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PLEASE DELIVER THE FOLLOWING MESSAGE AND/OR PAGE(S) TO:

NAME: Dr. Barry Castleman; Dr. Jennifer LassFROM: Larry MadekshoTotal number of pages 22, including cover page.Special Instructions/Notes: Re: Teadit & Fluid Sealing Product

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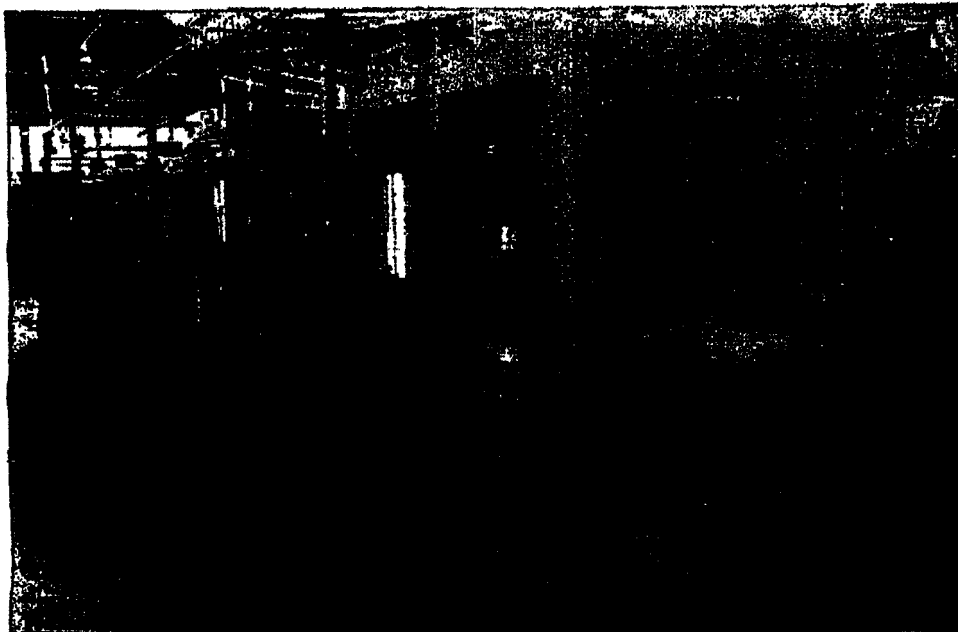
TEADIT[®]

Fluid Sealing Products

TEADIT**TEADIT****TEADIT****TEADIT****TEADIT****TEADIT****25,000 SQ. FT. HOUSTON WAREHOUSE**

Teadit began its operations in 1988 in Houston, Texas. TEADIT's customers are the gasket/packings distributors and gasket die cutters located throughout the United States, Canada and Mexico

**HOUSTON SALES OFFICE**

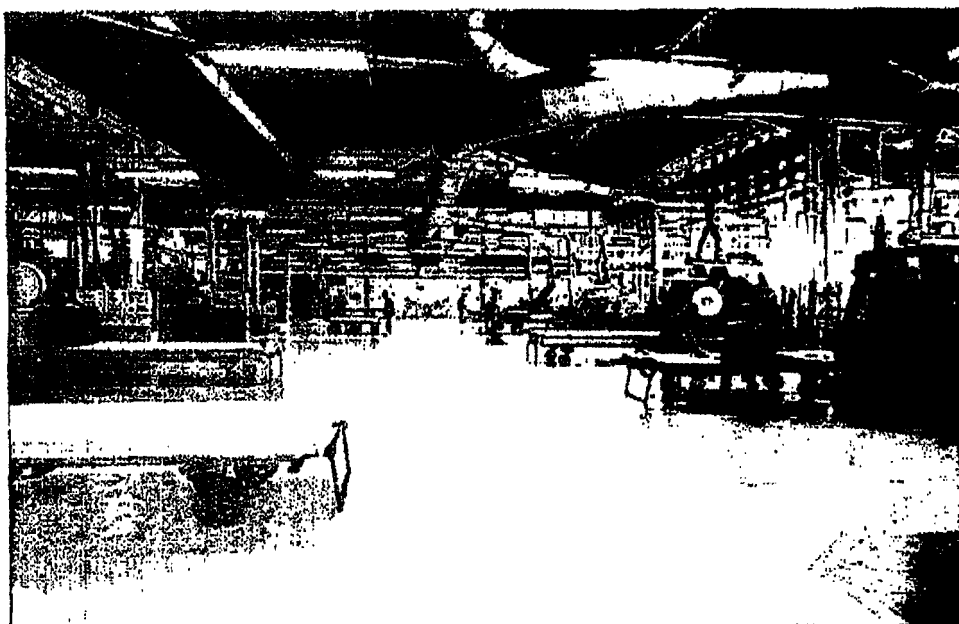
TEADIT**TEADIT****TEADIT****TEADIT****TEADIT****TEADIT****BRAIDED PACKING FACILITY**

TEADIT's primary goal is to be easy to do business with. Quality product at good prices, shipping the same day or next—always reliable.

TEADIT EMPLOYS these resources:

- **On-the-floor inventory exceeding \$2.0 million.**
- **Experienced customer-service staff with good product knowledge.**
- **Toll-free 800 phone number.**
- **Net distributor price list...no need to calculate your costs.**
- **Completely computerized accounting, inventory control and information retrieval system.**
- **Tele-Magic® software for customer service account management.**
- **Automated UPS and freight handling system...immediate rates and billing.**

TEADIT's experienced customer-service staff can give you prompt recommendations for the right TEADIT product to either solve a particular application problem or more than adequately replace any competitive product style. Please call TEADIT for help in solving your fluid sealing problems.

**COMPRESSED SHEET FACILITY**

ISO 9000 REGISTRATION/TOTAL QUALITY MANAGEMENT



DET NORSKE VERITAS
QUALITY SYSTEM CERTIFICATE

Certificate No. QMS 1992

This is to certify that the Quality System of

TEADIT

at

Amsterdam, The Netherlands

has been found to conform to the QMS

ISO 9002, 1991

This Certificate is valid for the following

MANUFACTURING OF

Place and date:
Amsterdam, March 20th, 1994

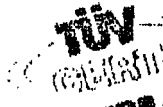
For the Associated Firm:
DET NORSKE VERITAS INDUSTRY B.V.
Tijl Nieuwland

Amsterdam, The Netherlands

Management Representative
Tijl Nieuwland

Back of Certificate of Registration and Certificate of Approval

DET NORSKE VERITAS INDUSTRY B.V. Amsterdam, The Netherlands



CERTIFICATE

TUV

The TÜV-Zertifizierungsgesellschaft e.V. hereby certifies that

TEADIT Ges.m.b.H.
Salzburgerstr. 17
A-6382 Kirchdorf/Tirol

has established and applies a quality system for

Stretched PTFE-flat-gasket, stuffingbox packings, PTFE-envelope and -flat-gaskets

An audit with reference to Report No. WTS/4088

has been carried out that the requirements according to

DIN ISO 9001/EN 29001

July 14, 1994



THE TEADIT
QUALITY COMMITMENT

To achieve 100% customer satisfaction by being the most efficient supplier of quality fluid sealing products at fair prices. To do this through cost-effective manufacturing, innovative product development, ample finished goods inventory, and efficient customer service... all by empowered employees, committed to continuous improvement.

All TEADIT products are manufactured under ISO 9000 Registration. TEADIT N.A., has been actively involved in Total Quality Management since 1991. Innovative TQM Programs have eliminated errors and provide continuous improvement.

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TEADIT

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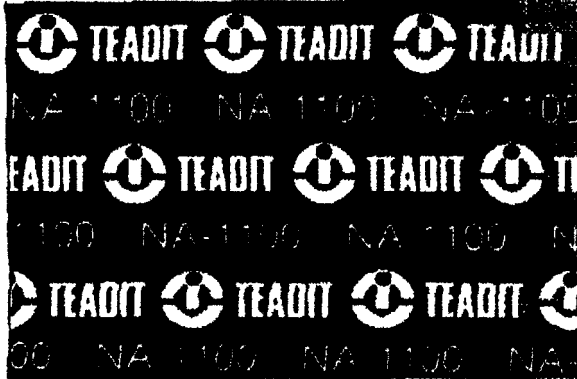
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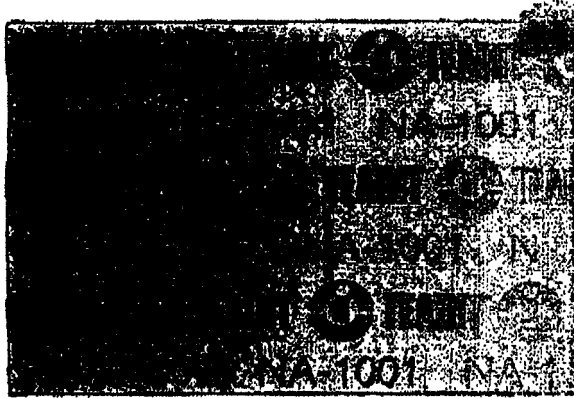
Properties and application parameters shown throughout this book are typical. Your specific application must be evaluated without independent study and evaluation for suitability. Failure to select proper sealing products could result in property damage and/or personal injury. Specifications are subject to change without notice. They reflect current all previous issues.

