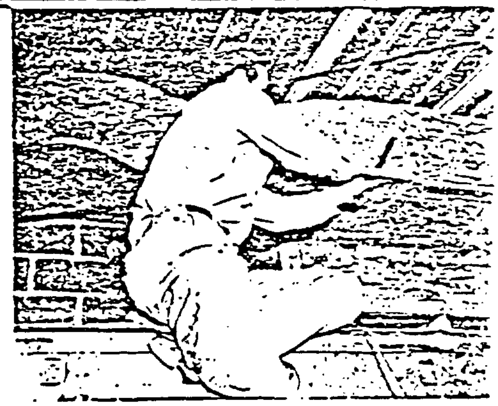
Special Fiber Insulation

for insulating housings, plenum chambers, and air conditioning ducts in offices, factories, institutional and commercial buildings of all kinds

This insulation is felted from long, tough, super-springy siliceous fibers of unusual fineness. Extremely low in thermal conductivity, it has a temperature limit of 450°F. The fibers are non-absorptive, corrosion-resistant, moisture-resistant and incombustible. They have been treated to resist capillary action, will neither rot nor mildew.



Standard Sizes, Thicknesses and Available Facings

Type	Wt. per Cu. ft., lb.	Length	Width, inches	Thickness, inches	Facings
No. 411 (flexible)	3.00	48", 60"	30	1" to 5"*	VS, FSK, APV
No. 411 (flexible)	3.00	25' (rolls)	30	1" to 2"*	VS, FSK, APV
No. 412 (semi-rigid)	3.50	48", 60"	30	1" to 5"*	VS, FSK, APV, AP
No. 413 (semi-rigid)	4.25	48", 60"	30	1" to 5"*	VS, FSK, APV, AP
No. 414 (semi-rigid)	6.00	48", 60"	30	½", ¾" & 1" to 4"*	VS, FSK, APV, AP
No. 415 (semi-rigid)	8.00	48", 60"	30	½", ¾" & 1" to 3"*	VS, FSK, APV, AP
No. 416 (semi-rigid)	9.00	48", 60"	30	½", ¾" & 1" to 2"*	VS, FSK, APV, AP

* in ½" increments.

Facing Information

VS: Heavy asphalt-kraft paper. Applied with wrap around edge to 413, 414, 415 & 416. Applied with no edge wrapping to one surface of 411 and 412.

FSK: Foil scrim kraft, flame resistant.

APV: .004" aluminum pigmented vinyl film.

AP: Asbestos paper.

Fiber Glass Insulation . . . textile fibered

for use as a duct liner and duct wrap, for refrigerated trucks and trailers, air conditioning and heating equipment

This lightweight, resilient, semi-rigid blanket insulation is composed of fine glass fibers, reinforced with glass textile fiber and bonded with a thermosetting resin. It is especially effective as a liner for air conditioning and heating ducts . . . will absorb air-borne noises in the 250 to 4000 cps range and dampen vibration.

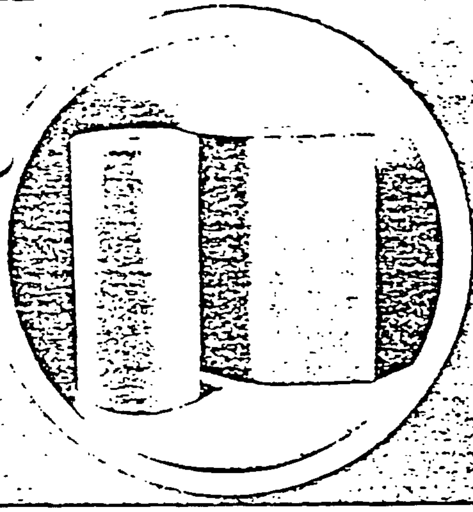
Facing Information

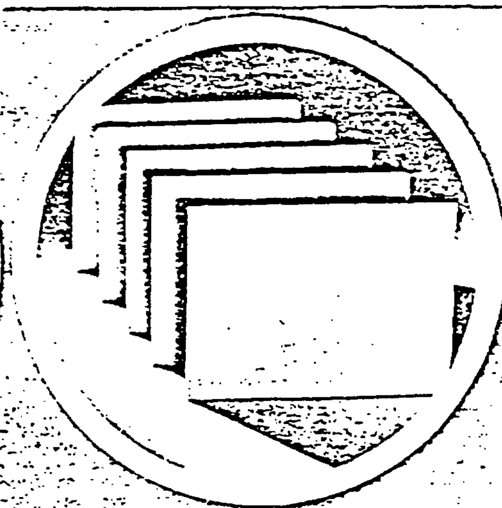
Available on all densities and thicknesses either with no tabs or with 1 or 2 2-inch tabs

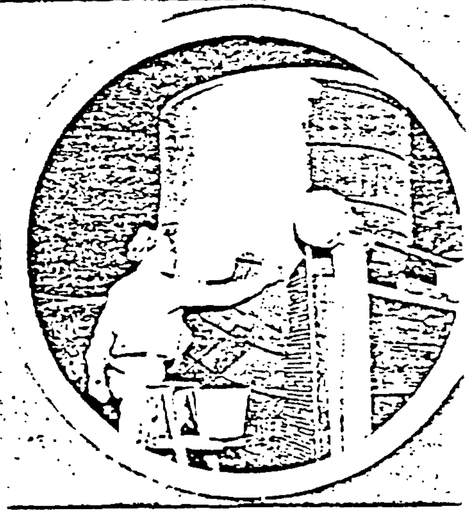
RKL	LIGHTWEIGHT VAPOR BARRIER PAPER (Reinforced Kraft, Light): Two layers of 30-lb. Kraft paper, reinforced with fiber glass yarn scrim (1" x 1" spacing) in asphalt lamination.
.001 AL	Aluminum Foil — High degree of heat reflection. Foil adds its own insulating value through its excellent radiant heat reflectivity. Incombustible.
.002 ALX	Aluminum Foil (Recommended as vapor barrier) — High degree of heat reflection. Foil adds its own insulating value through its excellent radiant heat reflectivity. Incombustible.
FSK	Reinforced Foil and Paper (Foil, Scrim, Kraft): A layer of aluminum foil, reinforced with fiber glass yarn mesh and laminated to 40 lb. fire-resistant Kraft. Very strong. Foil adds to insulating value.
APV	Vinyl Plastic
WPV	Aluminum white or green pigmented.
GPV	Effective vapor barrier. Provides attractive finish.
FSKL	Foil Skin Kraft, lightweight plastic coating, black.

Dimensional Limitations, Standard Product

density	thickness	width	length
.6, .75 & 1.0 lb.	1", 1½"	24", 36", 48"	100'
	2", 3"	24", 36", 48"	50'
1.5 lb.	½"	24", 36", 48"	100'
	1", 1½", 2"	24", 36", 48"	50'
2.0 lb.	½"	24", 36", 48"	100'
	1", 1½"	24", 36", 48"	50'
3.0 lb.	½"	24", 36", 48"	100'
	1"	24", 36", 48"	50'







Commercial Asbestos Paper

As a fire retardant with all the properties of a thin, pliable paper, Ruberoid Asbestos Paper has a multiplicity of uses in residential and general building work and in industrial applications. It can be used to wrap furnace pipes, air-conditioning ducts, furnaces, jackets and for the protection of wood partitions exposed to heat. This product is ideal for any application where paper is desired and a degree of fireproofing is required.

Asbestos Millboard

Asbestos Millboard is designed to be used wherever a lightweight, inexpensive fireproofing material is required. It is employed widely in insulating ovens and ranges and for lining grates, ceilings and walls. Its many residential and industrial uses are apparent when it is considered that the product is fire retardant, vermin proof and can be used as protection against acid fumes.

Insulation Cements

Ruberoid offers a cement for every temperature problem . . . for both insulating and finishing.

Product	Temp. Range
Grade 313 Mineral Wool Cement	2100°F
Calsilite Cement	1250°F
Grade 412 Single Coat Cement	1250°F
Grade 214 Asbestos Cement	1000°F
Grade 115 Asbestos Cement	1000°F

Asbestos Rollboard

Asbestos Rollboard is basically the same product as Ruberoid Asbestos Paper, except that it is made in thicknesses of 1/8" and 3/32". It is used for general fire proofing, and heat resisting purposes. It will withstand temperatures up to 350°F.

Asbestos Furnace Tape

Ruberoid Asbestos Paper in tape widths has been cut in convenient size small rolls, making it easy to handle in the furnace industry. This tape can be used for sealing joints in the application of cellular insulation on furnaces and pipes and air conditioning ducts.

Asbestos Electrolytic Paper

This special long fibre asbestos paper is specifically manufactured for chlorine manufacturers using electrolytic cell process. It is available only upon special order.

The RUBEROID Co.

Industrial Insulation Division · 733 Third Avenue · New York, N.Y. 10017

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DESIGN DATA

Property	Value
al Conductivity / Mean Temp. (sq. ft./inch/hr./°F.)	200°F 300°F 400°F 500°F 600°F 0.35 0.40 0.45 0.50 0.55
ty (Average)	12.5 lbs. / cu. ft.
al Strength (Average)	100 lbs. / sq. in.
tance to Abrasion (Loss in weight—max.)	After 10 min.—10%; after 20 min.—20%
te under Soaking Heat (Loss of weight)	24 hrs. @ 1200°F.—7.5%; 6 hrs. @ 1000°F—7.0%
r Shrinkage	24 hrs. @ 1200°F.—1.5%; 6 hrs. @ 1000°F—0.8%
ressive Strength (After immersion in water for 15 hours, while wet)	*120 psi to produce 5% deformation*

RECOMMENDED THICKNESSES

nal size, es ↓	PIPE / UTILITY—STEAM GENERATION											PIPE / PROCESS								
	1	1	1	1½	1½	1½	2	2½	2½	2½	3	1	1	1	1	1	1	1	1½	1½
	1	1	1	1½	1½	1½	2	2½	2½	2½	3	1	1	1	1	1	1	1½	1½	1½
	1	1	1½	1½	2	2	2½	2½	3	3	3½	1	1	1	1	1	1	1½	1½	1½
	1	1	1½	1½	2	2	2½	2½	3	3	3½	1	1	1	1	1	1½	1½	1½	1½
	1	1½	1½	2	2	2½	3	3	3	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2	2½	3	3	3½	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2	2½	3	3	3½	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2½	2½	3	3½	3½	4	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	2	2	2½	2½	3	3½	3½	3½	4	1	1	1	1½	1½	1½	2	2	2½
	1½	1½	2	2	2½	2½	3	3½	3½	4	4	1½	1½	1½	1½	1½	1½	2	2	2½
	1½	1½	2	2	2½	2½	3½	3½	4	4	4½	1½	1½	1½	1½	1½	2	2	2½	2½
	1½	1½	2	2½	2½	3	3½	3½	4	4	5	1½	1½	1½	1½	1½	2	2	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4½	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4½	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	4	4	4½	4½	5	1½	1½	1½	1½	2	2	2½	2½	3

PACKAGING DATA

PIPE SIZE →	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	6"	7"	8"	9"	10"	11"	12"	14"	15"	16"	17"	18"	19"	20"	21"
Sections per Ctn.	45	45	25	25	22	15	16	15	9	9	8	8	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Av. Gross Wgt. per Ctn. (lbs.)	100	95	75	70	70	70	70	70	65	55	55	55	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ctn. Number	201	201	212	212	201	201	202	201	202	202	203	203	204	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sections per Ctn.	21	21	13	16	15	15	9	9	6	6	6	6	4	4	2	2	2	2	2	1	1	1	1	1	—	—	—
Av. Gross Wgt. per Ctn. (lbs.)	90	85	80	85	90	100	90	70	85	75	75	55	45	55	35	35	40	45	45	25	25	25	30	30	—	—	—
Ctn. Number	201	201	201	202	202	201	202	202	203	203	204	204	205	206	207	208	209	210	203	211	212	213	205	202	—	—	—
Sections per Ctn.	15	15	15	15	9	9	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1
Av. Gross Wgt. per Ctn. (lbs.)	105	105	115	120	95	85	100	90	85	80	70	60	70	40	45	50	50	55	30	30	35	35	25	40	40	40	45
Ctn. Number	202	202	201	201	202	202	203	203	204	204	205	205	206	207	208	209	210	203	211	212	213	205	202	206	214	215	216
Sections per Ctn.	9	9	9	9	8	8	6	6	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Av. Gross Wgt. per Ctn. (lbs.)	100	100	100	95	110	105	100	90	80	75	85	80	50	50	50	50	55	35	40	40	40	45	50	50	50	55	55
Ctn. Number	202	202	202	202	203	203	204	204	205	205	206	206	207	208	209	210	203	211	212	213	205	202	206	214	215	215	217
Sections per Ctn.	3	3	3	3	6	5	4	4	4	4	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
Av. Gross Wgt. per Ctn. (lbs.)	120	115	115	110	105	100	85	80	95	90	55	55	50	55	70	75	40	45	50	50	50	55	55	50	60	55	55
Ctn. Number	202	203	203	203	204	204	205	205	206	206	207	207	208	209	210	203	211	212	213	205	202	205	214	215	215	217	219

CODE SIZE OF CARTONS

202—19¼" x 12¼" I.D.
201—27½" x 13" I.D.
202—21¼" x 21¼" I.D.
203—[illegible] x 16" I.D.
204—21" x 13" I.D.

205—20¼" x 20¼" I.D.
206—22¼" x 22¼" I.D.
207—24" x 12" I.D.
208—25" x 12" I.D.
209—23½" x 14¼" I.D.

210—30½" x 15¼"
211—17¼" x 17¼" I.D.
212—18¼" x 18¼" I.D.
213—19¼" x 19¼" I.D.
214—22¼" x 22¼" I.D.

215—24¼" x 24¼"
216—25¼" x 25¼"
217—25¼" x 25¼"
218—27¼" x 27¼"
219—28¼" x 28¼"
221—28¼" x 17¼"

potential ... hazard of ... [illegible]
Double-layer, staggered joint construction also minimizes thermal stresses in the insulation by reducing the temperature differential across each layer.

