

Tefcan Expanded PTFE Sealants

VULCAN





VULCAN TEFCAN

TEFCAN MATERIAL

TEFCAN is made of 100% pure PTFE, expanded via a unique process into a consistent, highly fibrillated structure. Upon compression, the fibrils lock together to form a strong, uniform material that is impervious to gases and liquids. The material is completely unaffected by virtually all media and is incredibly resistant to creep, relaxation and cold flow inherent in other gasket materials, especially virgin, or filled, PTFE.

The compression characteristics of TEFCAN are very different to those of regular PTFE. All forms of TEFCAN are flexible and stable, even under extremes of temperature and pressure, whilst maintaining their inherent high tensile strength and structural integrity, that prevents relaxation and cold flow.

TEFCAN Sealants conform to irregular shapes and surfaces. Once compressed, they produce a tough inert, long lasting gasket that seals against extremes of temperature, pressure and corrosive media, where conventional materials will break down. Operating throughout the pH range, resistant to thermal cycling, non-contaminating and FDA suitable, TEFCAN materials can be used in any industry, sealing the simplest to the most difficult of gasket applications.

With conventional gasketing materials, tests have shown flanges to be responsible for the majority of fugitive emissions from industry. Meeting environmental regulations and reducing product loss means significantly lower flange emissions. TEFCAN provides an extremely tight and secure seal for controlling emissions and is suitable for use on a plant-wide basis.

Specification of TEFCAN material, in or throughout your plant, will significantly reduce inventories and costs whilst maximising gasket performance, reliability and life.

SERVICE LIMITS

All TEFCAN Sealants offer the following exceptional service capabilities:-

Gasket Temperature:	-240°C to +310°C (-450°F to +600°F)
Internal Pressure:	Full vacuum to 3,000 psi.
pH Value (of media):	0 - 14 except for molten alkali metals and elemental fluorine.

TEFCAN SEALANT RANGE

TEFCAN material is extremely versatile. This expanded PTFE is available in various product types, forms and shapes. Each TEFCAN product has superior sealing and gasketing properties for use in a broad range of applications.

TEFCAN UNIVERSAL JOINT SEALANT

Expanded PTFE in cord form with a self-adhesive backing strip for ease of installation. **The** superior and cost effective alternative to standard gasket sheeting. TEFCAN Joint Sealant is ideal for complex or large gaskets and for re-sealing damaged, worn or distorted flanges.

TEFCAN SHEET GASKETING

This technologically advanced gasketing material provides all the advantages of PTFE in a pure expanded form that resists cold flow. Flexible and economical, it is fast and easy to cut and install. Supplied as pre-cut gaskets or in sheet form to cut on site as required.

TEFCAN GASKET TAPE

High-performance, flat gasketing material for applications requiring a strip or full-face gasket. Combines the benefits of TEFCAN Joint Sealant and Sheet Gasketing to offer flat-sheet, strip gasketing to create gaskets with minimal waste. Adhesive-backed for ease of installation.

TEFCAN VESSEL LID SEAL

Thick, conformable, flange gasketing tape of pure expanded PTFE. Specially designed for large lid or cover seals, particularly with uneven or damaged surfaces, or that require easy compression of the gasket.

SPECIAL SHAPES

TEFCAN Joint Sealant is also produced in various forms apart from the standard oval section. Available as square, rectangular, round and V shaped to fit all kinds of flanges, or sealing surfaces, that have particular configurations, slots, grooves or special requirements. TEFCAN may also be constructed in rigid, insertable gasket form for sealing plain or raised-face flanges in pipe-lines.



TEFCAN JOINT SEALANT

JOINT SEALANT

TEFCAN Universal Joint Sealant is supplied in the form of a continuous cord with a self-adhesive backing strip. TEFCAN is manufactured from 100% expanded PTFE which is highly compressible and provides excellent sealability. This unique, expanded PTFE cord conforms to irregular shapes and surfaces. Compressing into a thin, wide ribbon, it produces a tough, inert, long-lasting gasket that seals against extremes of temperatures, pressures and corrosive media.

SUPERIOR PERFORMANCE

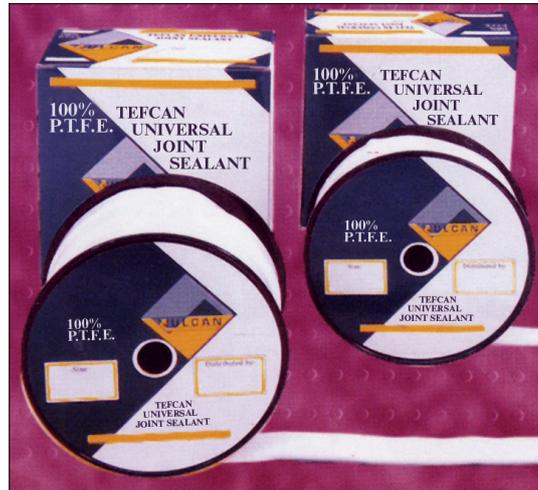
The exceptional properties of PTFE, combined with the unique nature of its expanded form, contribute to the long life of seals made with TEFCAN Joint Sealant. PTFE is completely unaffected by virtually all chemicals and corrosive environments. TEFCAN will not contaminate flow products nor deteriorate with age.