TEADIT**NON-ASBESTOS GASKET MATERIALS****NBR, CARBON FIBER SHEET****Color:** Black

NA1100 is manufactured from carbon fibers and graphite, bonded with Nitrile Rubber.

Service: For applications up to 900° F. This sheet enables plants to use only one gasket material and avoid the confusion of needing several different sheets or gasket styles in the plant. This sheet cuts very clean and easily. NA1100 is suitable for sealing hot oils, fuels, coolants, solvents, gases, water and steam.

Max Temperature 900° F (480° C)
 Max Pressure 2300 psi
ASTM F104-F713130-M5

**NBR, ARAMID FIBER****Color:** Green or White

NA 1001 gasketing is a non-asbestos sheet material formulated for services in most static sealing applications as a universal replacement gasket. NA-1001 is manufactured through the hot calender process under rigorous quality control standards. Its fiber content is aramid, bound by nitrile rubber (NBR).

Services: NA-1001 is suitable against air, water, brine, steam, organic and weak inorganic acids, concentrated and diluted alkalis, chemicals, petroleum and petroleum derivatives, synthetic oils, animal fats, vegetable oils, aromatic, aliphatic and chlorinated solvents and refrigerants. Specific use is steam.

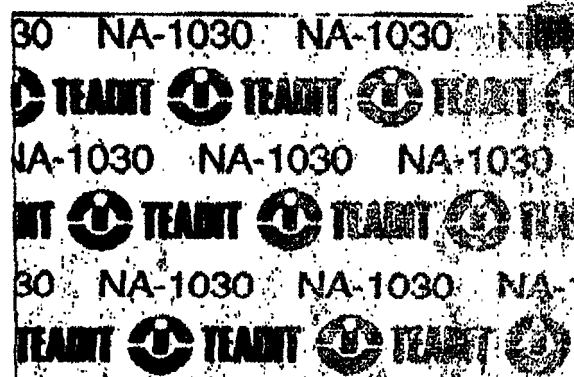
Max Temperature 750° F (380° C)
 Max Pressure 1600 psi
ASTM F104-F712130-M4

**SBR, ARAMID FIBER****Color:** White

NA 1020 is a high quality general service sheet packing with excellent sealability and creep relaxation characteristics. It is especially suitable for steam services. Manufactured by the hot calender process under rigorous quality standards using aramid fibers bonded with SBR rubber.

Service: This material is suitable for sealing gases, water, brine, steam, organic and weak inorganic acids, diluted and concentrated alkalis, oxygenated solvents and chemical products in general.

Max Temperature 720° F (380° C)
 Max Pressure 1000 psi
ASTM F104-F712241-M5

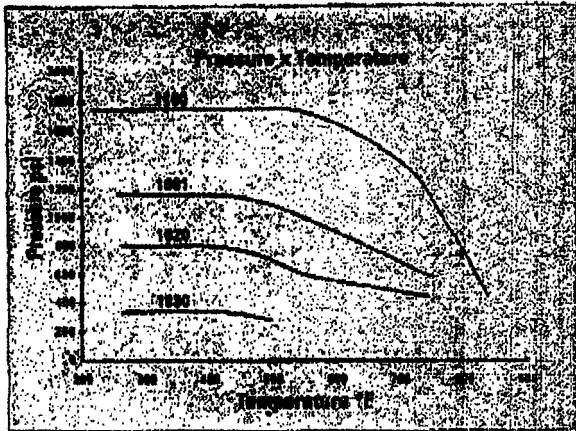
**SBR, CELLULOSE FIBER****Color:** Blue

A general service sheet for applications up to 450° F.

Service: This material is suitable for sealing gases, water, brine, steam, organic and weak inorganic acids, diluted and concentrated alkalis, oxygenated solvents and chemical products in general.

Max Temperature 450° F (230° C)
 Max Pressure 300 psi
ASTM F104-F712440-M4

NON-ASBESTOS GASKET MATERIALS

TEADIT


PRESSURE X TEMPERATURE CURVE

ME 285/0 Test Procedure

The purpose of this TEADIT test is to determine the maximum pressure a sheet material can withstand at various temperatures. It is normal for the pressure capability to decrease as the temperature is increased.

Test Parameters are as follows:

Fluid: Nitrogen Gas
 Bolt Torque: 200 ft-lbs
 Gasket Load: 3050 psi
 Gasket Size: 3 43" x 6 19" (4" 7500 psi ring gasket)
 Allowable Leakage Criteria: 20 psi decrease in one hour

The test is begun at 130°C (266°F) and a maximum pressure of 2600 psi. If leakage occurs (20 psi or more per hour), the pressure is lowered until leakage does not exceed 20 psi/hr. Record the pressure determinant for 130°C, then repeat the procedure at 300°C (572°F) and 450°C (842°F).

These points are plotted on a graph to give the PXT curve for the material

PRODUCT DATA FOR NON-ASBESTOS GASKET MATERIALS

ASTM	ASTM Method	NA 1100	NA 1000M	NA 1001	NA 1020	NA 1030	NA 1076
Density, g/cm ³		1.7	2.18	1.83	1.80	1.80	1.81
% Ignition Loss @ 1472°F	F-495	38	32	20	32	35	35
Tensile Strength, across grain psi	F-152	1900	2500	1900	1700	1600	1750
% Compressibility @ 5000psi	F-36A	15	15	9	16	8	15
% Recovery, Minimum	F-36A	55	50	55	50	60	39
Sealability (ml/hr. Leakage) @ 2000 psi gasket load	F-37A	0.5	1.1	0.6	0.5	0.5	1.1
Creep Relaxation @ 212°F. %	F-38	23	43	31	32	21	29

RESISTANCE AFTER 5 HRS. IMMERSION:

ASTM No. 3 Oil at 300°F

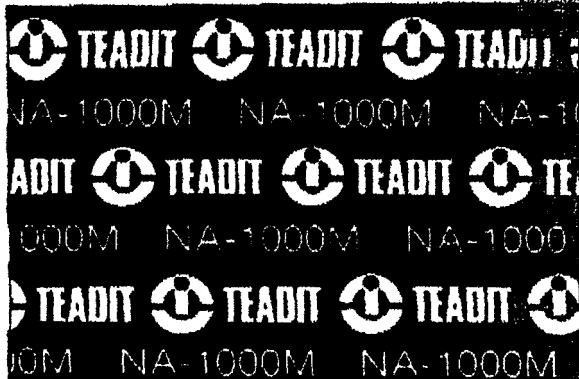
Thickness Increase, %	F-146	8	9	5	13	24	13
Weight Increase, %	F-146	15	13	9	21	19	17

ASTM Fuel B @ 73°F

Thickness Increase, %	F-146	9	11	5	11	17	10
Weight Increase, %	F-146	12	10	8	14	11	13

CHEMICAL RESISTANCE NON-ASBESTOS GASKET MATERIALS

STYLE	Mild inorganic acids	Mild organic acids	Strong inorganic acids	Strong organic acids	Concentrated alkalis	Diluted alkalis	Water	Air	Industrial Gases	Animal oils	Synthetic oils	Vegetable oils	Petroleum and Derivatives	General chemicals	Aliphatic solvents	Aromatic solvents	Chlorinated solvents	Oxygenated solvents	Brine	Neutral solutions	Refrigerants	Saturated steam	Superheated steam
NA-1100	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NA-1000M	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NA-1001	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NA-1020	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
NA-1030	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

TEADIT**NON-ASBESTOS GASKET MATERIALS****NBR, ARAMID FIBER WITH WIRE MESH****Color:** Black, Graphited both sides

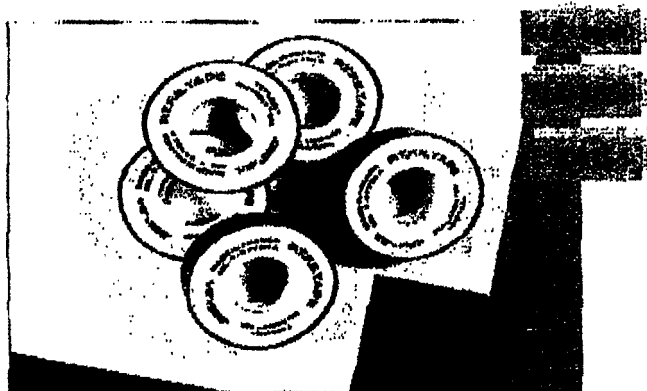
NA-1000M is an excellent sheet packing for use in gasket manufacturing to seal most fluids in industry. NA-1000M is manufactured through the hot calender process under rigorous quality control standards, with synthetic fibers, bound with nitrile rubber (NBR) and reinforced with wire. NA-1000M is very pliable and flexible. NA-1000M is ideally suited for applications with fluctuating temperatures and pressures.