†Tabulated thicknesses are optimum thicknesses calculated on an economic (From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association) basis for heat conservation under average operating conditions and assure adequate temperature control. Other conditions may warrant the use of other thicknesses.

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Nominal Pipe Size, Inches

½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	11	12	14	15	16	17
1.34	1.27	1.37	1.67	2.13	2.58	2.99	3.25	5.02	4.24	6.14	5.06	5.48	—	—	—	—	—	—	—	—	—	—
2.75	2.56	3.30	4.02	3.25	4.56	5.43	5.70	7.25	7.08	8.91	7.53	8.78	10.3	11.5	12.3	14.3	15.4	16.3	17.0	18.0	18.9	19.[illegible]
4.42	4.33	5.23	5.11	4.93	6.91	9.26	8.53	10.6	9.90	12.3	11.2	13.0	14.3	15.6	18.5	19.6	21.1	22.9	23.3	24.7	25.9	27.[illegible]
7.33	7.75	7.54	7.46	10.1	9.71	12.1	11.2	13.8	13.2	16.3	15.4	17.0	18.7	21.8	23.7	25.1	27.5	29.2	29.9	31.7	34.2	35.[illegible]
10.5	10.4	10.3	10.1	13.0	12.6	15.4	14.5	18.1	17.4	20.4	19.3	21.4	24.8	27.1	29.2	31.5	33.7	35.9	36.9	39.6	41.8	43.[illegible]

E / COMMERCIAL— .. YEAR OPERATION				PIPE / COMMERCIAL— SEASONAL OPERATION				
1½	2	2½	2½	1	1	1½	1½	2
1½	2	2½	3	1	1	1½	2	2
2	2½	3	3	1	1½	1½	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	3	3½	4	1	1½	2	2½	3
2	3	3½	4	1½	1½	2	2½	3
2	3	3½	4	1½	1½	2	2½	3
2½	3	3½	4	1½	1½	2	2½	3
2½	3	3½	4	1½	2	2½	3	3½
2½	3	3½	4	1½	2	2½	3	3½
2½	3½	4	4½	1½	2	2½	3	3½
2½	3½	4	4½	1½	2	2½	3	3½

BLOCK

Utility—Steam Generation	1½	1½	2	2½	3	3	3½	4	4	4[illegible]
Process	1½	1½	1½	1½	1½	2	2	2	2½	2[illegible]
Commercial—Full Year Operation	1½	2½	3½	4	4½	—	—	—	—	-
Commercial—Seasonal Operation	1	1	1½	2	2½	—	—	—	—	-

PIPE SIZE —	12"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	38"	40"	42"	44"
Segments per Section	9	9	10	10	11	11	12	13	13	14	14	15	15	16	15	17	17	18	18	19	19	20	20	21	22	23	24	25
Actual O.D. of Covering	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	41"	43"	45"	47"
Segments per Section	9	10	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	24	25	25
Actual O.D. of Covering	17"	18"	19"	20"	21"	22"	23"	24"	25"	25"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	42"	44"	46"	48"
Segments per Section	10	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	23	24	25	26
Actual O.D. of Covering	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	41"	43"	45"	47"	49"
Segments per Section	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	24	25	26	27
...ual O.D. of Covering	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	41"	42"	44"	46"	48"	50"

Per Carton	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
...t	72	60	54	42	36	27	21	18	13.5
	48	40	36	28	24	18	14	12	9

...ge Gross Weight of Carton—43 lbs. All Blocks are packaged in No. 102 Cartons.

CURVED BLOCKS — SEGMENTS

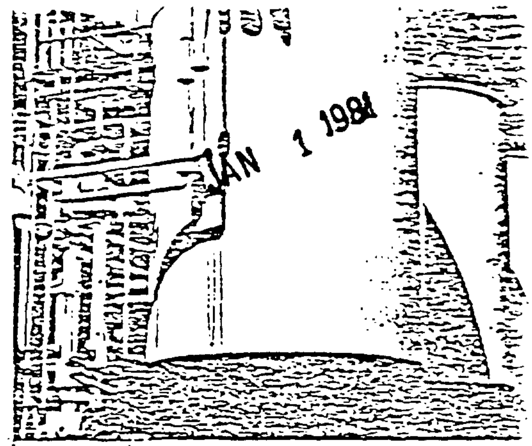
...ick 24 per ctn. / 2" thick 18 per ctn. / 2½" thick 14 per ctn. / 3" thick 12 per ctn.
All Segments are packaged in No. 102 Cartons

PIPE SIZE —	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3[illegible]
Sections per Ctn.	45	45	45	45	25	25	25	22	18	16	
Av. Gross Wgt. per Ctn. (lbs.)	75	74	71	68	60	57	53	70	60	70	
Ctn. Number	201	201	201	201	212	212	212	201	201	202	2[illegible]

T—Nominal Insulation Thickness / HL—Heat Loss (BTU/lin. ft./hr., ambient still air at 80°F) / E—Insulation ...cy / ST—Surface Temperature (for common surface finishes having an emissivity of approximately 0.90)

P... P. —	200°F				400°F				600°F				800°F				1000°F				1200°F		
PE SIZE ↓	T	HL	E	ST	T	HL	E	ST	T	HL	E	ST	T	HL	E	ST	T	HL	E	ST	T	HL	E
	1	15.7	77.5	95	1	47.9	82.5	120	1	87.5	86.0	146	1	125	88.7	173	1½	159	92.2	162	1½	211	93.5
½	1½	13.4	80.9	89	1½	40.6	85.2	105	1½	73.9	88.2	123	2	97.1	91.3	125	2½	119	94.2	122	2½	157	95.2
	2	11.5	82.5	87	2	34.9	87.3	98	2½	55.5	91.1	101	2½	84.9	92.9	111	3	112	94.5	115	3	148	95.5
	1	19.0	77.7	98	1	58.0	82.5	127	1	106	86.2	158	1	164	88.3	189	1½	179	92.9	170	1½	238	94.1
¾	1½	15.1	82.3	91	1½	45.7	86.5	109	1½	83.2	89.2	125	2	111	92.4	131	2½	133	94.7	127	2½	176	95.7
	2	13.2	84.5	88	2	39.9	88.2	101	2½	62.2	91.9	104	2½	95.2	93.5	115	3	125	95.1	119	3	165	95.9
	1	19.8	81.1	95	1	60.4	85.5	121	1	121	88.4	148	1	170	90.7	176	1½	195	93.8	168	1½	258	94.9
1	1½	16.4	84.4	90	1½	49.7	88.0	108	1½	90.4	90.5	127	2	120	93.4	130	2½	152	95.2	132	2½	201	96.0
	2	14.2	86.5	88	2	43.1	89.6	100	2½	70.5	92.6	107	2½	108	94.1	119	3	140	95.5	123	3	186	96.3
	1	25.5	80.4	99	1	78.1	84.9	132	1	144	88.0	165	1	222	90.3	197	1½	218	94.5	169	1½	290	95.4
1¼	1½	18.4	85.9	91	1½	55.6	89.2	108	1½	102	91.5	127	2	143	93.7	128	2½	177	95.5	139	2½	234	96.3
	2	15.9	87.1	89	2	51.3	90.1	104	2½	82.3	93.1	111	2½	125	94.5	125	3	162	95.9	129	3	214	96.6
	1	26.0	82.3	98	1	79.4	86.4	127	1	146	89.3	157	1	224	91.4	187	1½	248	94.5	178	1½	329	95.3
1½	1½	20.5	85.9	92	1½	63.1	89.2	112	1½	115	91.5	133	2	140	94.5	129	2½	177	96.1	133	2½	234	96.
	2	16.5	88.8	87	2	50.1	91.4	100	2½	82.4	93.9	107	2½	127	95.2	120	3	163	96.4	124	3	216	97.1
	1	29.9	83.4	98	1	91.3	87.2	127	1	167	90.0	158	1½	198	93.8	155	1½	278	95.0	178	2	311	96.5
2	1½	23.3	87.1	92	1½	70.3	90.2	112	1½	129	92.3	133	2	168	94.8	137	2½	208	96.3	140	3	251	97.2
	2	19.3	89.1	89	2	60.0	91.7	103	3	88.3	94.7	106	2½	149	95.4	125	3	190	96.6	130	3½	232	97.4
	1	34.4	84.1	98	1	105	87.8	129	1	193	90.4	160	1½	205	94.7	147	1½	287	95.7	168	2	329	97.0
2½	1½	24.2	88.8	90	1½	73.3	91.5	108	2	116	94.2	117	2½	159	95.9	123	2½	222	96.7	137	3½	247	97.7
	2	21.0	90.3	88	2½	57.0	93.4	98	3	94.7	95.3	105	3	145	96.2	116	3	203	97.0	129	4	232	97.9
	1	40.7	84.2	99	1	125	88.0	131	1	229	90.5	164	1½	254	94.2	162	1½	371	95.4	186	2	409	96.9
3	1½	31.0	88.0	93	1½	94.2	90.9	115	2	144	94.1	124	2½	192	95.9	131	3	242	97.0	126	3½	290	97.8
	2	26.0	89.9	90	2½	68.9	93.3	101	3½	103	95.8	104	3½	157	96.6	115	4	204	97.5	121	4½	253	98.1
	1	38.4	86.8	96	1	118	90.0	122	1½	172	93.7	131	1½	264	95.0	153	2	314	96.6	156	2½	367	97.5
3½	1½	31.0	89.4	91	1½	94.1	92.0	111	2	147	94.7	120	2	224	95.8	138	3	248	97.3	132	4	282	98.1
	2	26.5	90.9	89	2	80.3	93.1	104	2½	129	95.3	113	3	177	96.7	119	3½	228	97.5	125	5	261	98.3
	1	48.3	85.0	99	1	150	88.6	132	1½	208	93.2	140	1½	319	94.6	165	2	369	96.4	167	2½	422	97.5
	1½	37.4	88.5	94	1½	114	91.3	116	2	172	94.4	125	2½	227	96.2	133	3	280	97.3	138	4	313	98.1
	2	31.0	90.5	90	2	94.0	92.3	107	3½	120	96.1	106	3	200	96.5	124	3½	255	97.5	130	4½	288	98.2
	1	45.3	87.3	96	1	140	90.3	123	1½	203	94.0	133	1½	311	95.3	156	2	368	96.3	159	2½	420	97.7
4½	1½	36.6	89.8	92	1½	112	92.3	112	2	171	95.0	122	2½	227	96.6	129	3	286	97.5	135	4	317	98.3
	2	31.0	91.4	89	2½	81.2	94.4	100	3½	123	96.4	104	3	205	96.9	121	3½	252	97.7	128	5	298	98.4
	1	59.3	85.0	100	1	182	88.5	134	1½	249	93.4	143	1½	382	94.3	165	2	435	96.5	170	2½	486	97.5
5	1½	44.7	88.7	94	1½	136	91.5	113	2½	171	95.5	118	2½	252	96.4	135	3½	295	97.7	132	4	353	98.3
	2	36.6	90.3	91	2½	92.9	94.1	102	3½	138	96.2	107	3	223	96.8	125	4	257	97.9	124	5	310	98.5
	1	70.4	84.9	101	1	215	88.5	126	1½	291	93.4	145	2	352	95.9	150	2½	421	97.2	155	2½	558	97.
6	1½	52.2	88.8	95	2	125	93.3	109	2½	196	95.5	120	2½	201	96.5	137	3½	327	97.8	133	4	298	98.4
	2	41.4	91.1	91	3	95.2	95.0	100	4	141	96.8	104	3	265	96.9	128	4	201	98.0	125	5	244	98.5
	1½	56.5	89.2	94	1½	174	91.9	115	1½	317	93.8	144	2	394	95.0	151	2½	469	97.3	157	2½	622	97.3
7	2	46.2	91.2	91	2	141	92.5	120	2½	219	95.7	121	2½	325	96.6	128	3½	351	97.9	134	4	438	98.4
	2½	39.5	92.6	89	3	103	95.2	99	4	155	97.0	104	3	286	97.1	127	4	331	98.1	128	5	380	98.
	1½	63.2	89.4	95	1½	193	92.1	119	1½	352	93.4	145	2	425	96.1	152	2½	498	97.4	155	3	582	98.
8	2	51.2	91.4	91	2	156	93.6	120	2½	232	95.9	120	3	314	97.2	122	3½	395	98.0	125	4½	443	98.5
	2½	42.1	92.9	89	3	112	95.3	100	4	169	97.1	105	3½	283	97.5	122	4	351	98.1	129	5	413	98.
	1½	63.4	89.5	95	1½	212	92.1	120	1½	387	93.9	145	2	455	96.3	149	2½	544	97.5	156	3	633	98.
9	2	52.6	91.3	91	2	163	93.9	109	2½	253	96.0	120	3	341	97.2	129	3½	429	98.0	125	4½	478	98
	2½	45.3	92.0	89	3	123	95.4	100	4	183	97.1	106	3½	307	97.5	122	4	292	98.2	130	5	446	98.
	1½	74.2	89.9	94	1½	225	92.4	119	2	233	95.3	131	2½	432	96.9	140	2½	606	97.5	155	3½	625	98
10	2	50.0	91.8	91	2	183	93.9	110	3	247	96.5	115	3	378	97.3	121	3½	473	98.0	138	4½	524	98
	2½	51.0	93.0	89	3	136	95.4	101	4	201	97.1	107	3½	338	97.5	124	4	420	98.2	131	5	487	98.
	1½	87.3	89.3	95	1½	266	92.4	122	2	389	95.5	122	2½	503	96.3	141	2½	704	97.5	161	3½	721	98
12	2	70.3	91.8	92	2	214	93.9	111	3	285	96.6	115	3	437	97.2	132	4	493	98.2	133	4½	595	98.
	2½	59.3	93.1	90	2½	140	96.0	98	4½	210	97.5	104	3½	389	97.6	125	4½	450	98.4	127	5	552	98
	1½	122	89.2	96	1½	310	91.9	122	2	444	95.1	135	2½	566	96.3	145	3	684	97.3	152	3½	800	98
14	2	80.1	91.4	92	2	244	93.5	112	3	319	96.5	113	3½	431	97.5	128	4	544	98.3	135	4½	657	98
	2½	66.3	92.9	90	2½	155	95.9	99	4½	232	97.5	105	4	388	97.8	122	4½	496	98.4	130	5	606	98
	1½	115	89.2	96	1½	350	91.9	123	2	500	95.2	126	2½	636	96.3	145	3	765	97.3	153	3½	853	98
16	2	90.1	91.5	93	2	274	93.7	114	3	357	96.5	119	3½	482	97.5	123	4	606	98.2	135	4½	731	98
	2½	74.9	92.9	90	2½	173	96.0	100	4½	258	97.5	106	4	433	97.9	123	4½	552	98.5	130	5	873	98
	1½	128	89.3	96	1½	389	92.0	124	2	556	95.2	135	2½	705	96.5	146	3	847	97.3	154	3½	986	9
18	2	101	91.2	93	2	305	93.7	114	3	394	96.5	119	3½	532	97.7	129	4	668	98.3	137	4½	804	98
	2½	82.1	93.0	90	2½	191	96.1	100	4½	284	97.5	106	4	477	97.9	123	4½	607	98.5	131	5	729	98
	1½	141	89.2	96	1½	429	92.0	124	2	611	95.2	137	2½	774	96.5	147	3	923	97.3	155	3½	1079	9
20	2	111	91.5	93	2	335	93.7	114	3	432	96.6	120	3½	582	97.7	129	4	729	98.4	135	4½	877	98
	2½	91.2	93.0	90	2½	209	96.1	100	4½	309	97.5	107	4	521	97.9	124	4½	662	98.5	122	5	905	98
	1½	167	89.2	97	1½	509	92.0	124	2	722	95.3	137	2½	912	97.0	148	3	1091	97.3	156	3½	1255	9
24	2	131	91.6	93	2	396	93.6	114	3	508	96.7	120	3½	682	97.7	120	4	853	98.4	129	4½	1022	98
	2½	109	93.1	91	2½	245	96.2	100	4½	361	97.5	107	4	609	98.0	124	4½	772	98.5	133	5	937	9