The structural integrity of this material under compression allows for its use from -240°C to + 310°C, under pressures from a vacuum up to 3,000 psi, against virtually all media. Non-brittle even when very cold at cryogenic extremes, TEFCAN Joint Sealant is a cost effective, superior sealing alternative to the special sealants, typically specified for cryogenic applications. Unlike conventional, non-expanded PTFE, TEFCAN Joint Sealant does not exhibit cold flow problems under sustained load. TEFCAN's unique expanded structure withstands high flange bolting pressures without problematic cold flow.

The result is a very thin, wide contour hugging gasket with minimal area exposed to the enclosed media. Once bolted up, TEFCAN Joints remain leak tight and rarely need to retorqued. Trouble shooting is simplified. TEFCAN is so versatile, it can be used virtually anywhere including many applications where other materials will fail quickly through chemical, temperature, or pressure, break down.

SIMPLE TO INSTALL

TEFCAN Joint Sealant is designed to be easy to handle and install, and thus reduce time and labour costs. The product requires only a minimum of flange preparation and is readily held in position on vertical, over-head or awkward surfaces by the self-adhesive strip. TEFCAN is so soft and flexible that it easily follows irregular surfaces, turns corners and pushes into narrow openings. The cord's great pliability allows it to be quickly formed into complex shapes. A seal is completed by simply crossing the two ends, preferably in line with bolt hole. There is no time consuming cutting to shape and no waste.



MINIMISES DOWN-TIME

This TEFCAN cord is an instant, Universal Joint Sealant. Replacement gaskets are available immediately - there is no delay whilst conventional gaskets are cut. In addition, TEFCAN seals stronger and lasts longer than conventional sheet gaskets.

The Joint Sealant is easy and ready to use, swiftly formed into any shape of gaskets and requires relatively low bolting pressures. TEFCAN will not cause pitting of flanges and peels off flange surfaces after use. Gasket sealing is simplified, faster and enhanced. As a result, periods between maintenance can be extended and actual down time is reduced.

REDUCES INVENTORY

TEFCAN Joint Sealant is the perfect answer for sealing all leaking joints. Your complete gasket stock can usually be replaced, with just four sizes from across the cord size range, to seal any gasket application on your plant.

Compact in size, with unlimited shelf life, TEFCAN Universal Joint Sealant's stocking costs are low and inventory savings, on custom-made gaskets, 'O' Rings, envelopes etc., can be substantial. TEFCAN Universal Joint Sealant will even seal large diameters for which, costly and by necessity jointed, conventional gaskets are difficult to cut, transport, stock, handle and install.

COSTS LESS

TEFCAN Universal Joint Sealant cord is convenient and time-saving. You simply cut off what you need without waste nor scrap. The product saves costs, by reducing inventory and delays and by increasing seal life and reliability. TEFCAN Joint Sealants are so versatile, they are suitable for use in virtually any industry providing cost effective, superior sealing solutions for all gasketing requirements.

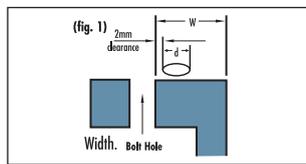


TEFCAN JOINT SEALANT

SIZE SELECTION

As TEFCAN Universal Joint Sealant compresses to form a thin, wide gasket taking up surface flaws and has such good sealing properties, size selection is not usually critical. However, the following guidelines will help you obtain maximum use from this versatile product for most applications.

1. Generally, select a size of Joint Sealant whose nominal width diameter (**d**) is approximately one third of gasket contact area (**W**). (fig.1)



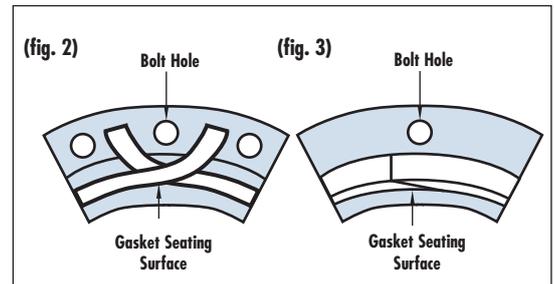
The gasket contact area (**W**) is the distance from the ID of flange surface to the inside of the bolt hole, not the full flange

2. For rough surfaces, select a size whose nominal width (**d**) is approximately one half of the gasket contact area (**W**). On scored surfaces, overlap TEFCAN Universal Joint Sealant at the location of the score, or lay in an extra piece to double-up the material.
3. For flanges with narrow gasket contact surfaces, especially 7mm and below, a full width gasket can normally be used, if desired.