Service: Air, water, brine, steam, organic and weak inorganic acids, concentrated and diluted alkalis, chemicals, petroleum and petroleum derivatives, synthetic oils, animal fats, vegetable oils, aromatic and aliphatic solvents, chlorinated solvents and cooling fluids.

Max. Temperature: 220° F (380° C)

Max. Pressure: 1550 psi

ASTM F104-F712121-M7

**PTFE VIRGIN GRADE SHEET****PTFE MECHANICAL GRADE SHEET****PTFE THREAD SEAL TAPE**

TEADIT offers sheet and tape manufactured from either virgin, filled or mechanical grade PTFE. Most products and sizes are stocked in Houston for off the-shelf availability. TEADIT can also supply etched sheet for bonding applications and electrical insulating tapes to your specifications.

Sheet sizes: 48" wide by 48" long or continuous length

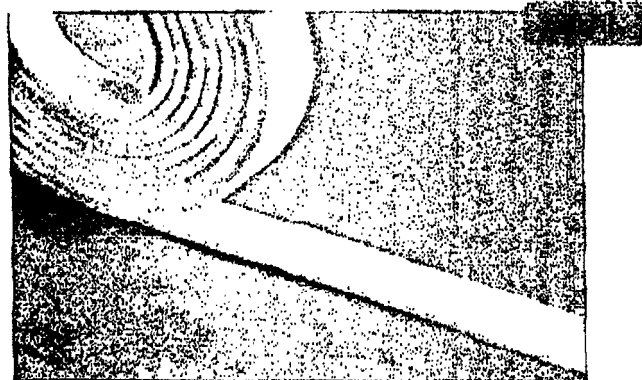
Thread Seal Tape: 1/4" to 1" wide and lengths 250" to 1296"

VIRGIN SKIVED SHEET AND TAPE

Thickness (inches)	.005	.010	.015	.020	.032	.125	.188	.250
Tensile Strength (Min. PSI)	2800	2800	2800	2800	2800	2100	2800	2800
% Elongation (Minimum)	200	200	200	200	200	200	200	200
Dielectric Strength (VPM)	1000	800	680	680	500	500	500	500
Melting Point (F°)	620	620	620	620	620	620	620	620
Weight (lbs/ft ²)	.07	.13	.19	.28	.35	1.5	2.2	3.0

Other thicknesses available upon request. TEADIT sheet meets the requirements of MIL-P-22241B, Type II, Grade B. Sheet is available on special order to meet other specifications.

Mechanical grade skived sheet is available in thicknesses from .015 to .250 in. Contact TEADIT for specifications.

**WOVEN PTFE GASKET TAPE**

Service: An endless seal for any diameter flange, vessel, tank end, ducts or glass equipment.

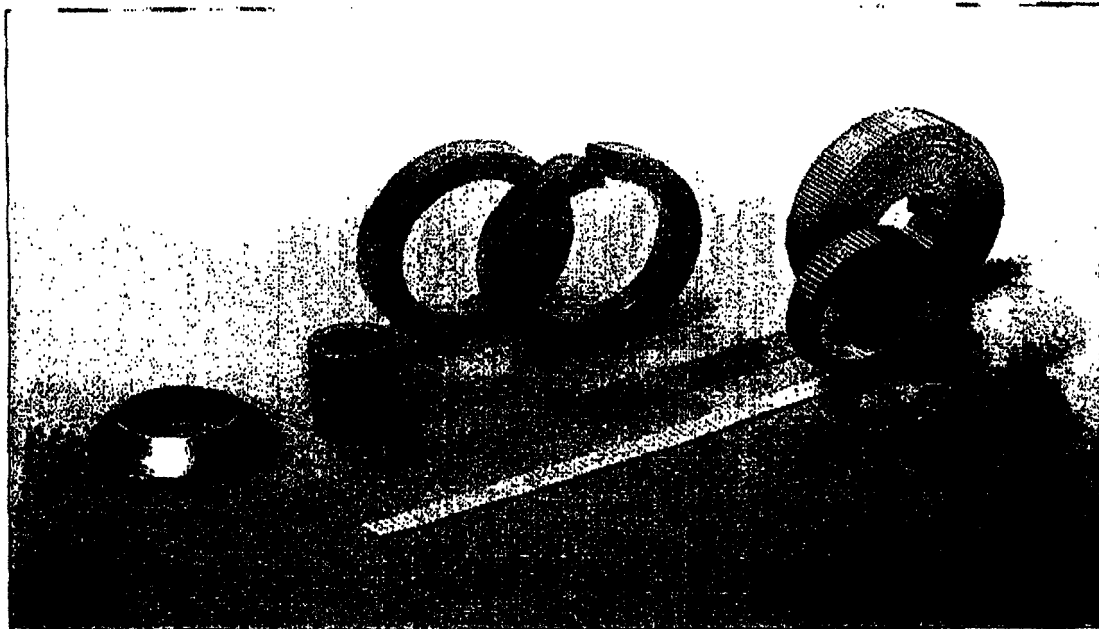
Construction: Braided of PTFE yarn, PTFE impregnated either with an inert lubricant or dry.

Service Limits: pH range 0-14
Temperature 500° F (260° C)
Pressure vacuum to +350 psi

Sizes Available: Thickness 1/4" x 1/4", 1/2" x 1/2", 1" x 1"
Widths 1/2", 1", 1 1/4", 1 1/2", 2"

FLEXIBLE GRAPHITE

TEADIT



Flexible Graphite Gasket Tape (with adhesive backing), Packing tape and Sheet are available from TEADIT.

Flexible Graphite is a high purity graphite product with no binders, fibers, lubricants, or other additives. It seals successfully and retains its flexibility and resilience throughout a temperature range of -400°F to $+900^{\circ}\text{F}$ in an oxidizing atmosphere and up to 5400°F in a reducing or inert media. Its effective pressure range is from vacuum to 10,000 psi.

PHYSICAL PROPERTIES (VALUES SHOWN ARE TYPICAL AND DO NOT REPRESENT CERTIFICATION.)

Bulk Density: 62 and 70 lbs/cu. ft. std.
Tensile Strength: 800 psi
Ash Content: 4% max. (standard)
Leachable Chlorides: 50 ppm max
Leachable Fluorides: 50 ppm max

Compressibility: 45-60%
Recovery: 20-40%
Melting Point: Sublimates at 6800°F
Temperature Range:
Inert or Reducing atmospheres: to 5400°F
Oxidizing atmospheres: to 900°F

FLEXIBLE GRAPHITE SHEET

 HOMOGENEOUS

 STAINLESS STEEL FOIL REINFORCED

 WIRE REINFORCED

 TANGED STAINLESS STEEL REINFORCED

Flexible Graphite Sheets are available as homogeneous, laminated, or reinforced. All sheets can be easily cut using conventional steel rule dies, utility knives, or other simple gasket cutting equipment.

Standard Sizes: 39.4" x 39.4", 60" x 60"
Standard Thickness: $1/64"$, $1/32"$, $1/16"$, $1/8"$, $1/4"$