;eroid T/NA 100...the only truly superior ;keting for the only truly superior insulation



A 100 is a truly unique insulation jacketing. It is fireproof, flexible, and offers ralleled resistance to outdoor weathering. It is remarkably easy to apply and ides significant savings in installation costs. It never requires painting or herproofing.

A 100 combines asbestos fibre, an inorganic material of established durability flame resistance, with Tedlar,® a new PVF film of unique characteristics devel- l in the laboratories of Du Pont. The asbestos fibre is formed into a tough asbestos using an elastomeric binder. "Tedlar" is permanently laminated to the asbestos felt an elastomeric adhesive.

gh and flexible over wide temperature range (—50° F to over 200° F).

ne-resistant with flame spread rating of 25 by Underwriter's Laboratories.

ther-resistant . . . will not chalk, craze, erode or corrode on exposure.

mical and solvent resistant, retaining form and strength even when boiled in strong s and bases. Unaffected at ordinary temperatures by many classes of common ent; impermeable to greases and oils; unaffected by soil bacteria.

igned for multi-purpose use over large areas as well as narrow-diameter pipelines.

istant to puncture and abrasion . . . designed to take wear and tear.

y to repair by patching with T/NA 100 Finishing Tape.

ght white surface . . . attractive, highly reflective.

u Pont's Registered Trademark

MATERIAL SPECIFICATIONS:

Width of Roll 35.5

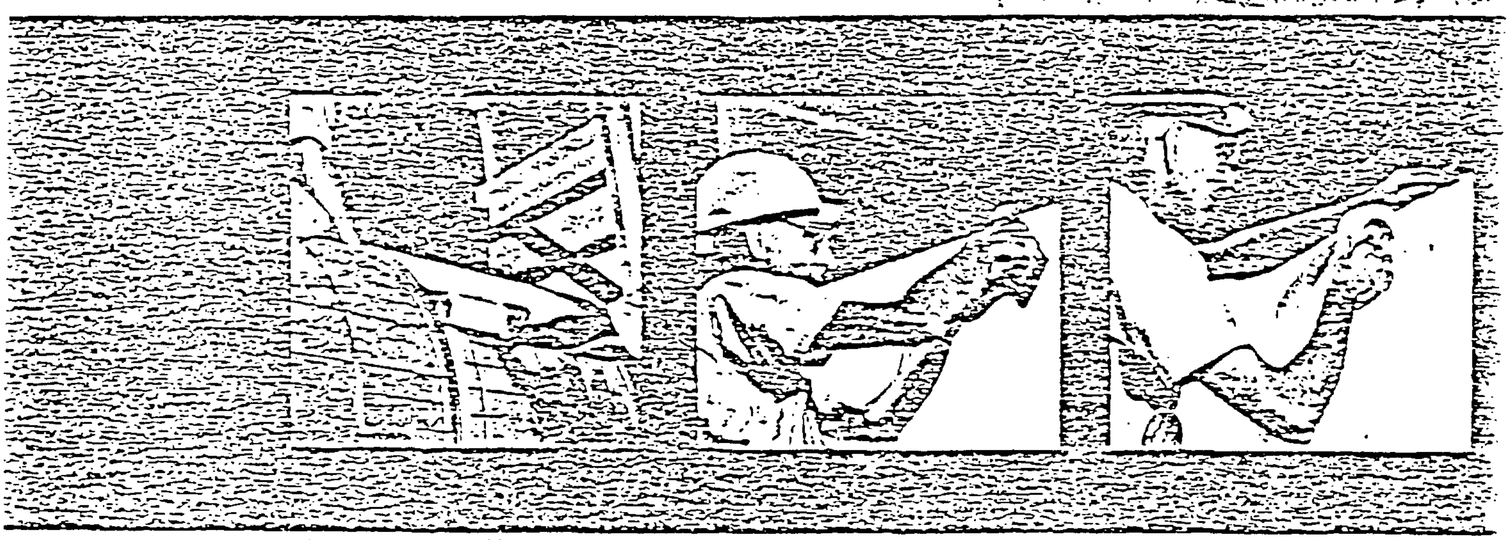
Length . . . . 166.7 lin.

Area (Gross) . . . . 500.0 sq.

Approx. Shipping Weight . . . . . . 60.0 lb

Note: Butt Strap Stock available in rol 4 inches wide x 166.7 lineal feet.

Special sizes and shapes available c special order. For information regar ing unique applications, contact T Ruberoid Co.



FOR FURTHER INFORMATION CONTACT

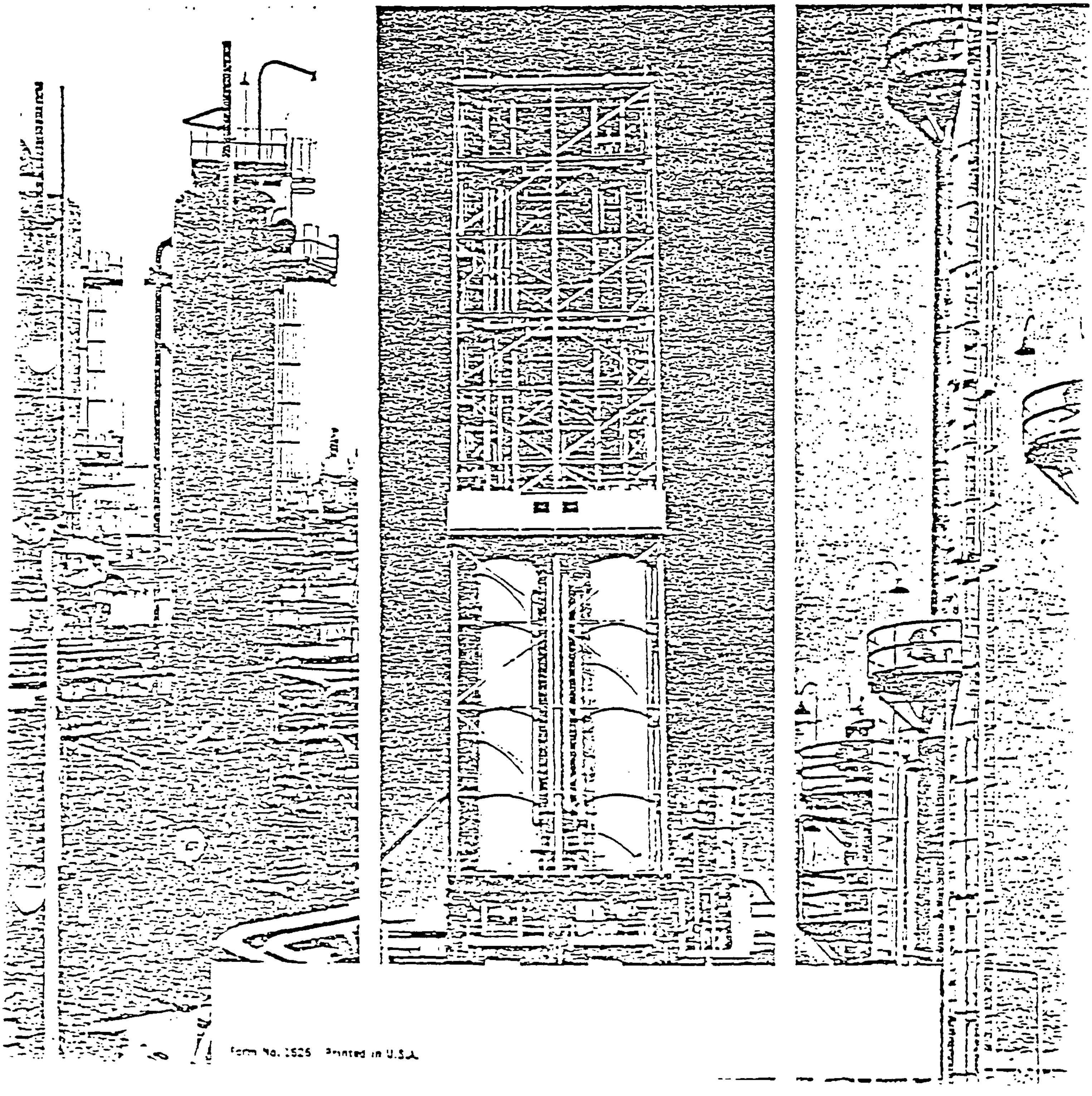
The RUBEROID Co. / Industrial Products Division / 733 Third Avenue, New York, N.Y. 10017

OTHER RUBEROID INDUSTRIAL INSULATION PRODUCTS

Fiber Glass Insulations	Insulation Cements	Asbestos Millboard and Rollboard
Commercial Asbestos Paper	Asbestos Furnace Tape	Corrugated Asbestos Sheets
Pipe Line Felts	Asbestos Electrical Paper	Asbestos-Cement Flat Sheets

THE MOST EFFECTIVE INSULATION CONTROL FOR SOAKING HEA
IN ALL MAJOR CHEMICAL, POWER AND PROCESSING INDUSTR!

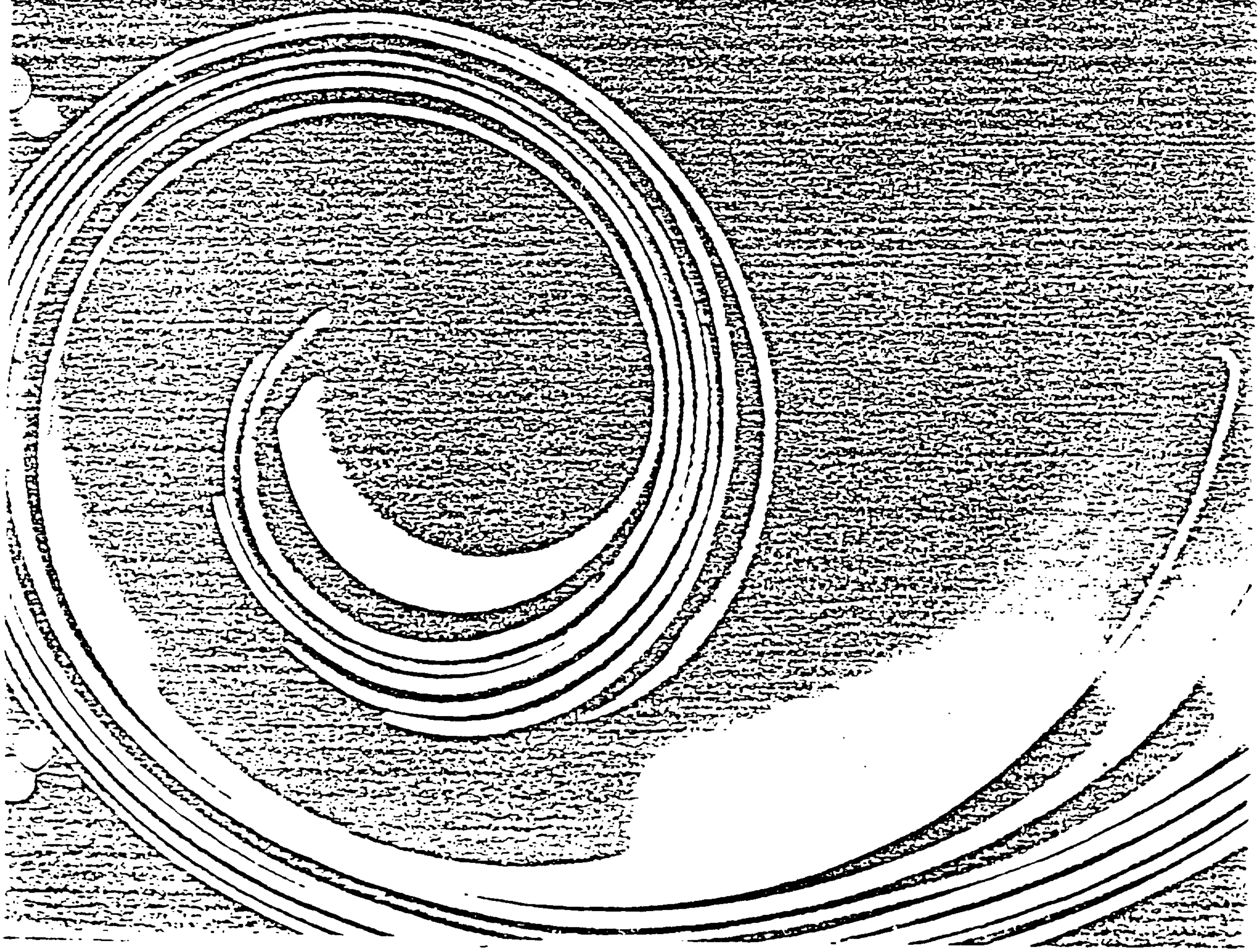
JAN 1 1981



Form No. 1525 Printed in U.S.A.