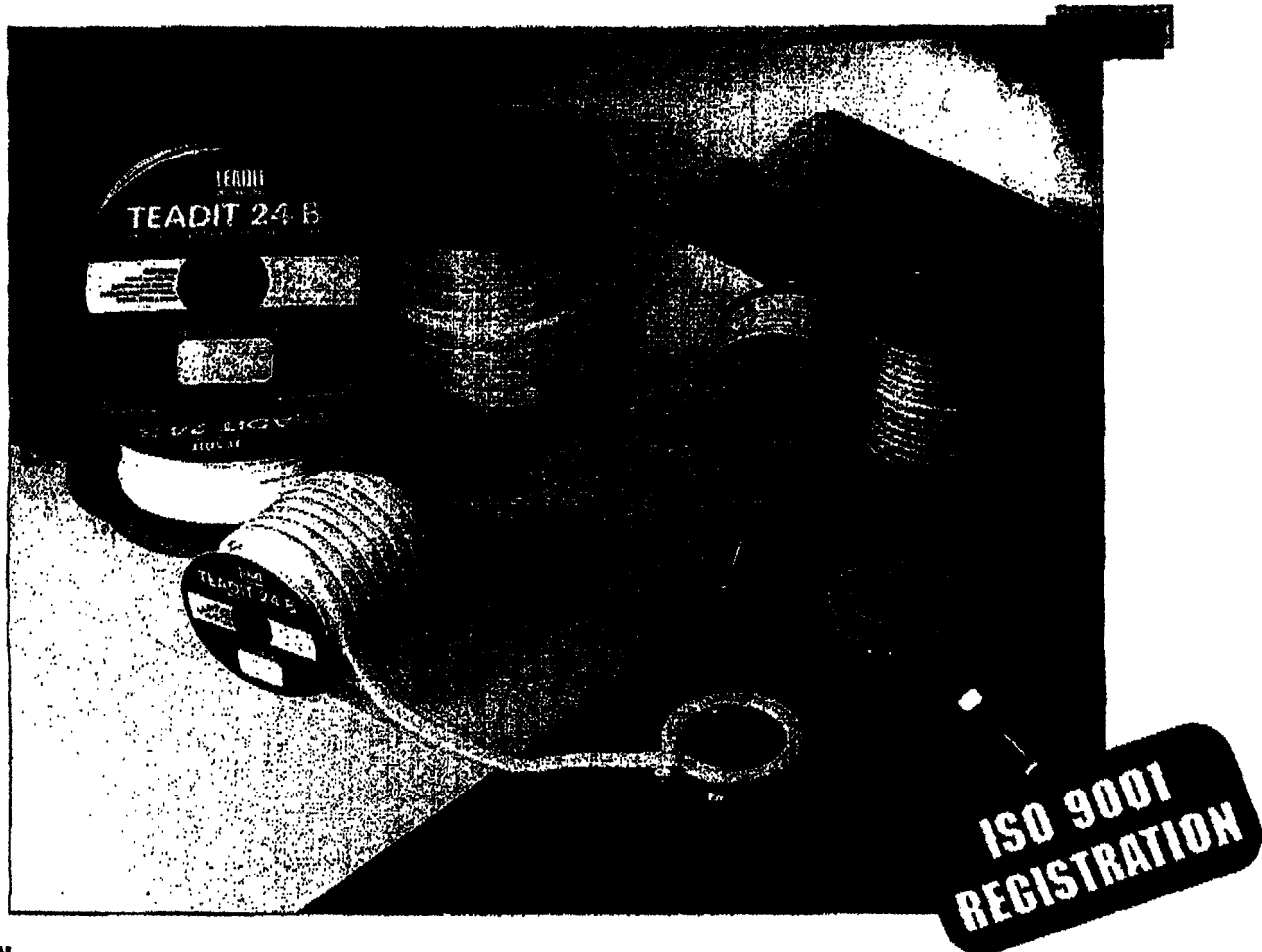
FLEXIBLE GRAPHITE TAPE

Available as tape packing or gasket tape in rolls up to 300 ft. long in standard widths of $1/4"$, $1/2"$, $3/4"$, 1", 1 1/4", 1 3/4"

Tape can be furnished smooth or corrugated, with or without adhesive backing.

 (Tape Packing) universal stuffing box packing for pumps and valves. The packing is formed in place in the stuffing box from standard width tape.

 (Gasket Tape) adhesive backed tape used in place of gasket, thread sealant, and for wrapping jacketed and other difficult-to-seal gaskets. Used to rejuvenate spiral wound gaskets in emergency situations.

TEADIT**TEADIT 24B EXPANDED PTFE GASKET TAPE****DESCRIPTION**

TEADIT 24B is a multi-purpose gasket tape manufactured from 100% expanded PTFE fluorocarbon material, supplied as a continuous low density tape with a self-adhesive backing strip. It is soft and spongy, permitting it to conform easily to all surface irregularities and to compress to a thin ribbon under pressure.

APPLICATIONS

TEADIT 24B is recommended as a gasket tape in steel, glass lined, PVC and fiber glass pipe flanges, fume ducts, concrete lids, heat exchangers, fiberglass reinforced plastic vessels, pump housing flanges, compressor housing flanges, steam vessel flanges, manhole and manhole covers, ceramic joints, ventilation ducts, hydraulic and pneumatic systems, water supply systems, and turbine cases.

CHEMICAL RESISTANCE

Because TEADIT 24B is manufactured from 100% PTFE, it is an inert material which can be used in many applications against corrosive environments, except molten alkali metals and elemental fluorine. 24B will not contaminate media and can be used in food and drug equipment applications.

SERVICE LIMITS

pH range: 0-14
 Temperature limits: -400/+590° F
 Pressure Limit: 2900 psi

PHYSICAL PROPERTIES:

Density: 39 lbs./cu ft.3, 0.63g./cm³
 Elongation: 120%
 Matrix Tensile Strength: 4760 psi
 Creep Relaxation (ASTM F38): 51%
 Sealability (ASTM F 37A): 0.1 mm/hr.

SERVICE LIMITS

Flange Size. For Pipe Sizes Up to 1/4" dia	TEADIT 24B Width
1/4" to 1 1/8"	1/8"
2" to 4"	3/16"
5" to 8"	1/4"
10" to 16"	3/8"
18" to 24"	1/2"
24" to 48"	3/4"
48" and above	1"

COMPRESSION PACKINGS/NATURAL FIBER

TEADIT

MARINE GRADE RAMIE, LUBRICATED

Service: A medium hard packing which is lubricated throughout. Extremely low frictional characteristics where minimal shaft wear is essential. Rot resistant and ideal for marine use, handling cold water, brine and cold oils. Use in stern tubes, rudder posts and tail shaft liners and industrial applications where minimal shaft scoring rates are required.

Construction: Square plaited construction, paraffin treated and mineral oil lubricated throughout.

Service Limits:	pH range:	6-8
	Temperature:	200° F (94° C)
	Shaft Speed:	1200 FPM

ISO 9002
REGISTRATION

RAMIE WITH GRAPHITE

Service: A medium hard packing which is lubricated and graphited throughout. Extremely low frictional characteristics where minimum shaft wear is essential. Rot resistant and ideal for marine use, handling cold water, brine and cold oils.

Construction: Square plaited construction, graphite coated and mineral oil lubricated throughout

Service Limits:	pH range:	6-8
	Temperature:	200° F (94° C)
	Shaft Speed:	1200 FPM

ISO 9002
REGISTRATION

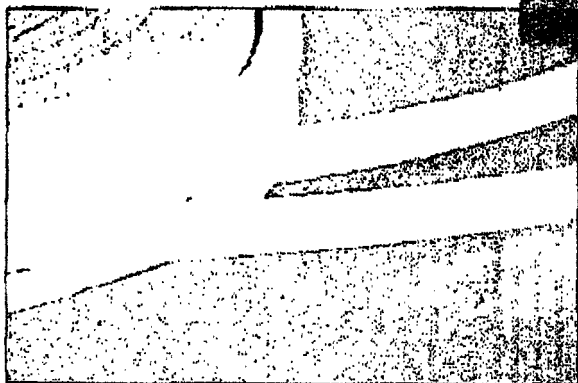
RAMIE IMPREGNATED WITH PTFE

Service: Stern tube and rudder post stuffing boxes in the marine field. Other applications include certain rotary and reciprocating pumps and valve stems in the paper industry.

Construction: Highest quality ramie yarn with PTFE suspensoid in a square plait construction. Additional break-in lubricant is added to minimize shaft wear and to allow for expansion during the break-in period

Service Limits:	pH range:	5-9
	Temperature:	280° F (126° C)
	Shaft Speed:	1575 FPM

ISO 9002
REGISTRATION

TEADIT**COMPRESSION PACKINGS/SYNTHETIC****SYNTHETIC WITH PTFE, DRY**

Service: General Service packing with no lubricant. Valve service and static gasket applications.

Construction: Interlock braid using carded synthetic yarns and thoroughly impregnated with PTFE suspension.

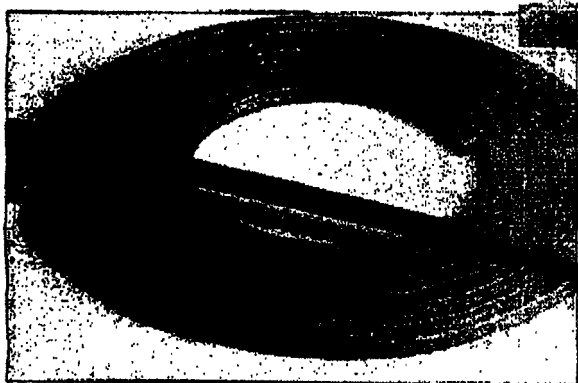
Service Limits:	pH range	3-12
	Temperature	500° F (260° C)
	Shaft Speed	600 FPM

**ISO 9002
REGISTRATION****SYNTHETIC WITH PTFE, LUBRICATED**

Service: Excellent multi service packing for a wide variety of uses throughout a plant. Recommended for use in steam, water, solvents, oils, most chemicals, mild acids and alkalis.

Construction: Interlock braid using carded synthetic yarns thoroughly impregnated with PTFE suspension. The finished packing is again coated with PTFE dispersion and a break in lubricant is added to reduce shaft wear and eliminate glazing at start up.

Service Limits:	pH range	3-12
	Temperature	500° F (260° C)
	Shaft Speed	2250 FPM

**ISO 9002
REGISTRATION****SYNTHETIC WITH GRAPHITE**

Service: A dense but flexible general service packing. It ensures an excellent seal against steam, brine, oil, mild acids, and alkalis. Centrifugal, oscillating and reciprocating shafts, valve plugs and stems.

Construction: Interlock braid using carded synthetic yarns thoroughly impregnated with petroleum based lubricants and graphite finished.

Service Limits:	pH range	4-10
	Temperature	500° F (260° C)
	Shaft Speed	1575 FPM

**ISO 9002
REGISTRATION**

COMPRESSION PACKINGS/PTFE

TEADIT

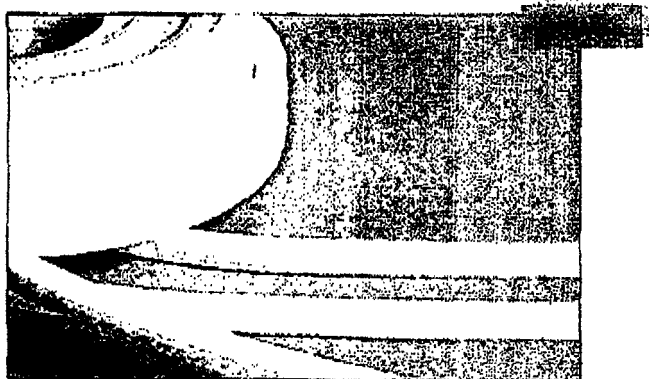


PTFE FILAMENT, DRY

Service: A firm, high density PTFE filament packing similar to Style 2006S but commonly used in valves or lower shaft speed applications. Recommended environments are all types of chemicals, aggressive fluids, gases and solvents, with exception of molten alkali metals. It is especially suited for oxygen or other services where no organic materials or lubricants other than PTFE are allowed.

Construction: Interlock braid, using pure PTFE filament pretreated with PTFE dispersion.

Service Limits:	pH range	0-14
	Temperature	500° F (260° C)
	Shaft Speed	600 FPM

ISO 9002
REGISTRATION

PTFE FILAMENT WITH LUBRICANT

Service: A pliable and soft, yet dimensionally stable packing, which has excellent lubricant and running characteristics. It is suited for high speed rotary shaft service and handles all acids, alkalis and most chemicals with the exception of molten alkali metals.

Construction: Interlock braid, using pure PTFE filament pretreated with PTFE dispersion plus a break in lubricant to reduce the friction coefficient as well as the frictional heat created under high shaft speeds.

Service Limits:	pH range	0-14
	Temperature	500° F (260° C)
	Shaft Speed	2250 FPM

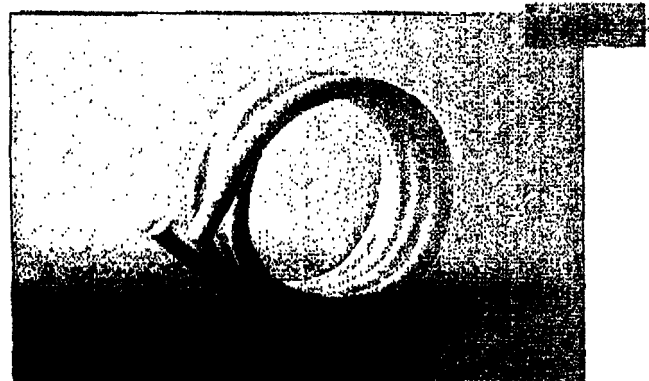
ISO 9002
REGISTRATION

PTFE FILAMENT, FDA APPROVED

Service: For use in food and drinking water processing and handling equipment. All materials of construction are FDA approved.

Construction: Interlock braid of pure PTFE filament pretreated with an FDA approved lubricant.

Service Limits:	pH range	0-14
	Temperature	500° F (260° C)
	Shaft Speed	2250 FPM

ISO 9002
REGISTRATION

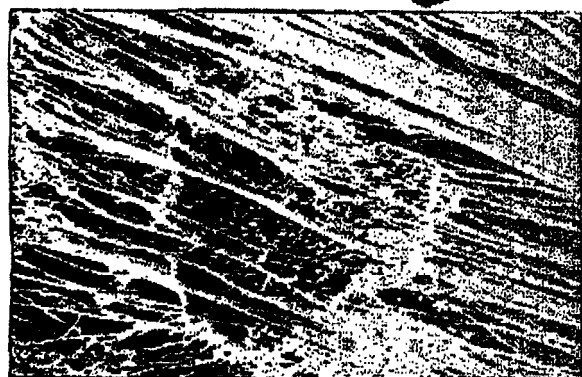
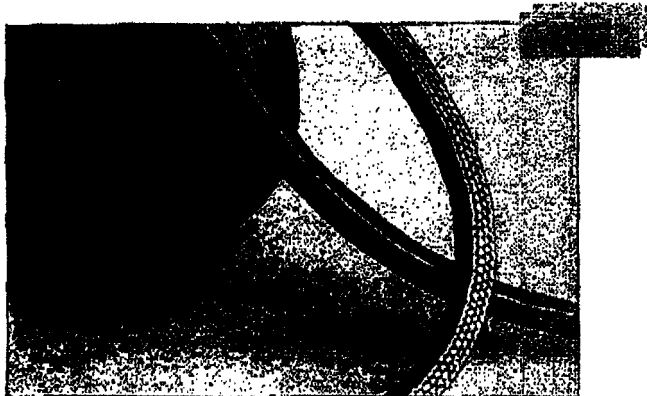
EXPANDED PTFE VALVE STEM PACKING

100% pure PTFE, very conformable yet is a high density packing.

Good for aggressive gases, concentrated acids, steam, water, oxygen. Also ideal for food and beverage process and pharmaceutical applications.

Service Limits:	pH range	0-14
	Temperature	450° F to 550° F (288° C)

ISO 9002
REGISTRATION

TEADIT**COMPRESSION PACKINGS / EG2***

EG2 ELECTRON MICROPHOTOGRAPHY (2000 x) Showing a graphite particle in the PTFE matrix.

EG2* FILAMENT

Service: For use in pumps, valves, reciprocating and rotating shafts, mixers and agitators. Especially designed for services involving surface speeds and temperatures higher than those normally specified for packings manufactured from pure PTFE filaments. Can be safely used in all chemical pump applications with the exception of molten alkali metals, fluorides, oleum, fuming nitric acid, aqua regia and other strong oxidizing agents. It is also suitable against water, steam, petroleum derivatives, vegetable oils and solvents.

Construction: Interlock braid of expanded PTFE filament in which fine particles of pure graphite have been encapsulated throughout.

Service Limits: pH range: 0-14
Temperature: 540° F (280° C)
Shaft Speed: 4000 FPM

**ISO 9002
REGISTRATION**

EG2* FILAMENT WITH ARAMID CORNERS

Service: Offers the strength of aramid fibers and the heat dissipating, low friction qualities of expanded PTFE/graphite. Use in paper mill stock pumps, agitators and other areas where strength and good lubricating qualities are required.

Construction: Interlock braid of expanded PTFE/Graphite with aramid yarn on the corners. This prevents extrusion which may occur without the corner reinforcement.

Service Limits: pH range: 0-14
Temperature: 500° F (260° C)
Shaft Speed: 2250 FPM

**ISO 9002
REGISTRATION**

EGK FILAMENT**

Service: For use in valves, rotary or reciprocating pumps, mixers and agitators. Its high resistance to extrusion (4 times higher than that of packings made from conventional PTFE/Graphite filaments) make Style 2070 ideal for applications against chemically aggressive fluids at high surface speeds and/or higher pressures.

Construction: Style 2070 is a packing manufactured from proprietary EGK* interlock construction. It is a multi-purpose packing formulated for services in which an outstanding chemical resistance, high mechanical strength and excellent heat transfer are required. These properties are obtained through its proprietary EGK* yarn. (See Below)

Service Limits: pH range: 0-14
Temperature: 540° F (280° C)
Shaft Speed: 4000 FPM

**ISO 9002
REGISTRATION**

***EG2 YARN**

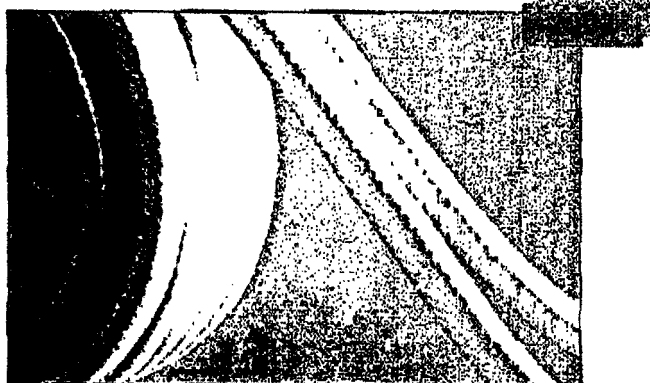
A TEADIT proprietary product in which graphite particles are totally encapsulated by expanded PTFE fibers. There are no free particles of graphite on the surface of the filament and therefore no contamination can occur. The uniform distribution of graphite within the PTFE provides optimum properties of low friction and good thermal conductivity.