GAF® T/NA 100® AND T/NA 100 VAPOR BARRIER MULTIPURPOSE INSULATION JACKETINGS

- Superior Appearance
- Superior Resistance to Atmospheric Conditions
- No Specialized Installation Required



GAF T/NA 100® Insulation and T/NA 100® Vapor Barrier—
A Simplified Solution to Insulation Jacketing Problems

JAN 1 1981

GAF T/NA 100 INSULATION JACKETING

GAF T/NA 100 jacketing represents a major break-through in the field of insulation. It is the first and only flexible, fire-resistant jacketing which provides unparalleled resistance to outdoor weathering. Its flexibility, workability, and versatility simplifies application, reduces installation costs, and makes it effective for covering large tank units as well as for protecting extended pipelines.

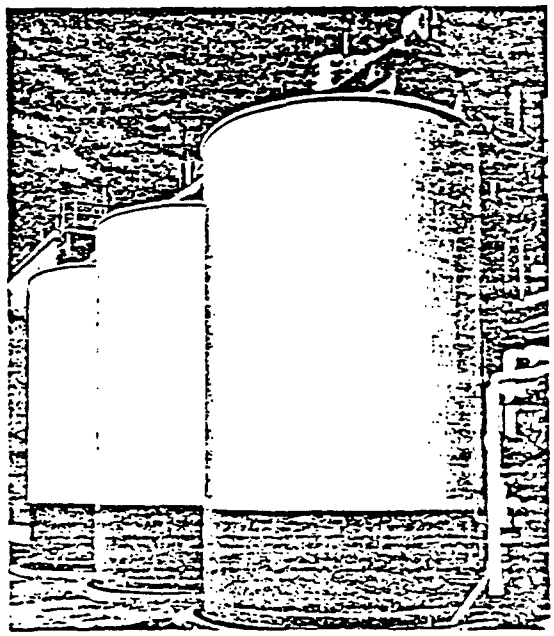
T/NA 100 multipurpose insulation jacketing combines asbestos fiber, an inorganic material of established durability and flame resistance, with Tedlar® a unique PVF film. This film is laminated to the asbestos felt with an elastomeric adhesive. Initial peel bond strengths between the film and asbestos felt average 600 grams per inch of width. After two years (tested in Florida at 45° South) the bond strength is unchanged. Accelerated weatherometer testing (3,000 hours) also reveals no change in bond strength.

CHEMICAL PROPERTIES

GAF T/NA 100 jacketing and T/NA 100 Vapor Barrier have excellent resistance to a variety of chemicals. The laminate was unaffected after two weeks immersion (at room temperature) in the following chemicals: ammonium hydroxide (conc.), methanol, Varsol #1, carbon tetrachloride, gasoline, perchloroethylene; and 10% solutions of hydrochloric acid, nitric acid, sulfuric acid, and sodium hydroxide. The laminate was also unaffected after being immersed in water for one year.

GAF T/NA 100 VAPOR BARRIER

T/NA 100 Vapor Barrier provides a finished laminate of T/NA 100 insulation and 0.001 inch Saran film that has all the desirable properties of T/NA 100 plus a low moisture vapor permeability of 0.05 perms. Saran is a vinylidene chloride vinyl chloride copolymer film known for its low moisture and gas permeability, strength, excellent aging, negligible water absorption and chemical resistance.



PHYSICAL AND THERMAL PROPERTIES OF T/NA 100 JACKETING AND T/NA 100 VAPOR BARRIER

Properties	Typical Values	Test Methods
Tensile Strength, M.D., lbs./in.	42	ASTM D-828
Mullen Burst Strength, psi	86	ASTM D-744
Elmendorf Tear Strength, C.M.D., gms	449	ASTM D-689
Moisture Vapor Transmission, perms	0.86*	ASTM E-96
	0.05**	
Reflectivity	72.3%	Hunter Gardner Reflectometer
Underwriters Rating (Tedlar exposed)†		
Spread of flame	25†	Underwriters
Fuel contributed	none†	Laboratories
Smoke contributed	45†	Test U.L. 723†
Discoloration		
[illegible]	slight	20 days in oven
[illegible]	trace	20 days in oven
Flexibility After Heat Aging		
[illegible]	slight decrease	20 days in oven
[illegible]	no change	20 days in oven

[illegible]

SECURITIES AND EXCHANGE COMMISSION

Washington, D. C. 20549

F O R M 1 0 - Q

QUARTERLY REPORT UNDER SECTION 13

OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE QUARTER ENDED JULY 1, 1984

COMMISSION FILE NUMBER 1-5026

G A F Corporation
(Exact name of registrant as specified in its charter)

EXHIBITS

EXHIBIT 4

JAN 1 1981

G A F CORPORATION

THE ENCLOSED INFORMATION HAS BEEN OBTAINED FROM A VARIETY OF ANSWERS TO INTERROGATORIES PROPOUNDED BY VARIOUS PLAINTIFF'S IN ASBESTOS RELATED SUITS.

JAN 1 1981

G A F CORPORATION

CORPORATE STATUS:

1886 Standard Paint Co. incorporated in New York

1905 Standard Paint Co. incorporated

3/10/21 name change to THE RUBEROID CO.

1929 American I. G. Chemical Corp. incorporated in Delaware

1939 name changed to General Aniline & Film Corp.

3/23/67 merger of THE RUBEROID CO. and GENERAL ANILINE & FILM CORP

1968 name change G A F CORPORATION

1 1981

G A F CORPORATION

MANUFACTURING PLANTS:

Gloucester, New Jersey - 1940's - mid '70's

Hyde Park, Vermont - 1936 - 9/75

Southbound Brook, New Jersey - 1962 - 9/71

Erie, Pennsylvania - 1928 - present

RAW ASBESTOS SUPPLIERS:

1933 - 1978 - Johns-Manville and Cape Asbestos Corp. and other companies whose names cannot be recalled.

MINE INTERESTS:

1936 Operated a chrysotile mine in Hyde Park, Vermont Sold this mine in 1974 (while still in operation)

1936 Operated a processing mill in connection with the Hyde Park, Vermont mine. Sold mill in 1974 (while still in operation).

JAN 1 1981

G A F CORPORATION

MEMBERSHIPS:

National Insulation Manufacturers Association, Inc.

Asbestos Cement Product Association

American Society of Testing Materials

Asbestos Information Association of North America

(dates unknown)

NET WORTH/NET PROFIT/ VOLUME SALES:

Available at corporation offices.

INSURANCE:

Available at corporation offices.

SALES DISTRIBUTION:

GAF has no corporate records which show that it distributed, as that term is commonly used, industrial insulation products containing asbestos in California.

GAF did not have control over others who may have shipped or sold GAF industrial insulation products containing asbestos to or in California

JAN 1 1981

G A F CORPORATION

PRODUCTS/PACKAGING:

GAF ceased use of asbestos in 1972.

Most Ruberoid and GAF industrial thermal insulation products were sold in corrugated cardboard boxes bearing the companies' respective names or logos. Insulating cements were sold in heavy duty bags.

WARNING/HAZAAD LABELS:

In late 1965 or early 1966, Ruberoid began placing the following warning on packages of its industrial thermal insulation products containing asbestos fiber:

CAUTION
THIS PRODUCT CONTAINS ASBESTOS FIBER. INHALATION OF ASBESTOS IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL.
IF DUST IS CREATED WHEN THIS PRODUCT IS HANDLED, AVOID BREATHING THE DUST. IF ADEQUATE VENTILATION CONTROL IS NOT POSSIBLE, WEAR RESPIRATORS APPROVED BY THE U.S. BUREAU OF MINES FOR PNEUMONCONIOSIS PRODUCING DUST.

In 1970, this warning label was changed to read as follows:

CAUTION
CONTAINS ASBESTOS FIBER. INHALATION IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL. AVOID BREATING DUST. IF ADEQUATE VENTILATION IS NOT POSSIBLE, WEAR RESPIRATORS APPROVED BY THE U.S. BUREAU OF MINES FOR PNEUMONCONIOSIS PRODUCING DUST.

In approximately 1972, this warning was changed to read as follows:

CAUTION
CONTAINS ASBESTOS FIBER. INHALATION IN EXCESSIVE QUANTITIES OVER LONG PERIODS OF TIME MAY BE HARMFUL. AVOID BREATHING DUST.

In using these warnings, GAF was following other manufacturers who used such cautionary notices after some opinions were expressed by members of the medical profession that there might be a health risk involved in the inhalation of excessive quantities of asbestos fiber. Commencing in 1972, pursuant to the requirements of the Occupational Safety & Health Act of 1970, GAF placed the last notice set out above.

In the mid 1960's, NIMA, of which GAF was a member, commenced dissemination to distributors of asbestos hazard warnings.

GAF CORPORATION

COON case, RESPONSES OF GAF CORPORATION TO PLAINTIFF'S FIRST SET OF INTERROGATORIES, DATED NOVEMBER 21, 1978.

Interrogatory 1: Ruberoid Company, which GAF merged with in 1967, was engaged in manufacturing materials containing asbestos, and distributed those materials.

Interrogatory 3: Defendant states that it did not sell to shipyards at which plaintiff worked during the time he was employed there. That is:

1943 - Bethlehem Shipyard, Alameda.
1946-1951 - Various jobs at Pabco Company, Emeryville; Todd Shipyard, Alameda, Bethlehem Shipyard, Alameda.
1952 - Steamfitter-welder working out of Bakersfield at various jobs.
1955 - Steamfitter-welder working out of Local 342, Steamfitter, Concord. (Here approximately 50% of the jobs involved exposure to asbestos on either new constructio or modification to old contruction or repair.

Interrogatory 16: Defendant does not have its sales or manufacturing records for the years plaintiff worked in a shipyard.

Interrogatory 19: No depositions have been taken with respect to litigation filed in Northern California of defendant's employees or former employees.

DG

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GAF CORPORATION - IN THE RIVIERA VS. FIBERBOARD CASE

GAF responses to Plaintiff's Interrogatories, dated March 5, 1979, Set 2.

Page 5, Interr. #120 - The predecessor to GAF is Ruberoid. GAF claims that it has no documents which relate to or reflect warranties or disclaimers, limitations, exclusions of warranty concerning the quality user benefits of Ruberoid's asbestos products. GAF did have a technical bulletin regarding the thermal insulation products Calsite, T/NA100 and T/NA100 Vapor Barrier, dated 1968, in which the disclaimer was made that no express or implied warranties were made of the merchantability and fitness of the particular use or purpose of their product.

Interr. #125 - page 11. GAF claims it began placing cautionary instructions on its cartons containing asbestos products in 1965.

Interr. #126 - page 11. GAF claims it has never been a defendant to a worker's compensation claim filed by a thermal industrial insulation worker.

Response of GAF Corporation to Plaintiff's First Set of Interrogatories, dated November 13, 1978.

Interr. #2, page 4 - GAF holds a certificate of authority to do business in California. Its principal place of business is located at 140 W. 51st St., NY NY 10020. On May 26, 1967, GAF merged with the Ruberoid Co., a New Jersey corporation, assuming its assets and liabilities. Ruberoid began themanufacture of industrial thermal insulation products containing asbestos figers in the late 1920s or early 1930s.

Interr. #4, page 6 - GAF and its predecessor Ruberoid manufactured asbestos oproducts at the following places: (1) Gloucester, N.J. from the early 1940's until mid-1970; (2) Hyde Park, VT from 1936 thru Sept. of 1975; (3) Southbound Brook, NJ from 1962 to Sept. 1971; (4) Erie, PA from approximately 1928. Several years ago this facility discontinued the manufacture of industrial insulation products containing asbestos. The persons who were in charge of these manufacturing facilities are either no longer in the employe of GAF or unknown, with the exception of Wayne Paige, who for a period of time was manager of the Hyde Park mine.

Interr. #5, page 7 - GAF has no corporate records which show that it distributed industrial insulation products containing asbestos in California. GAF did not have control over others who may have shipped or sold GAF industrial insulation products containing asbestos to or in California. They claim that they have no available corporate records who might identify these other identities who may have shipped their products to California.

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Interr. #6, page 8 thru page 9 - GAF manufactured the following asbestos-containing products: (1) Calsite - a high temperature pipe covering and built up white block containing approximately 10% amosite and 2% crysotol asbestos fiber and the remainder consisting of hydrous lime silicate and diatomaceous earth; (2) "115" and "214" insulation cement - known generically as 7M and 7K type cements, respectively. These insulating cements were composed entirely of Crysotile asbestos fiber; (3) T/NA-100 Insulation Jacketing - a 2-ply, laminated product consisting of a layer of asbestos paper in which crysotile asbestos products were bonded with neoprene and a layer of polyvinyl floride (Tedlar) plastic film attached by adhesive on one side.(4) asbestos paper and millboard - crysotile insulating paper, used as jacketing or pipe wrap. The contents of these products varied from time to time. All products were white a fibrous.