****EGK* YARN**

An aramid filament core is encased in a EG2* jacket. The aramid filament core provides the mechanical strength while the EG2 provides the chemical resistance, heat conductivity, self lubrication and low coefficient of friction.

COMPRESSION PACKINGS/ARAMID

TEADIT

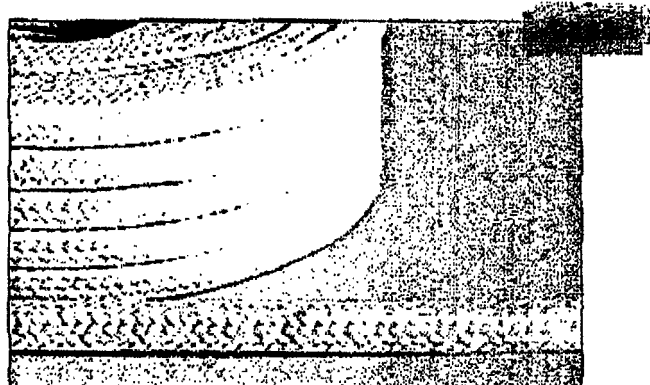


PTFE WITH ARAMID CORNERS

Service: Designed for high pressure reciprocating pumps, medium speed centrifugal shafts and valve stems. Especially formulated for severe service involving high pressure like those commonly found in reciprocating applications. It can be used for general service against water, steam, gases, solvents, mild acids, alkalis, chemical slurries and most abrasive liquids. The packing will not stain in pulp and paper mill applications.

Construction: Interlock braid construction, interweaving aramid fibers on the corners and pure PTFE filaments in the body, so as to prevent extrusion and to improve resistance in higher pressure applications. Each aramid fiber is individually coated with PTFE suspension and treated with a break-in lubricant.

Service Limits: pH range 3-11
 Temperature 500° F (260° C)
 Shaft Speed 1970 FPM

ISO 9002
REGISTRATION

ARAMID YARN WITH PTFE

Service: Able to withstand granular and abrasive applications. It is recommended for service in steam, slurries, petroleum derivatives, solvents, chemicals and liquified gases.

Construction: Interlock braid, using aramid filaments treated individually with PTFE suspension. The packing is also lubricated with a silicon-based compound for quick and easy break in.

Service Limits: pH range 3-11
 Temperature 500° F (260° C)
 Shaft Speed 2700 FPM

ISO 9002
REGISTRATION

SPUN ARAMID YARN WITH PTFE

Service: A durable packing able to withstand granular and abrasive applications. It is recommended for service in superheated steam, slurries, petroleum derivatives, solvents, chemicals, liquified gases, pulp and paper stocks, sugar syrups and other abrasive fluids.

Construction: Interlock braid, using spun aramid carded yarns, treated individually with PTFE suspension. The packing is also lubricated with a silicone-based compound for quick and easy break in.

Service Limits: pH range 3-11
 Temperature 550° F (280° C)
 Shaft Speed 2750 FPM

ISO 9002
REGISTRATION

Expanded PTFE Yarn with a Kevlar® Core

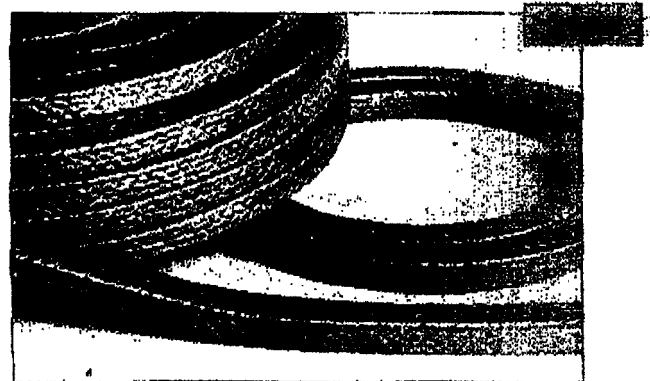
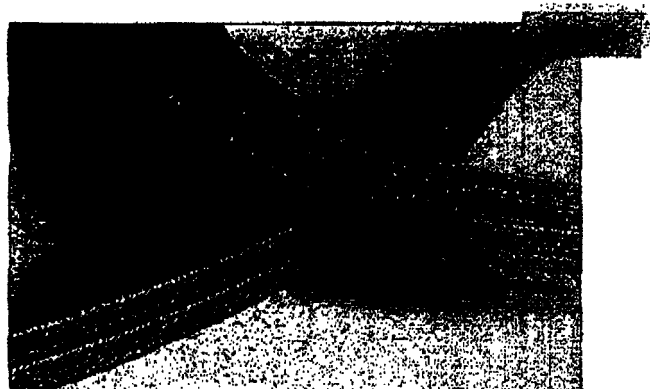
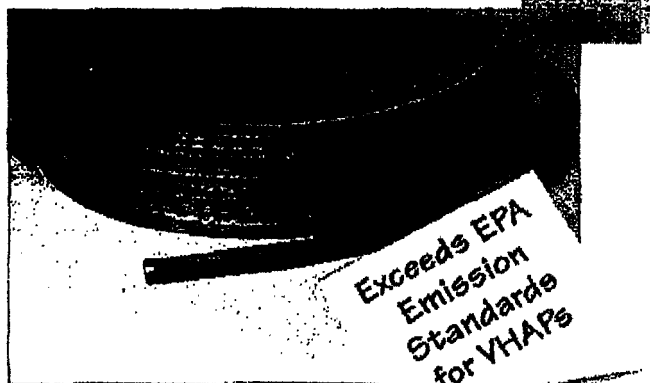
Service: 2060 is especially suited for applications where contamination cannot be tolerated. It's high resistance to extrusion (four times higher than conventional PTFE packings) makes Style 2060 ideal for handling chemically aggressive fluids in high pressure applications. It is commonly used in valves, pumps and expansion joints.

Construction: Style 2060 is an interlocked braid, utilizing TEADIT's proprietary EWK yarn and a high temperature break-in lubricant. EWK yarn totally encapsulates a high strength Kevlar® core in a expanded PTFE jacket. The Kevlar® core contributes exceptional mechanical strength and dimensional stability, while the PTFE jacket provides chemical resistance, self-lubrication and a low coefficient of friction.

Service Limits: pH Range 0-14
 Temperature 540° F (280° C)
 Shaft speed 2360 (rpm (12 m/s)

ISO 9002
REGISTRATION

CARBON, GRAPHITE & HIGH TEMPERATURE VALVE STEM PACKINGS



FLEXIBLE GRAPHITE

Service: Style 2000 is a multi-service packing capable of a wide variety of uses throughout a plant. Style 2000 may be used in valves, pumps, expansion joints, mixers and agitators in the hostile environments of hydrocarbon processing, pulp and paper, power generation, metal-working and other industries where effective sealing is vital.

Construction: Style 2000 is a packing manufactured from flexible graphite in a unique braid construction. It is not wire reinforced thus minimizing shaft and stem wear. It is also free of any fiber carrier.

Service Limits:	pH range	0-14
	Temperature	490° C (Oxidizing atmospheres) 3000° C (Inert or reducing atmospheres)
	Shaft Speed	4430 FPM
	Pressure	4000 psi

**ISO 9002
REGISTRATION**

GRAPHITE FIBER

Service: Severe service packing. Handles strong acids and alkali solutions except fuming nitric acid, oleum and fluorine. Handles high temperatures and extremely high shaft speeds.

Construction: Light weight graphite fiber, twisted together and interlock braided. Contains a special lubricant to provide a bearing film and prevent wicking.

Service Limits:	pH range	0-14
	Temperature	1200° F in steam, 800° F in oxidizing atmosphere and 6000° F in non oxidizing atmosphere
	Shaft Speed	4000 FPM

**ISO 9002
REGISTRATION**

CARBON FIBER WITH GRAPHITE PARTICLES

Service: Handles water, steam, boiler feed and aqueous solution of acids and alkalis. Seals quickly, breaks in without extensive adjustments. Use for high speed pumps, blowers, driers, high temperature valves and furnace gasketing.

Construction: Carbon fiber interlock braided, impregnated with proprietary lubricants and graphite particles which fill voids, act as a break in lubricant, and block leakage.

Service Limits:	pH range	0-14
	Temperature	1200° F steam, 650° F in presence of oxygen
	Shaft Speed	3000 FPM

**ISO 9002
REGISTRATION**

HIGH TEMPERATURE/HIGH PRESSURE VALVE STEM

Service: A firm, high density valve stem packing. Recommended for use in superheated steam, most chemicals, mild acids and alkalis. Excellent choice as end rings in flexible graphite ring sets.

Construction: Special high temperature, high strength, rugged duty yarn plus Inconel® wire reinforcement. Impregnated with special high temperature resistant compound and coated with fine particles of Graphite and Molybdisulfide to act as surface lubricant. Also treated with a sacrificial material to alleviate electrolytic action.

Service Limits:	pH range	2-12
	Temperature	1200° F (650° C)
	Pressure	2500 psi

**ISO 9002
REGISTRATION**

NON-ASBESTOS COMPRESSION PACKINGS

LEAD II

YIELDS:

STANDARD SIZES/APPROXIMATE FT./LB.

PACKING STYLE	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
2000	N.A.	N.A.	32.7	20.5	13.6	10.5	8.9	7.0	5.1	3.3		
2001	64.0	55.0	35.8	25.7	18.5	13.5	10.3	8.5	7.0	5.0	3.5	2.7
2002	98.5	59.0	31.5	22.6	15.0	12.4	9.0	7.9	5.9	4.1	3.1	2.3
2003	N.A.	N.A.	22.9	14.3	10.2	7.5	5.6	4.8	3.9	2.6	2.0	1.6
2004	62.0	33.8	29.2	17.3	12.0	9.0	6.6	5.6	4.2	3.0	2.4	1.7
2005	87.5	40.2	21.0	14.9	9.5	7.8	5.7	4.4	3.6	2.6	2.0	1.7
2006	82.7	34.6	20.1	13.8	9.3	7.2	5.3	4.3	3.3	2.4	1.9	1.5
2006FDA	84.5	38.7	22.3	14.1	9.7	7.1	5.5	4.6	3.6	2.4	1.8	1.5
2007	93.0	38.2	24.0	15.4	10.6	8.3	6.0	4.5	4.0	2.7	2.1	1.7
2017	N.A.	N.A.	24.4	17.3	11.4	8.0	6.1	5.0	3.8	2.7	2.0	1.6
2019	70.9	40.2	24.0	17.5	12.2	8.3	6.9	5.6	4.4	3.0	2.3	1.9
2044	78.3	42.5	26.6	16.2	10.9	8.7	6.4	5.1	4.2	3.0	2.1	1.7
2070	N.A.	N.A.	32.5	20.4	13.6	10.4	8.5	7.0	5.0	3.3	2.7	2.2
2138	114.5	46.5	28.6	21.9	15.7	10.3	8.5	6.6	5.4	3.9	3.0	2.4
2177	93.0	53.2	27.1	20.1	15.0	9.5	8.3	6.3	5.7	3.8	2.9	2.2
2214	87.5	53.2	24.4	15.3	9.9	7.8	6.1	4.7	4.2	2.9	2.2	1.7
2255	124.0	64.7	38.2	27.1	15.5	12.1	9.5	7.4	5.6	4.2	3.1	2.4
2421	59.5	31.7	18.7	13.5	11.5	6.8	7.0	5.3	3.8	3.1	2.5	1.8

RPM/FPM CONVERSION GUIDE

(Shaft Diameter in Inches)																	
RPM	.50	.75	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0	10.0
100	13	19	26	32	39	45	52	65	78	91	104	131	157	183	209	235	261
300	39	58	78	98	118	137	157	196	235	275	314	393	471	549	628	706	785
500	65	98	131	163	195	229	261	327	392	458	523	654	785	916	1047	1178	1309
1000	131	196	262	327	393	458	524	655	785	916	1047	1309	1570	1832	2094	2356	2618
1500	196	294	392	490	589	687	785	982	1170	1374	1570	1963	2356	2748	3141	3533	3925
1750	229	344	458	573	687	821	936	1145	1374	1604	1833	2291	2749	3207	3665	4114	4587
2000	262	392	524	654	785	916	1057	1309	1571	1833	2094	2618	3141	3663	4187	4710	5233
2500	327	490	655	817	976	1145	1309	1636	1967	2290	2618	3272	3925	4579	5233	5887	
3000	393	588	785	981	1178	1374	1571	1963	2355	2749	3141	3925	4710	5495			
3600	471	707	942	1178	1414	1649	1885	2356	2827	3299	3770	4712	5655				
4000	524	784	1047	1309	1570	1832	2094	2618	3141	3663	4186	5233	6280				
4500	580	882	1178	1472	1717	2061	2356	2825	3533	4121	4713	5890	7070				
500	655	980	1309	1636	1953	2290	2618	3271	3925	4579	5233	6545	7850				

MANUFACTURING TOLERANCES

Compression packings are manufactured from a wide range of materials. Therefore, the dimensional tolerances of the finished product will vary. We guarantee that the tolerances of the products we manufacture meet or exceed those shown in the Fluid Sealing Association Handbook.

SIZE	TOLERANCE
1/8" to 1/4"	± 1/64"
1/4" to 1/2"	± 1/32"
1/2" to 1"	± 1/16"

TEADIT

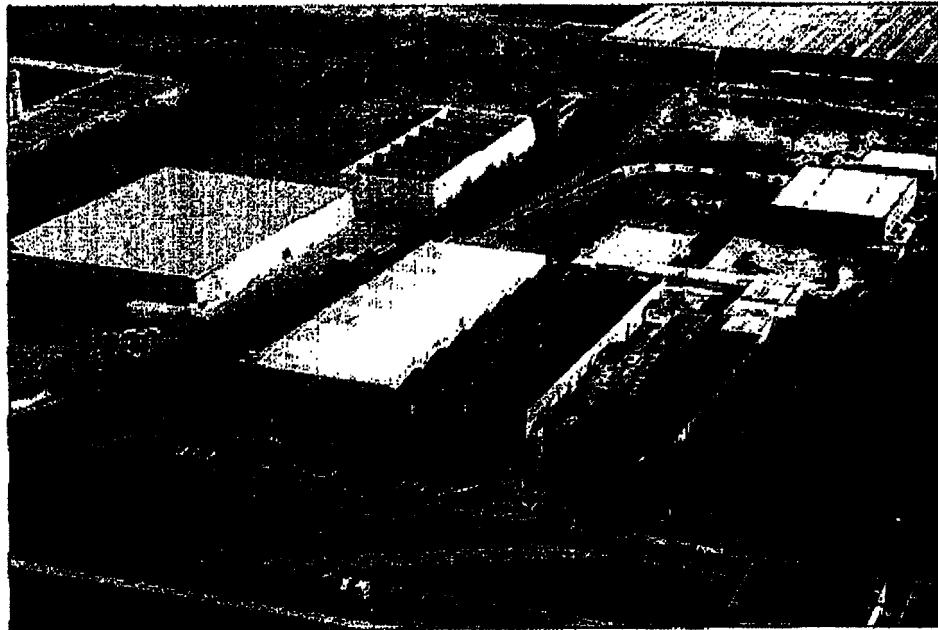
SPIRAL WOUND GASKETS

INTRODUCTION

The TEADIT plant has manufactured spiral-wound gaskets since 1965. It is located in the largest and most progressive industrial and metallurgical complex in Brazil.

In 1975, TEADIT moved into its present, modern facilities. The plant was further enlarged in 1982 when TEADIT merged with another company which was engaged in the manufacture of metal expansion joints, shock absorbers and specialty bellows.

Today, TEADIT is one of the largest fabricators of spiral-wound gaskets, expansion joints and bellows in the world. Although much of the company's production is sold in South America, the major portion is exported to North America and Europe.



DESIGN/CONSTRUCTION

The spiral-wound sealing element of a style 913 gasket consists of a thin metallic strip and a soft nonmetallic filler that are simultaneously wound on a rotating mandrel. The metal strip is preformed with a chevron profile which allows the gasket to act as a spring between the flanges. Further, the metal strip provides the basic structural element for the gasket while the non-metallic filler material seals small imperfections on the flange surfaces.

The density of the gasket can be varied by changing the winding pressure and/or the filler thickness. As a general rule, thin fillers and higher winding pressures are used to produce high pressure gaskets.

In accordance with ASME B16.20 -1993 several plies of metal with no filler are wound on the inner and outer diameters. Also, the specification requires a minimum of 3 welds on both the gasket I.D. and O.D.

Style 913 gaskets have a spiral-wound sealing element with a solid metal outer ring. The sealing element is nominally .175" thick while the ring is nominally 1/4" thick.

The purpose of the outer ring is threefold.

- Centers the gasket in the flange assembly
- Provides additional radial strength to prevent gasket blowout.
- Prevents overcompression damage to the sealing element

QUALITY

TEADIT's technical expertise, automated manufacturing processes and skilled craftsmanship guarantee consistent, dependable gaskets. Recognizing how costly a gasket failure can be, TEADIT employs precise quality assurance standards from the time raw materials enter the plant to the time the TCA DIT Style 913 gaskets leave the plant.

In accordance with ISO 9001 procedures, TEADIT maintains traceability records for all incoming materials of construction as well as components as they proceed through the manufacturing process. TEADIT gaskets are certifiable to ISO 9001 standards.

ORDERING INSTRUCTIONS

Purchase orders or inquiries for TEADIT Style 913 standard flange gaskets should include the following information:

1. Nominal pipe size
2. Pressure class of flange
3. Winding metal and filler

COLOR CODING

Style 913 gaskets are color coded on the outer edge to permit easy identification in inventory and when installed between flanges. These color codes have been adopted by ASME and the Fluid Sealing Association, Metallic Gasket Division.