Interr. #7, page 9 - GAF claims that from 1938 thru 1978, it purchased unknown quantities of asbestos fiber from Johns Manville, Kabesbestos Corporation and other companies whose names can't be recalled.

Interr. #8, page 10 - In late 1965 or early 1966, Ruberoid began placing warning on its packages of industrial thermal insulation products containing asbestos. It's basically the same warning issued by other companies. Their warning was changed in 1970 and again in 1972.

Interr. #9, page 12 - In the mid-1960's, NIMA, of which GAF was a member, commenced dissemination to distributors of asbestos hazard warnings.

Interr. #10, page 12-13 - GAF does not presently manufacture or supply any industrial insulation product containing asbestos.

From 1936 through 1974, Ruberoid began operating a crysotile mine in Hyde Park, Vermont. GAF sold the mine in 1974, at which time it was still in operation.

Interr. #16, page 16 - Ruberoid operated a processing mill in connection with its quarry in Hyde Park, Vermont. GAF believes the mill began production in approximately 1936. GAF sold the mill in 1974.

Interr. #22, page 20 - GAF belonged to National Insulation Manufacturer's Association, Inc. and Asbestos Cement Product Association.

Interr. #24, page 21 - GAF representatives did attend certain meetings of these organizations, but there are no corporate records which showed the dates or subject matters of the meetings.

Interr. #26, page 22 - GAF claims it has no records regarding any studies conducted by it regarding the affect of products containing asbestos on thelungs and physical conditions of employees or others who used their products.

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Interr. #28, page 23 - Most Ruberoid and GAF industrial thermal insulation products were sold in corrugated cardboard boxes bearing the company's respective names or logos. The insulating cement was sold in heavy-duty bags. GAF thermal industrial insulation products were sold to distributors by company-employed salesmen. GAF does state that distribution of GAF and Ruberoid products was "infinitesimal" west of the Rocky Mountains.

Interr. #47, page 31 - The Ruberoid Co. was incorporated in New York in 1886, The Standard Paint Co. After several corporate changes, the Standard Paint Co. was incorporated in New Jersey in 1905. The Standard Paint Co. became the Ruberoid Co. on March 10, 1921. After 1966 the executive offices of the Ruberoid Co. were located at 733 3rd Ave., NY, NY. GAF was incorporated in Delaware in 1929 as the American I.G. Chemical Corporation. Its name was changed in 1939 to General Analine and Film Corporationand again in 1968 to GAF Corporation. Its president is Philip B. Dalton.

GAF merged with Ruberoid Co. on March 23, 1967. Ruberoid began manufacturing asbestos contained products in the late 1920's or early 1930's. GAF ceased the manufacture of such products in 1972.

Interr. #51, page 34 - GAF's products were supplied in a ready-to-use form, but Calcelite, TN/A100 asbestos paper and millboard all required cutting where dimensions so dictated. 7M cement and 6D cement required mixing with water and in addition a small amount of ordinary building cement was added at the user's option.

Interr. #53, page 35 - In response to a request for its net profits for each of the years since 1960, GAF offers to make its financial statement for the period 1967 to present available to plaintiff's attorney.

Interr. 56, page 36 - The only time GAF had an insulation material which did not contain asbestos was when Calcelite was changed in July or August of 1971 and briefly placed on the market. Its manufacture was discontinued in the same year.

Interr. #61, page 38 - GAF claims it was aware, although it does not recall on which date, of the threshhold limit values recommended by the American Conference of Governmental and Industrial Hygienists.

Interr. #62, page 38 - In this interrogatory they indicate that the first value that they are able to recall was 5 million particles per cubic foot.

Interr. #69, page 41 - GAF offers to make available to counsel for inspection and copying whatever sales literature for its insulation products containing asbestos that it can locate in its files for the years 1950 thru 1970.

Interr. 70, page 42 - After 1967 the advertising materials for GAF were prepared primarily by Ms. Helen Lofaro, Manager of Sales Services for GAF, then Industrial Products Division, 140 W. 51st St., New York, NY, 10020.

Interr. #71, page 43 - Ruberoid advertised in the magazine "Asbestos" but GAF claims it does not have those on file.

Interr. #78, page 46 - GAF says it does not know the date when it initially established a research department. The following persons have held theposition of Vice President of Research at GAF:

GAF

Name	Date of Service	Present Employer
Dr. Leon Katz	______ thru 1967	American Can
Dr. Frederick Grosser	1967thru 1969	GAF
Dr. Robert Meyers	1969 thru 1972	Regal Paper
Dr. Simon Kantor	1972 thru present	GAF

Directors of the Research Department at Ruberoid Co.

Edward Duke	____ thru 1947	Retired; address unknown
Clarence Eckert	1947 thru 1958	Deceased
Philip S. Bettoli	1958 thru 1967	GAF

Interr. #83, page 48 - GAF claims that it does and did have, from 1940 thru 1975, insurance against liability for the design manufacture, distribution, and sale of asbestos products.

Interr. #84, page 49 - GAF claims that it will make a schedule of such informationavailable inspection at plaintiff's expense.

Interr. #84 1, page 50 - GAF makes the same offer regarding other lawsuits filed against GAF.

Interr. #84-2, page 50 - GAF's general rule is that records are retained for 7 years.

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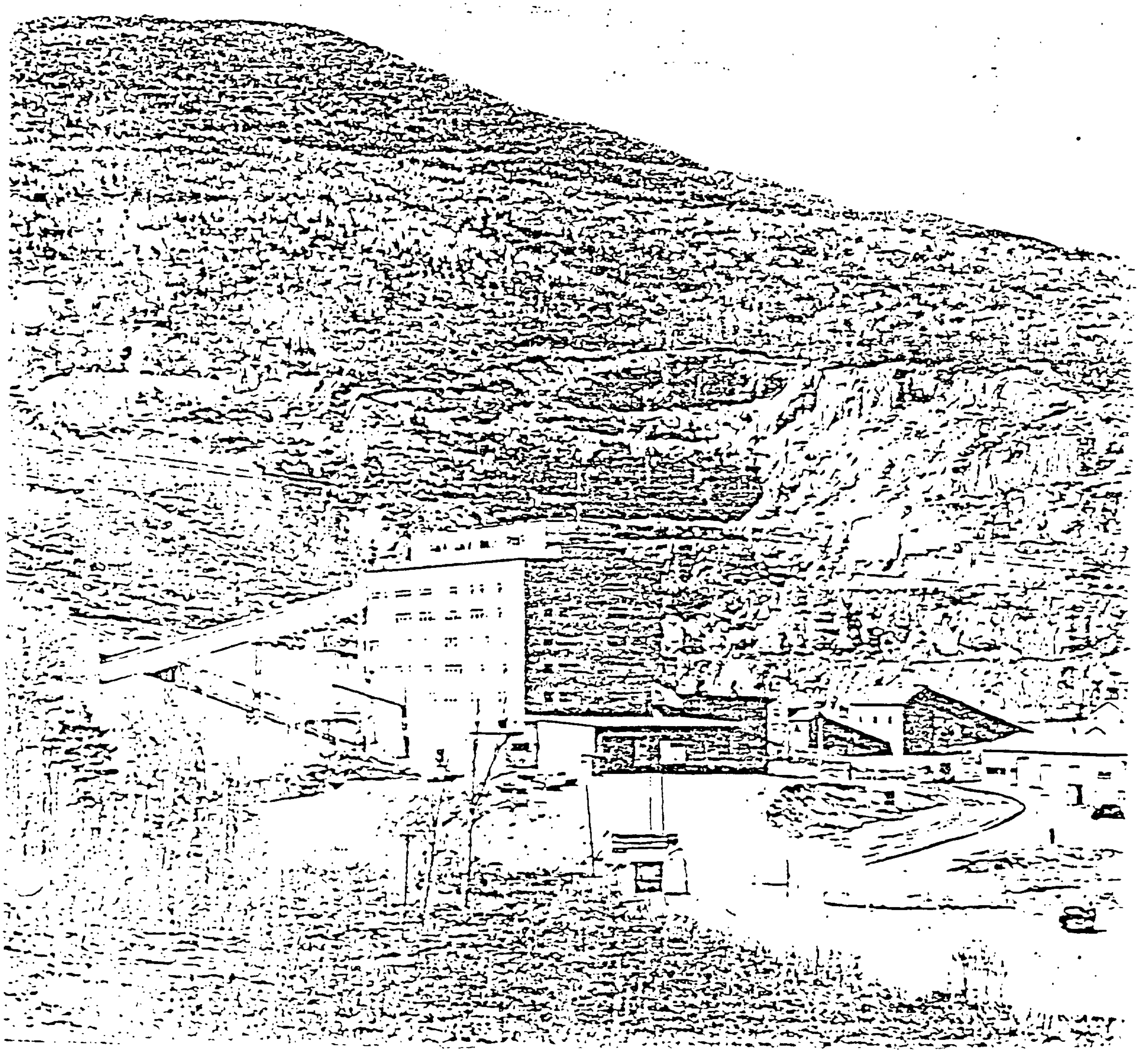
ASBESTOS FIBER

FOR COMMERCIAL AND INDUSTRIAL USES

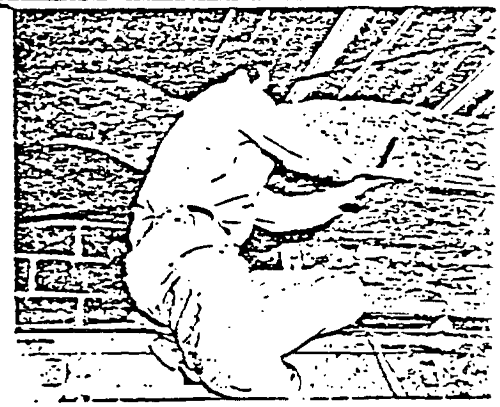


JAN 1 1981

Special Fiber Insulation

for insulating housings, plenum chambers, and air conditioning ducts in offices, factories, institutional and commercial buildings of all kinds

This insulation is felted from long, tough, super-springy siliceous fibers of unusual fineness. Extremely low in thermal conductivity, it has a temperature limit of 450°F. The fibers are non-absorptive, corrosion-resistant, moisture-resistant and incombustible. They have been treated to resist capillary action, will neither rot nor mildew.



Standard Sizes, Thicknesses and Available Facings

Type	Wt. per Cu. ft., lb.	Length	Width, inches	Thickness, inches	Facings
No. 411 (flexible)	3.00	48", 60"	30	1" to 5"*	VS, FSK, APV
No. 411 (flexible)	3.00	25' (rolls)	30	1" to 2"*	VS, FSK, APV
No. 412 (semi-rigid)	3.50	48", 60"	30	1" to 5"*	VS, FSK, APV, AP
No. 413 (semi-rigid)	4.25	48", 60"	30	1" to 5"*	VS, FSK, APV, AP
No. 414 (semi-rigid)	6.00	48", 60"	30	½", ¾" & 1" to 4"*	VS, FSK, APV, AP
No. 415 (semi-rigid)	8.00	48", 60"	30	½", ¾" & 1" to 3"*	VS, FSK, APV, AP
No. 416 (semi-rigid)	9.00	48", 60"	30	½", ¾" & 1" to 2"*	VS, FSK, APV, AP

* in ½" increments.

Facing Information

VS: Heavy asphalt-kraft paper. Applied with wrap around edge to 413, 414, 415 & 416. Applied with no edge wrapping to one surface of 411 and 412.

FSK: Foil scrim kraft, flame resistant.

APV: .004" aluminum pigmented vinyl film.

AP: Asbestos paper.

Fiber Glass Insulation . . . textile fibered

for use as a duct liner and duct wrap, for refrigerated trucks and trailers, air conditioning and heating equipment

This lightweight, resilient, semi-rigid blanket insulation is composed of fine glass fibers, reinforced with glass textile fiber and bonded with a thermosetting resin. It is especially effective as a liner for air conditioning and heating ducts . . . will absorb air-borne noises in the 250 to 4000 cps range and dampen vibration.

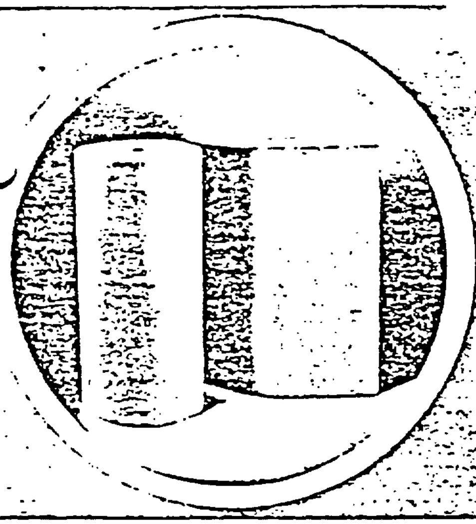
Facing Information

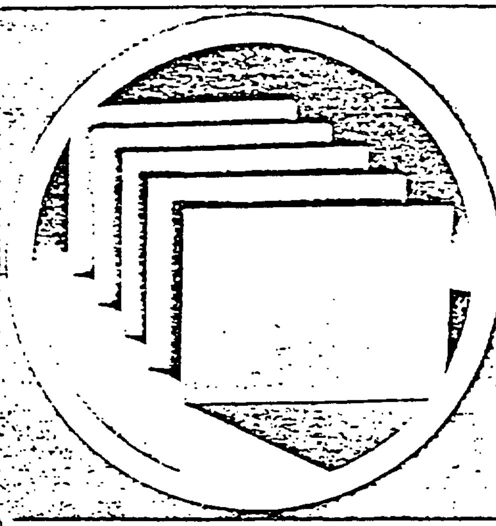
Available on all densities and thicknesses either with no tabs or with 1 or 2 2-inch tabs

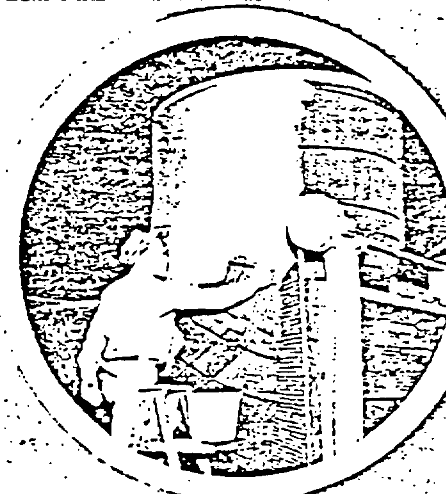
RKL	LIGHTWEIGHT VAPOR BARRIER PAPER (Reinforced Kraft, Light): Two layers of 30-lb. Kraft paper, reinforced with fiber glass yarn scrim (1" x 1" spacing) in asphalt lamination.
.001 AL	Aluminum Foil
.002 ALX	Aluminum Foil (Recommended as vapor barrier)
	(.001 AL and .002 ALX:) High degree of heat reflection. Foil adds its own insulating value through its excellent radiant heat reflectivity. Incombustible.
FSK	Reinforced Foil and Paper (Foil, Scrim, Kraft): A layer of aluminum foil, reinforced with fiber glass yarn mesh and laminated to 40 lb. fire-resistant Kraft. Very strong. Foil adds to insulating value.
APV	Vinyl Plastic
WPV	Aluminum white or green pigmented.
GPV	Effective vapor barrier. Provides attractive finish.
FSKL	Foil Skin Kraft, lightweight plastic coating, black.