METAL WINDING MATERIAL

Continuous Marking Around Outer Edge

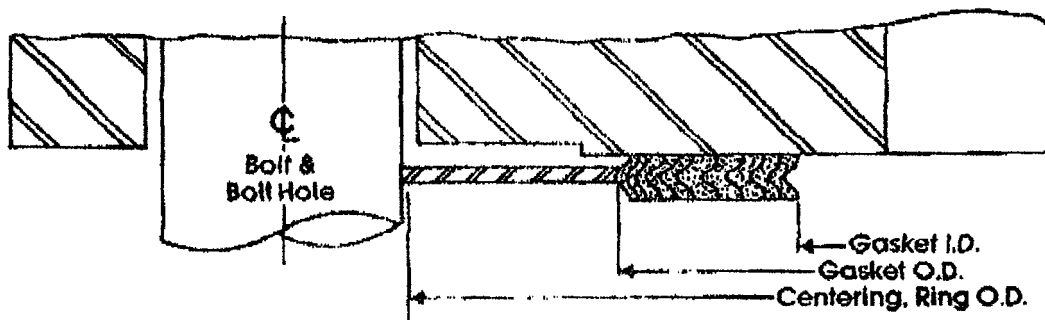
304 SS	Yellow
316 SS	Green
347 SS	Blue

FILLER MATERIAL

Intermittent Stripes on Outer Edge

Chrysotile Asbestos	No Stripe
Mica Graphite	Pink
Flexible Graphite	Gray
PTFE	White

SPIRAL WOUND GASKETS

TEADIT


TEADIT Style 913 Gaskets

Dimensions by Pressure Class per ASME B16.20-1993 Flanges (Dimensions in inches)

Nominal Pipe Size	Gasket O.D.		Gasket I.D.								Centering Ring O.D.						
	150, 300 400, 600	900 1500, 2500	150	300	400	600	900	1500	2500		150	300	400	600	900	1500	2500
1/2	1.25	1.25	0.75	0.75	0.75	0.75	0.75	0.75	0.75		1.88	2.13	2.13	2.13	2.50	2.50	2.75
3/4	1.56	1.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00		2.25	2.63	2.63	2.63	2.75	2.75	3.00
1	1.88	1.88	1.25	1.25	1.25	1.25	1.25	1.25	1.25		2.63	2.88	2.88	2.88	3.13	3.13	3.38
1 1/4	2.38	2.38	1.88	1.88	1.88	1.88	1.56	1.56	1.56		3.00	3.25	3.25	3.25	3.50	3.50	4.13
1 1/2	2.75	2.75	2.13	2.13	2.13	2.13	1.88	1.88	1.88		3.38	3.75	3.75	3.75	3.88	3.88	4.63
2	3.38	3.38	2.75	2.75	2.75	2.75	2.31	2.31	2.31		4.13	4.38	4.38	4.38	5.63	5.63	5.75
2 1/2	3.88	3.88	3.25	3.25	3.25	3.25	2.75	2.75	2.75		4.88	5.13	5.13	5.13	6.50	6.50	6.63
3	4.75	4.75	4.00	4.00	4.00	4.00	3.75	3.63	3.63		5.38	5.88	5.88	5.88	6.63	6.63	7.75
4	5.88	5.88	5.00	5.00	4.75	4.75	4.75	4.63	4.63		6.88	7.13	7.00	7.63	8.13	8.25	9.25
5	7.00	7.00	6.13	6.13	5.81	5.81	5.81	5.63	5.63		7.75	8.50	8.38	9.50	9.75	10.00	11.00
6	8.25	8.25	7.19	7.19	6.88	6.88	6.88	6.75	6.75		8.75	9.88	9.75	10.50	11.38	11.13	12.50
8	10.38	10.19	8.19	8.19	8.88	8.88	8.75	8.50	8.50		11.00	12.13	12.00	12.83	14.13	13.88	15.25
10	12.50	12.25	11.31	11.31	10.81	10.81	10.88	10.50	10.83		13.38	14.25	14.13	15.75	17.13	17.13	18.75
12	14.75	14.50	13.38	13.38	12.88	12.88	12.75	12.75	12.50		15.13	16.63	16.50	18.00	19.63	20.50	21.63
14	16.00	15.75	14.63	14.63	14.25	14.25	14.00	14.25			17.75	18.13	19.00	19.38	20.38	22.75	
16	18.25	18.00	16.63	16.63	16.25	16.25	16.25	16.00			20.25	21.25	21.13	22.25	22.63	25.25	
18	20.75	20.50	18.69	18.69	18.50	18.50	18.38	18.25			21.63	23.50	23.38	24.13	25.13	27.75	
20	22.75	22.50	20.69	20.69	20.50	20.50	20.50	20.25			23.88	25.75	25.50	26.88	27.50	29.75	
24	27.00	26.75	24.75	24.75	24.75	24.75	24.75	24.25			28.25	30.50	30.25	31.13	33.00	35.50	

MANUFACTURERS CROSS REFERENCE

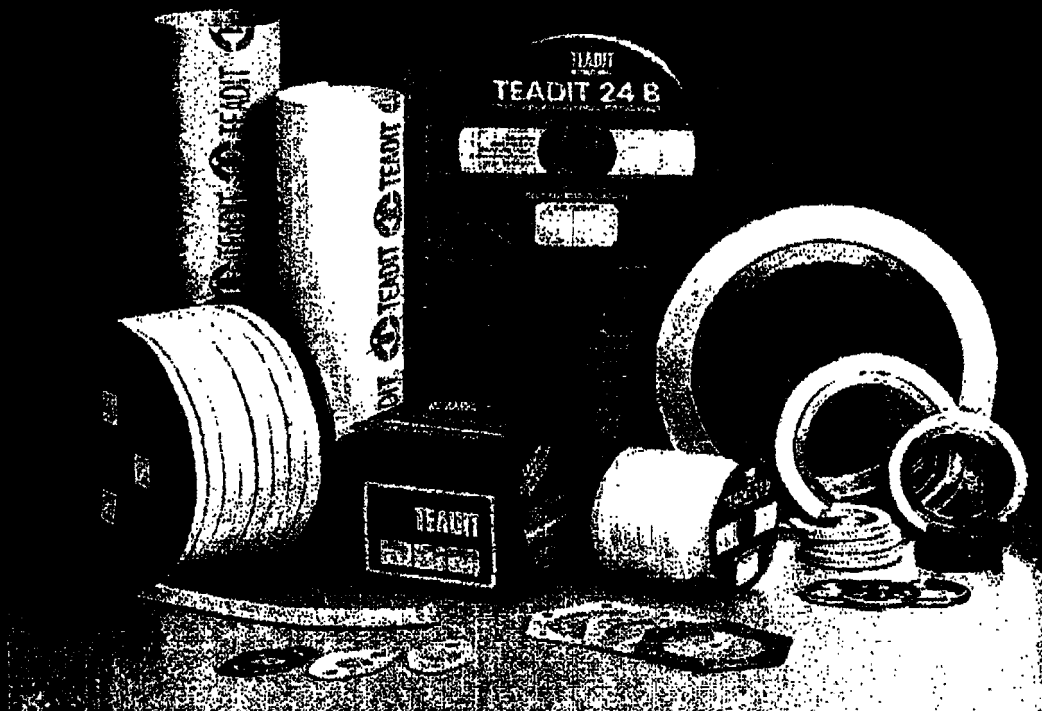
	TEADIT	FLEXITALLIC	FURON	LAMONS
Trademark	TEADIT	Flexitallic	Flexseal	SpiraSeal
Winding With Outer Ring	Style 913	Style CC	Style RW	Style WR
Filler (Gasket)				
Mica Graphite	Mica Graphite	Flexite Super	Verdicarb	Chlorocarb
Flexible Graphite	Grafoil*	Hexicarb	Grafoil*	Grafoil*
PIPE	PILL	PILL	Teflon**	Teflon**

NOTES:

- Nominal gasket thickness is .175".
Nominal centering ring thickness is 1/4".
- Gaskets within color shaded areas use the same gasket for a given size.

* Trademark of UCAR Carbon Co

** Trademark of E.I. DuPont



TEADIT®

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HOUSTON, TEXAS 77292-4306

TOLL FREE: 1-800-999-0198
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PRODUCT LINE SHEET

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Ring Type Joint (RTJ)
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Heat Exchanger
Corrugated Valve Bonnet

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All Sizes & Threads
B7, B7M, B8, B8M
B16, L7 With
Nuts Assembled
Hex Head Cap Screws
Machine Bolts
Special Bent Bolts
J, L, and U Bolts

PLATINGS & COATINGS

Cadmium/Zinc
IMF3W
Xylan
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SPECIALTY ITEMS

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Flange Wraps • Flanged End Protectors
Flange Bands With Grease Zerk Fittings
Pipe End Caps

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