Dimensional Limitations, Standard Product

density	thickness	width	length
.6, .75 & 1.0 lb.	1", 1½"	24", 36", 48"	100'
	2", 3"	24", 36", 48"	50'
1.5 lb.	½"	24", 36", 48"	100'
	1", 1½", 2"	24", 36", 48"	50'
2.0 lb.	½"	24", 36", 48"	100'
	1", 1½"	24", 36", 48"	50'
3.0 lb.	½"	24", 36", 48"	100'
	1"	24", 36", 48"	50'







Commercial Asbestos Paper

As a fire retardant with all the properties of a thin, pliable paper, Ruberoid Asbestos Paper has a multiplicity of uses in residential and general building work and in industrial applications. It can be used to wrap furnace pipes, air-conditioning ducts, furnaces, jackets and for the protection of wood partitions exposed to heat. This product is ideal for any application where paper is desired and a degree of fireproofing is required.

Asbestos Millboard

Asbestos Millboard is designed to be used wherever a lightweight, inexpensive fireproofing material is required. It is employed widely in insulating ovens and ranges and for lining grates, ceilings and walls. Its many residential and industrial uses are apparent when it is considered that the product is fire retardant, vermin proof and can be used as protection against acid fumes.

Insulation Cements

Ruberoid offers a cement for every temperature problem . . . for both insulating and finishing.

Product	Temp. Range
Grade 313 Mineral Wool Cement	2100°F
Calsilite Cement	1250°F
Grade 412 Single Coat Cement	1250°F
Grade 214 Asbestos Cement	1000°F
Grade 115 Asbestos Cement	1000°F

Asbestos Rollboard

Asbestos Rollboard is basically the same product as Ruberoid Asbestos Paper, except that it is made in thicknesses of 1/8" and 3/32". It is used for general fire proofing, and heat resisting purposes. It will withstand temperatures up to 350°F.

Asbestos Furnace Tape

Ruberoid Asbestos Paper in tape widths has been cut in convenient size small rolls, making it easy to handle in the furnace industry. This tape can be used for sealing joints in the application of cellular insulation on furnaces and pipes and air conditioning ducts.

Asbestos Electrolytic Paper

This special long fibre asbestos paper is specifically manufactured for chlorine manufacturers using electrolytic cell process. It is available only upon special order.

The RUBEROID Co.

Industrial Insulation Division 733 Third Avenue New York, N.Y. 10017

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DESIGN DATA

Property	Value
al Conductivity / Mean Temp. sq. ft./inch/hr./°F.)	200°F 0.35 · 300°F 0.40 · 400°F 0.45 · 500°F 0.50 · 600°F 0.55
y (Average)	12.5 lbs. / cu. ft.
al Strength (Average)	100 lbs. / sq. in.
ance to Abrasion (Loss in weight—max.)	After 10 min.—10%; after 20 min.—20%
e under Soaking Heat (Loss of weight)	24 hrs. @ 1200°F.—7.5%; 5 hrs. @ 1000°F—7.0%
r Shrinkage	24 hrs. @ 1200°F.—1.5%; 5 hrs. @ 1000°F—0.8%
ressive Strength (After immersion in water for 15 hours, while wet)	120 psi to produce 5% deformation

RECOMMENDED THICKNESSES

nal ize, es ↓	PIPE / UTILITY—STEAM GENERATION											PIPE / PROCESS								
	1	1	1	1½	1½	1½	2	2½	2½	2½	3	1	1	1	1	1	1	1	1½	1½
	1	1	1	1½	1½	1½	2	2½	2½	2½	3	1	1	1	1	1	1	1½	1½	1½
	1	1	1½	1½	2	2	2½	2½	3	3	3½	1	1	1	1	1	1	1½	1½	1½
	1	1	1½	1½	2	2	2½	2½	3	3	3½	1	1	1	1	1	1½	1½	1½	1½
	1	1½	1½	2	2	2½	3	3	3	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2	2½	3	3	3½	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2	2½	3	3	3½	3½	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	1½	2	2½	2½	3	3½	3½	4	4	1	1	1	1	1½	1½	1½	2	2
	1	1½	2	2	2½	2½	3	3½	3½	3½	4	1	1	1	1½	1½	1½	2	2	2½
	1½	1½	2	2	2½	2½	3	3½	3½	4	4	1½	1½	1½	1½	1½	1½	2	2	2½
	1½	1½	2	2	2½	2½	3½	3½	4	4	4½	1½	1½	1½	1½	1½	2	2	2½	2½
	1½	1½	2	2½	2½	3	3½	3½	4	4	5	1½	1½	1½	1½	1½	2	2	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4½	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	3½	4	4	4½	5	1½	1½	1½	1½	2	2	2½	2½	2½
	1½	1½	2	2½	3	3	4	4	4½	4½	5	1½	1½	1½	1½	2	2	2½	2½	3

PACKAGING DATA

PIPE SIZE →	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	4½"	5"	6"	7"	8"	9"	10"	11"	12"	14"	15"	16"	17"	18"	19"	20"	21"
Sections per Ctn.	45	45	25	25	22	18	16	15	9	9	8	8	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Av. Gross Wgt. per Ctn. (lbs.)	100	95	75	70	70	70	70	70	65	55	55	55	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ctn. Number	201	201	212	212	201	201	202	201	202	202	203	203	204	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sections per Ctn.	22	22	18	16	16	15	9	9	6	6	5	6	4	4	2	2	2	2	2	1	1	1	1	1	—	—	—
Av. Gross Wgt. per Ctn. (lbs.)	90	85	80	95	90	100	80	70	85	75	75	55	45	55	35	35	40	45	45	25	25	25	30	30	—	—	—
Ctn. Number	201	201	201	202	202	201	202	202	203	203	204	204	205	206	207	208	209	210	203	211	212	213	205	202	—	—	—
Sections per Ctn.	16	16	15	15	9	9	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1
Av. Gross Wgt. per Ctn. (lbs.)	105	105	115	120	95	95	100	90	85	80	70	60	70	40	45	50	50	55	30	30	35	35	35	40	40	40	45
Ctn. Number	202	202	201	201	202	202	203	203	204	204	205	205	206	207	208	209	210	203	211	212	212	205	202	206	214	215	216
Sections per Ctn.	9	9	9	9	8	8	6	6	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
[illegible]ross Wgt. per Ctn. (lbs.)	100	100	100	95	110	105	100	90	80	75	85	80	50	50	50	60	55	25	40	40	40	45	50	50	50	55	55
Number	202	202	202	202	203	203	204	204	205	205	205	206	207	208	209	210	203	211	212	213	205	202	206	214	215	215	217
Sections per Ctn.	8	8	8	8	6	6	4	4	4	4	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
Av. Gross Wgt. per Ctn. (lbs.)	120	115	115	110	105	100	85	80	95	90	55	55	50	65	70	75	40	45	50	50	50	55	55	50	50	65	55
Ctn. Number	202	203	203	202	204	204	205	205	206	206	207	207	208	209	210	203	211	212	212	205	202	205	214	215	215	217	218

CODE SIZE OF CARTONS

201—[illegible] I.D.
202—[illegible] I.D.
203—[illegible] I.D.
204—[illegible] I.D.
[illegible]

205—20¼" x 20¼" I.D.
206—22¼" x 22¼" I.D.
207—24" x 12" I.D.
208—25" x 12" I.D.
209—[illegible] I.D.

210—30¼" x 15¼"
211—17¼" x 17¼" I.D.
212—13¼" x 13¼" I.D.
213—19¼" x 13¼" I.D.
214—22¼" x 22¼" I.D.

215—24¼" x 24¼"
216—25¼" x 25¼"
217—25¼" x 25¼"
218—27¼" x 27¼"
219—28¼" x 28¼"
220—28¼" x 17¼"

...potential fire hazard of ... Double-layer, staggered joint construction also minimizes thermal stresses in the insulation by reducing the temperature differential across each layer.

†Tabulated thicknesses are optimum thicknesses calculated on an economic (From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association) basis for heat conservation under average operating conditions and assure adequate temperature control. Other conditions may warrant the use of other thicknesses.

JAN 1 1981

Nominal Pipe Size, Inches

½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	11	12	14	15	16	17
1.34	1.27	1.57	1.67	2.18	2.58	2.99	3.35	5.02	4.24	6.14	5.06	5.48	—	—	—	—	—	—	—	—	—	—
2.75	2.56	3.30	4.02	3.85	4.56	6.43	5.70	7.85	7.08	8.91	7.83	8.78	10.3	11.5	12.3	14.3	15.4	16.3	17.0	13.0	18.9	19..
4.42	4.33	5.29	5.11	4.93	6.91	9.26	8.53	10.6	9.90	12.3	11.2	13.0	14.3	15.6	18.5	19.6	21.2	22.9	23.3	24.7	25.9	27..
7.83	7.76	7.54	7.46	10.1	9.71	12.1	11.2	13.8	13.2	16.3	15.4	17.0	18.7	21.8	23.7	25.1	27.5	29.2	29.9	31.7	34.2	35..
10.5	10.4	10.3	10.1	13.0	12.6	15.4	14.5	18.1	17.4	20.4	19.3	21.4	24.8	27.1	29.2	31.5	33.7	35.9	36.9	39.6	41.8	43..

...E / COMMERCIAL— ...YEAR OPERATION				PIPE / COMMERCIAL— SEASONAL OPERATION				
1½	2	2½	2½	1	1	1½	1½	2
1½	2	2½	3	1	1	1½	2	2
2	2½	3	3	1	1½	1½	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	2½	3	3½	1	1½	2	2	2½
2	3	3½	4	1	1½	2	2½	3
2	3	3½	4	1½	1½	2	2½	3
2	3	3½	4	1½	1½	2	2½	3
2½	3	3½	4	1½	1½	2	2½	3
2½	3	3½	4	1½	2	2½	3	3½
2½	3	3½	4	1½	2	2½	3	3½
2½	3½	4	4½	1½	2	2½	3	3½
2½	3½	4	4½	1½	2	2½	3	3½

BLOCK

Utility—Steam Generation	1½	1½	2	2½	3	3	3½	4	4	4...
Process	1½	1½	1½	1½	1½	2	2	2	2½	2...
Commercial—Full Year Operation	1½	2½	3½	4	4½	—	—	—	—	—
Commercial—Seasonal Operation	1	1	1½	2	2½	—	—	—	—	—

PIPE SIZE —	12"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	38"	40"	42"	44"
Segments per Section	3	9	10	10	11	11	12	13	13	14	14	15	15	16	15	17	17	18	18	19	19	20	20	21	22	23	24	25
Actual O.D. of Covering	15"	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	41"	43"	45"	47"
Segments per Section	9	10	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	24	25	25
Actual O.D. of Covering	17"	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	42"	44"	46"	48"
Segments per Section	10	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	23	24	25	25
Actual O.D. of Covering	18"	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	41"	43"	45"	47"	49"
Segments per Section	10	11	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	24	25	26	27
...ual O.D. of Covering	19"	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	37"	38"	39"	40"	41"	42"	44"	46"	48"	50"

...per Carton	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
...	72	60	54	42	35	27	22	18	13.5
	48	40	36	28	24	18	14	12	9

...ge Gross Weight of Carton—53 lbs. All Blocks are packaged in No. 102 Cartons.

CURVED BLOCKS — SEGMENTS

...ick 24 per ctn. / 2" thick 18 per ctn. / 2½" thick 14 per ctn. / 3" thick 12 per ctn.
All Segments are packaged in No. 102 Cartons

PIPE SIZE —	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	3...
Sections per Ctn.	45	45	45	45	25	25	25	21	18	18	
Av. Gross Wgt. per Ctn. (lbs.)	75	74	71	68	60	57	53	70	[illegible]	70	
Ctn. Number	201	201	201	201	212	212	212	201	201	202	-

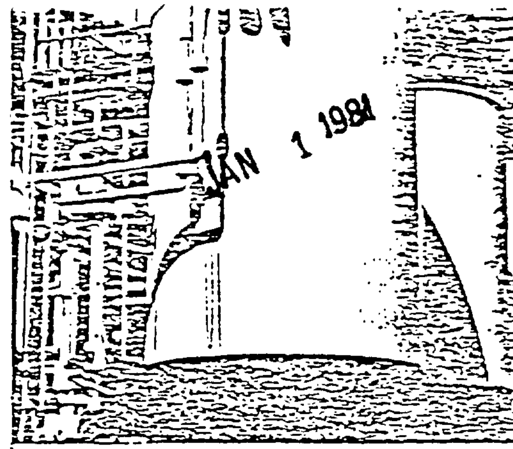
T—Nominal Insulation Thickness / HL—Heat Loss (BTU/lin. ft./hr., ambient still air at 80°F) / E—Insulation [effici]ency / ST—Surface Temperature (for common surface finishes having an emissivity of approximately 0.90)

1 19

PIPE SIZE ↓	200°F T	HL	E	ST	400°F T	HL	E	ST	600°F T	HL	E	ST
½	1	15.7	77.6	95	1	47.9	82.5	120	1	87.5	86.0	146
	1½	13.4	80.9	89	1½	40.6	85.2	105	1½	73.9	88.2	123
	2	11.5	82.5	87	2	34.9	87.3	98	2½	55.5	91.1	101
¾	1	19.0	77.7	98	1	58.0	82.8	127	1	106	86.2	158
	1½	15.1	82.3	91	1½	45.7	86.5	109	1½	83.2	89.2	125
	2	13.2	84.5	88	2	39.9	88.2	101	2½	62.2	91.9	104
1	1	19.8	81.1	95	1	60.4	85.5	121	1	111	88.4	148
	1½	16.4	84.4	90	1½	49.7	88.0	108	1½	90.4	90.5	127
	2	14.2	86.5	88	2	43.1	89.6	100	2½	70.5	92.6	107
1¼	1	25.5	80.4	99	1	78.1	84.9	132	1	144	88.0	165
	1½	18.4	85.9	91	1½	55.5	89.2	108	1½	102	91.5	127
	2	15.9	87.1	89	2	51.3	90.1	104	2½	82.3	93.1	111
1½	1	25.0	82.3	98	1	79.4	86.4	127	1	146	89.3	157
	1½	20.5	85.9	92	1½	63.1	89.2	112	1½	115	91.5	133
	2	16.5	88.8	87	2	50.1	91.4	100	2½	92.4	93.9	107
2	1	29.9	83.4	98	1	91.3	87.2	127	1	167	90.0	158
	1½	23.3	87.1	92	1½	70.8	90.2	112	1½	129	92.3	133
	2	19.8	89.1	89	2	60.0	91.7	103	3	88.3	94.7	106
2½	1	34.4	84.1	98	1	105	87.8	129	1	193	90.4	160
	1½	24.2	88.8	90	1½	73.3	91.5	108	2	116	94.2	117
	2	21.0	90.3	88	2½	57.0	93.4	98	3	94.7	95.3	105
3	1	40.7	84.2	99	1	125	88.0	131	1	229	90.5	164
	1½	31.0	88.0	93	1½	94.2	90.9	115	2	144	94.1	124
	2	25.0	89.9	90	2½	68.9	93.3	101	2½	103	95.8	104
3½	1	38.4	86.8	96	1	118	90.0	122	1½	172	93.7	131
	1½	31.0	89.4	91	1½	94.1	92.0	111	2	147	94.7	120
	2	25.5	90.9	89	2	80.3	93.1	104	2½	129	95.3	113
	1	48.8	85.0	99	1	150	88.6	132	1½	208	93.2	140
	1½	37.4	88.5	94	1½	114	91.3	116	2	172	94.4	125
	2	31.0	90.5	90	2	94.0	92.3	107	3½	120	96.1	106
4½	1	45.3	87.3	96	1	140	90.3	123	1½	203	94.0	133
	1½	36.6	89.8	92	1½	112	92.3	112	2	171	95.0	122
	2	31.0	91.4	89	2½	81.2	94.4	100	3½	123	96.4	104
5	1	59.3	85.0	100	1	182	88.5	134	1½	249	93.4	143
	1½	44.7	88.7	94	1½	126	91.5	118	2½	171	95.5	118
	2	36.5	90.3	91	2½	93.9	94.1	102	3½	128	96.3	107
6	1	70.4	84.3	101	1	216	88.5	126	1½	291	93.4	145
	1½	52.2	88.8	95	2	125	93.3	109	2½	196	95.5	120
	2	41.4	91.1	91	3	95.2	95.0	100	4	141	96.8	104
7	1½	56.5	89.3	94	1½	174	91.3	119	1½	317	93.8	144
	2	46.3	91.3	91	2	141	93.5	110	2½	219	95.7	121
	2½	39.5	92.5	89	3	103	95.2	99	4	155	97.0	104
8	1½	63.2	89.4	95	1½	193	92.1	119	1½	352	93.4	145
	2	51.2	91.4	91	2	156	93.5	110	2½	232	95.9	120
	2½	42.1	92.9	89	3	112	95.3	100	4	159	97.1	105
9	1½	63.4	89.5	95	1½	212	92.1	120	1½	387	93.9	145
	2	52.5	91.3	91	2	163	93.9	109	2½	253	96.0	120
	2½	45.3	92.0	89	3	123	95.4	100	4	183	97.1	106
10	1½	74.3	89.9	94	1½	225	92.4	119	2	233	95.3	131
	2	60.0	91.3	91	2	183	93.9	110	3	247	96.5	115
	2½	51.0	93.0	89	3	126	95.4	101	4	201	97.1	107
12	1½	87.3	89.3	95	1½	266	92.4	122	2	389	95.3	122
	2	70.3	91.3	92	2	214	93.9	111	3	285	96.5	115
	2½	59.2	93.1	90	2½	140	95.0	95	4½	210	97.5	104
14	1½	122	89.2	96	1½	310	91.9	123	2	444	95.1	125
	2	90.1	91.4	92	2	244	93.5	113	3	319	96.5	113
	2½	76.8	92.9	90	2½	155	95.9	99	4½	222	97.5	105
16	1½	115	89.2	96	1½	350	91.9	123	2	500	95.2	125
	2	90.2	91.5	93	2	274	93.7	114	3	357	96.5	119
	2½	74.9	92.9	90	2½	173	95.2	100	4½	258	97.5	106
18	1½	128	89.3	96	1½	389	92.0	124	2	556	95.2	135
	2	101	91.2	93	2	305	93.7	114	3	394	96.5	119
	2½	83.1	92.0	90	3½	191	96.1	100	4½	284	97.5	106
20	1½	141	89.3	96	1½	429	92.0	124	2	611	95.2	127
	2	111	91.5	93	2	335	93.7	114	3	432	96.6	120
	2½	91.2	92.0	90	2½	209	96.1	100	4½	309	97.5	107
24	1½	157	89.3	97	1½	509	92.0	124	2	722	95.3	137
	2	121	91.5	93	2	356	93.4	114	3	508	96.7	120
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97.5	107

PIPE SIZE ↓	800°F T	HL	E	ST	1000°F T	HL	E	ST	1200°F T	HL	E
½	1	135	88.7	173	1½	159	92.2	162	1½	211	93.5
	2	97.1	91.3	125	2½	119	94.2	122	2½	157	95.2
	2½	84.9	92.9	111	3	112	94.5	115	3	148	95.5
¾	1	164	88.3	189	1½	179	92.9	170	1½	238	94.1
	2	111	92.4	131	2½	133	94.7	127	2½	176	95.7
	2½	95.2	93.5	115	3	125	95.1	119	3	165	95.9
1	1	170	90.7	176	1½	195	93.8	168	1½	258	94.9
	2	120	93.4	130	2½	152	95.2	132	2½	201	96.0
	2½	108	94.1	119	3	140	95.5	123	3	186	96.3
1¼	1	222	90.3	197	1½	218	94.5	163	1½	290	95.4
	2	143	93.7	128	2½	177	95.5	129	2½	234	96.3
	2½	125	94.5	125	3	162	95.9	129	3	214	96.6
1½	1	224	91.4	187	1½	248	94.5	178	1½	329	95.3
	2	140	94.5	129	2½	177	96.1	133	2½	234	96.1
	2½	127	95.2	120	3	163	96.4	124	3	216	97.1
2	1½	198	93.8	155	1½	278	95.0	178	2	311	96.5
	2	168	94.8	137	2½	208	96.3	140	3	251	97.2
	2½	149	95.4	125	3	190	96.6	130	3½	222	97.4
2½	1½	205	94.7	147	1½	257	95.7	168	2	329	97.0
	2½	159	95.9	123	2½	222	96.7	137	3½	247	97.7
	3	145	96.2	116	3	202	97.0	129	4	222	97.9
3	1½	254	94.3	162	1½	371	95.4	186	2	409	96.9
	2½	192	95.9	131	3	242	97.0	126	3½	290	97.8
	3½	157	96.6	115	4	204	97.5	121	4½	253	98.1
3½	1½	254	95.0	153	2	314	96.6	156	2½	367	97.5
	2	224	95.8	138	3	248	97.3	132	4	282	98.1
	3	177	96.7	119	3½	228	97.5	125	5	251	98.3
	1½	319	94.6	165	2	369	96.4	167	2½	422	97.5
	2½	227	96.2	133	3	290	97.3	138	4	313	98.1
	3	200	96.5	124	3½	255	97.5	130	4½	288	98.2
4½	1½	311	95.3	156	2	368	96.3	159	2½	400	97.7
	2½	227	96.5	129	3	286	97.5	135	4	317	98.3
	3	205	96.9	121	3½	252	97.7	128	5	298	98.4
5	1½	332	94.8	159	2	435	96.5	170	2½	486	97.6
	2½	252	96.4	125	3½	295	97.7	132	4	353	98.3
	3	223	96.8	125	4	257	97.9	124	5	310	98.5
6	2	352	95.9	150	2½	421	97.2	155	2½	558	97.[illegible]
	2½	301	96.5	127	3½	327	97.8	133	4	398	98.4
	3	255	96.9	128	4	301	98.0	125	5	244	98.5
7	2	394	95.0	151	2½	469	97.3	157	2½	622	97.3
	2½	325	96.6	128	3½	351	97.9	134	4	438	98.4
	3	286	97.1	127	4	331	98.1	128	5	380	98.[illegible]
8	2	435	96.1	152	2½	498	97.4	155	3	532	98.[illegible]
	3	314	97.2	128	3½	395	98.0	125	4½	443	98.5
	3½	283	97.5	122	4	361	98.1	129	5	413	98.
9	2	455	96.3	149	2½	544	97.5	156	3	633	98.
	3	341	97.2	129	3½	429	98.0	126	4½	478	98
	3½	307	97.5	122	4	392	98.2	130	5	446	98.
10	2½	432	96.9	140	2½	606	97.5	159	3½	625	98
	3	378	97.3	131	3½	473	98.0	138	4½	524	98
	3½	338	97.5	124	4	430	98.2	131	5	487	98.
12	2½	503	96.9	141	2½	704	97.5	161	3½	721	98
	3	437	97.2	132	4	493	98.2	123	4½	595	98.
	3½	389	97.5	125	4½	450	98.4	127	5	552	98
14	2½	566	96.3	145	3	684	97.3	152	3½	300	98
	3½	431	97.5	128	4	544	98.3	125	4½	557	98
	4	355	97.8	122	4½	496	98.4	120	5	506	98
16	2½	636	96.3	145	3	765	97.3	153	3½	893	98
	3½	482	97.5	123	4	606	98.2	126	4½	731	98
	4	433	97.9	123	4½	552	98.5	120	5	673	98
18	2½	705	96.5	146	3	847	97.3	154	3½	986	[illegible]
	3½	532	97.7	129	4	668	98.3	127	4½	804	98
	4	477	97.9	123	4½	607	98.5	131	5	729	99
20	2½	774	96.3	147	3	923	97.3	155	3½	1079	[illegible]
	3½	582	97.7	129	4	729	98.4	135	4½	877	98
	4	521	97.9	124	4½	662	98.5	122	5	905	99
24	2½	912	97.0	148	3	1091	97.3	156	3½	1255	9[illegible]
	3½	682	97.7	130	4	853	98.4	129	4½	1023	98
	4	529	98.0	124	4½	772	98.5	122	5	937	9[illegible]

...beroid T/NA 100...the only truly superior ...keting for the only truly superior insulation



...A 100 is a truly unique insulation jacketing. It is fireproof, flexible, and offers ...ralleled resistance to outdoor weathering. It is remarkably easy to apply and ...ides significant savings in installation costs. It never requires painting or ...herproofing.

...A 100 combines asbestos fibre, an inorganic material of established durability ... flame resistance, with Tedlar,® a new PVF film of unique characteristics devel... ...d in the laboratories of Du Pont. The asbestos fibre is formed into a tough asbestos ... using an elastomeric binder. "Tedlar" is permanently laminated to the asbestos felt ... an elastomeric adhesive.

...gh and flexible over wide temperature range (—50° F to over 200° F).

...ne-resistant with flame spread rating of 25 by Underwriter's Laboratories.

...ther-resistant . . . will not chalk, craze, erode or corrode on exposure.

...mical and solvent resistant; retaining form and strength even when boiled in strong ...s and bases. Unaffected at ordinary temperatures by many classes of common ...ent; impermeable to greases and oils; unaffected by soil bacteria.

...igned for multi-purpose use over large areas as well as narrow-diameter pipelines.

...istant to puncture and abrasion . . . designed to take wear and tear.

...y to repair by patching with T/NA 100 Finishing Tape.

...ght white surface . . . attractive, highly reflective.

...u Pont's Registered Trademark

MATERIAL SPECIFICATIONS:

Width of Roll .... 35.5 ...

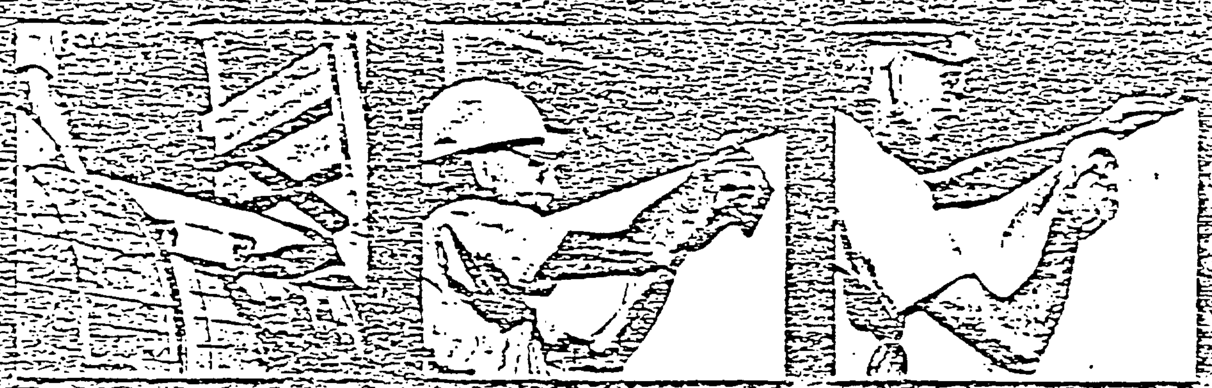
Length .... 166.7 lin. ...

Area (Gross) .... 500.0 sq. ...

Approx. Shipping Weight .... 60.0 lb...

Note: Butt Strap Stock available in roll... 4 inches wide x 166.7 lineal feet.

Special sizes and shapes available ... special order. For information regar... ing unique applications, contact T... Ruberoid Co.



FOR FURTHER INFORMATION CONTACT

The RUBEROID Co. / Industrial Products Division / 733 Third Avenue, New York, N.Y. 10017

OTHER RUBEROID INDUSTRIAL INSULATION PRODUCTS

Fiber Glass Insulations — Insulation Cements — Asbestos Millboard and Rollboard

Commercial Asbestos Paper — Asbestos Furnace Tape — Corrugated Asbestos Sheets

... Asbestos-Cement Flat Sheets

THE MOST EFFECTIVE INSULATION CONTROL FOR SOAKING HEA

ALL MAJOR CHEMICAL, POWER AND PROCESSING INDUSTRI

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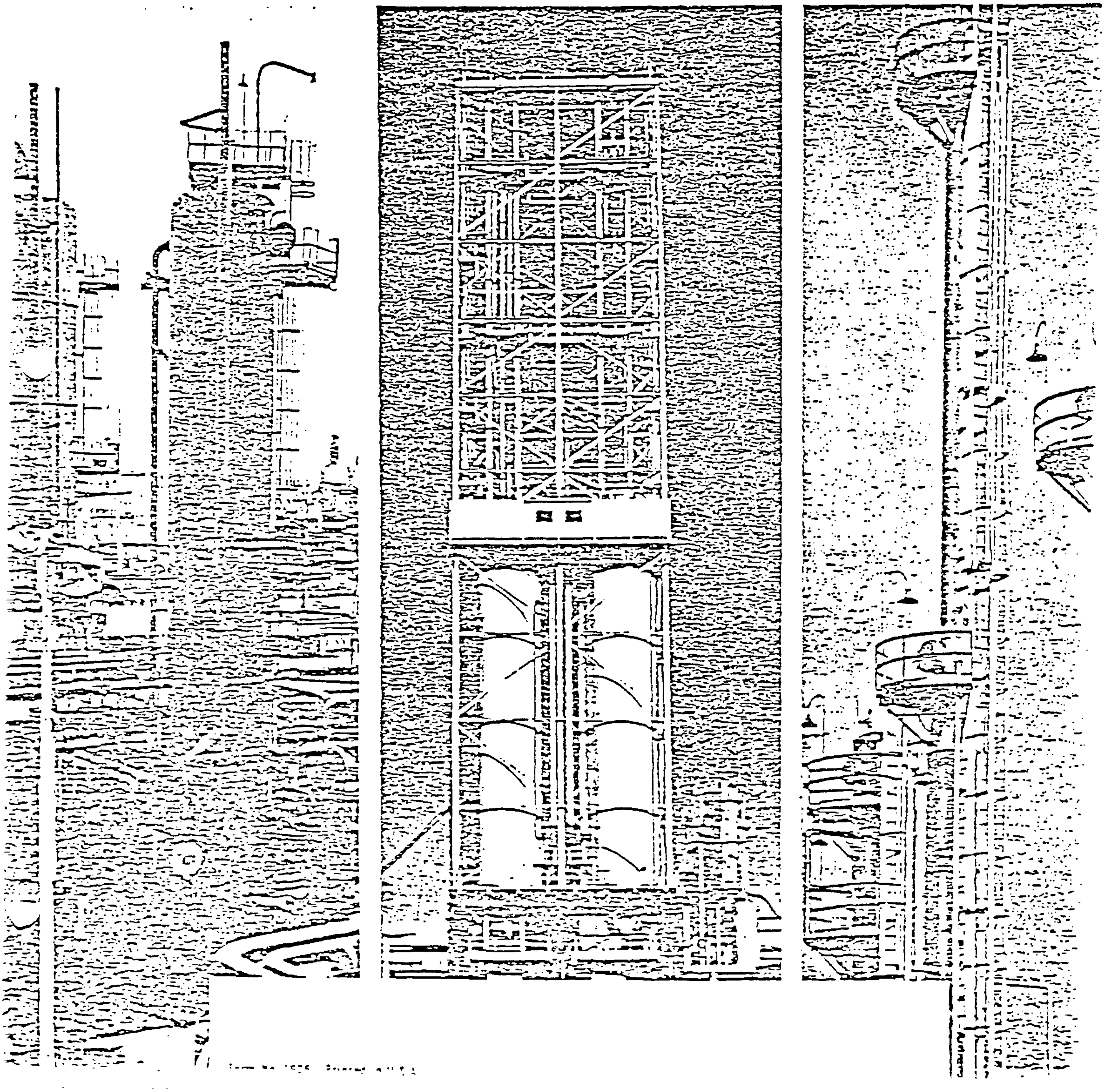
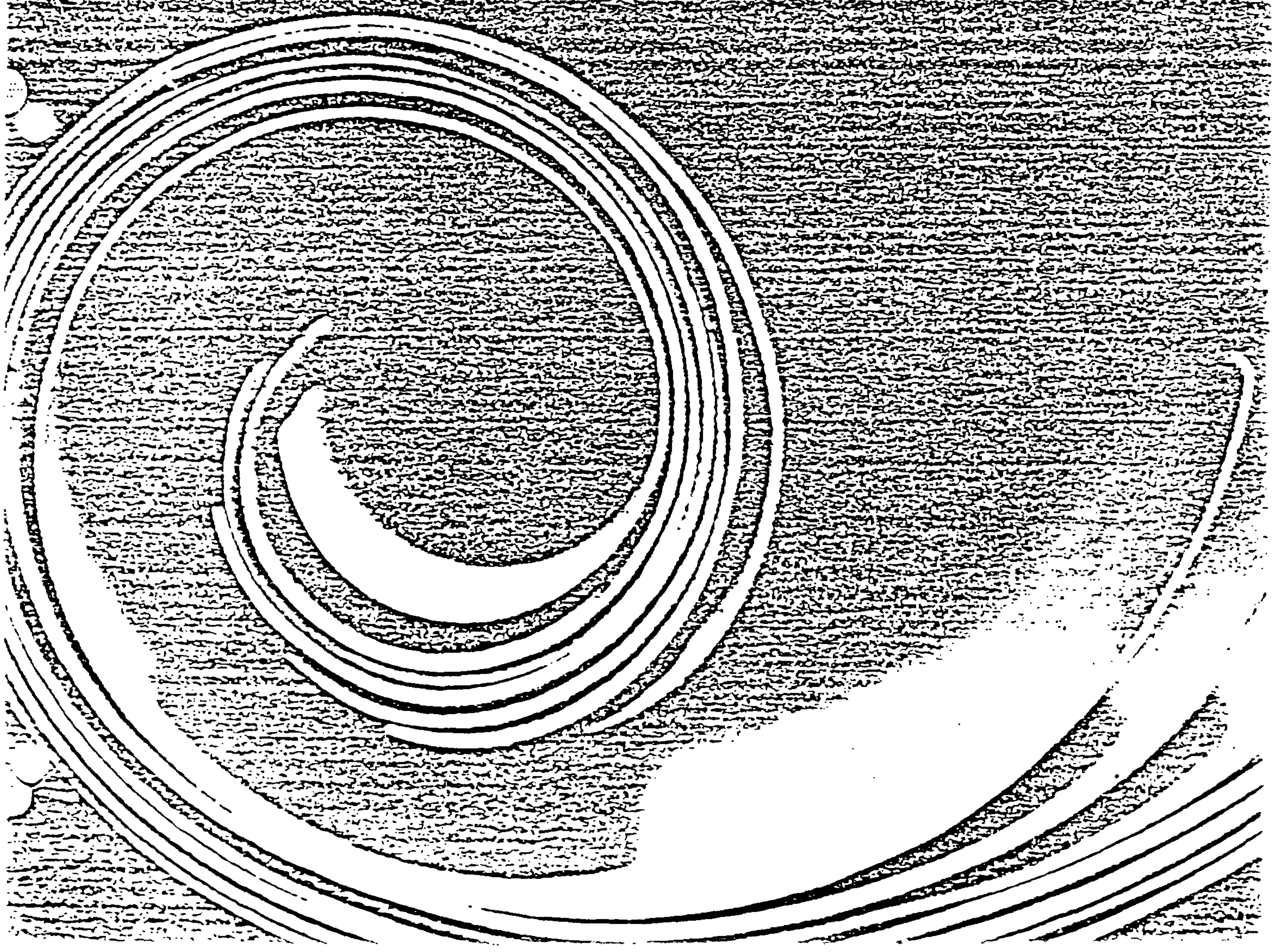


GAF® T/NA 100® AND T/NA 100 VAPOR BARRIER MULTIPURPOSE INSULATION JACKETINGS

- Superior Appearance
- Superior Resistance to Atmospheric Conditions
- No Specialized Installation Required



GAF T/NA 100* Insulation and T/NA 100* Vapor Barrier—
A Simplified Solution to Insulation Jacketing Problems

JAN 1 1981

GAF T/NA 100 INSULATION JACKETING

GAF T/NA 100 jacketing represents a major break-through in the field of insulation. It is the first and only flexible, fire-resistant jacketing which provides unparalleled resistance to outdoor weathering. Its flexibility, workability, and versatility simplifies application, reduces installation costs, and makes it effective for covering large tank units as well as for protecting extended pipelines.

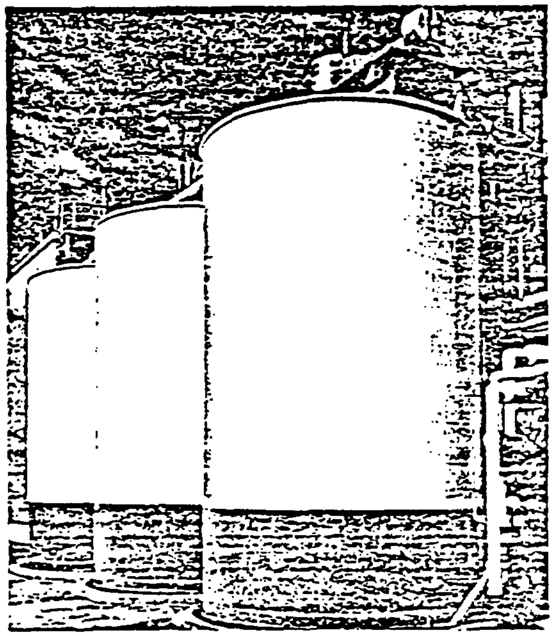
T/NA 100 multipurpose insulation jacketing combines asbestos fiber, an inorganic material of established durability and flame resistance, with Tedlar* a unique PVF film. This film is laminated to the asbestos felt with an elastomeric adhesive. Initial peel bond strengths between the film and asbestos felt average 800 grams per inch of width. After two years (tested in Florida at 45° South) the bond strength is unchanged. Accelerated weatherometer testing (3,000 hours) also reveals no change in bond strength.

CHEMICAL PROPERTIES

GAF T/NA 100 jacketing and T/NA 100 Vapor Barrier have excellent resistance to a variety of chemicals. The laminate was unaffected after two weeks immersion (at room temperature) in the following chemicals: ammonium hydroxide (conc.), methanol, Varsol #1, carbon tetrachloride, gasoline, perchloroethylene; and 10% solutions of hydrochloric acid, nitric acid, sulfuric acid, and sodium hydroxide. The laminate was also unaffected after being immersed in water for one year.

GAF T/NA 100 VAPOR BARRIER

T/NA 100 Vapor Barrier provides a finished laminate of T/NA 100 insulation and 0.001 inch Saran film that has all the desirable properties of T/NA 100 plus a low moisture vapor permeability of 0.05 perms. Saran is a vinylidene chloride vinyl chloride copolymer film known for its low moisture and gas permeability, strength, excellent aging, negligible water absorption and chemical resistance.



PHYSICAL AND THERMAL PROPERTIES OF T/NA 100 JACKETING AND T/NA 100 VAPOR BARRIER

Properties	Typical Values	Test Methods
Tensile Strength, M.D., lbs./in.	42	ASTM D-828
Mullen Burst Strength, psi	86	ASTM D-744
Elmendorf Tear Strength, C.M.D., gms	449	ASTM D-689
Moisture Vapor Transmission, perms	0.66*	ASTM E-96
	0.05**	
Reflectivity	72.3%	Hunter Gardner Reflectometer
Underwriters' Rating (Tedlar exposed)*		
Spread of flame	25*	Underwriters Laboratories
Fuel contributed	none*	
Smoke contributed	45*	Test U.L. 723*
Discoloration		
[illegible]°F	slight	20 days in oven
[illegible]°F	trace	20 days in oven
Flexibility After Heat Aging		
[illegible]°F	slight decrease	20 days in oven
[illegible]°F	no change	20 days in oven

[illegible]

[illegible]

[Composite Conformed Copy
With Certain Exhibits
Conformed as Separately Executed]

GAF CORPORATION

Revolving Credit Agreement

Dated as of June 1, 1984

MANUFACTURERS HANOVER TRUST COMPANY,

as Agent