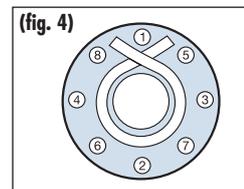
Normal Size		Spool Length
Width	Thickness	
3mm / 1/8"	1.5mm	30 metres
5mm / 3/16"	2.0mm	25 metres
7mm / 1/4"	2.5mm	15 metres
10mm / 3/8"	3.0mm	10 metres
14mm / 1/2"	5.0mm	5 metres
17mm / 5/8"	6.0mm	5 metres
20mm / 3/4"	7.0mm	5 metres

INSTALLATION INSTRUCTIONS

1. Clean both flange surfaces of all old gasket material. If the surfaces are oily, clean with a solvent so that the Sealant adhesive strip will adhere properly.
2. Peel off some of the protective tape from the adhesive strip and install by pressing the Joint Sealant into position around the flange profile. Continue peeling off the protective tape as the Joint Sealant is applied.



3. Overlap or cross the ends of the Sealant to complete the seal (fig.2). On fragile flanges with low clamping forces, use an angled cut joint 1-2 times the seals width. (fig.3)



4. Tighten the bolts evenly in a diagonally opposite pattern to compress the Joint Sealant to a thin wide ribbon (fig.4). In most cases TEFCAN Universal Joint Sealant cannot be over tightened.

5. Very occasionally spools contain a splice covered with adhesive tape. If found, cut out the splice, and continue the gasket by overlapping the two ends for approximately 12mm.
6. Either; **a**) compress the Joint Sealant to the final gasket compressed thickness, as shown in Table 2. (where the available bolt loadings are known to be adequate) or **b**) where torque adjustable spanners are available, use the recommended clamping force per length of seal also shown in Table 2. or **c**) torque bolts to the load used with the previous gasket material and TEFCAN will seal.

Nominal Width	Compressed Thickness (Imperial)		Recommended Clamping Force Per Length of Seal (lb/inch)		
	Water Tight (1)	Gas Tight (2)	Smooth Surfaces		Rough Surfaces
mm / Inch			Water Tight (1)	Gas Tight (2)	Gas Tight (3)
3mm / 1/8"	0.015"	0.010"	250	500	No Seal
5mm / 3/16"	0.019"	0.015"	250	850	No Seal
7mm / 1/4"	0.023"	0.018"	275	1150	2500
10mm / 3/8"	0.038"	0.023"	275	1500	2650
14mm / 1/2"	0.050"	0.030"	275	1550	2850
17mm / 5/8"	0.066"	0.040"	300	1650	2850
20mm / 3/4"	0.100"	0.050"	300	1950	2900

Note:

- (1) Water at 300 psi internal pressure
- (2) Gas at 600 psi internal pressure
- (3) Gas at 600 psi internal pressure, where surface flaws are deeper than 80 micron



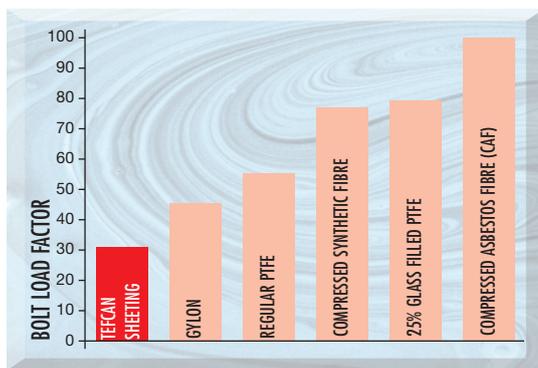
TEFCAN SHEET GASKETING

PRODUCT INFORMATION

TEFCAN Sheet Gasketing is manufactured from expanded PTFE drawn into a homogeneous sheet of uniform thickness. The material is 100% PTFE. Unlike conventional gasketing materials, there are no elastomeric binders or fillers to deteriorate under constant elevated temperature and pressure.

Pliable and conformable, this advanced gasketing material readily fills surface irregularities, and seals scored or uneven flanges, without much increase in necessary bolt load. This exceptional ability of this material to seal can be seen from the following material comparisons:-

TEFCAN REQUIRES LESS THAN ONE THIRD OF THE BOLT LOAD REQUIRED BY C.A.F. TO SEAL WHEN TESTED AT 30 PSI GAS ON A ROUGH SURFACE FINISH FLANGE

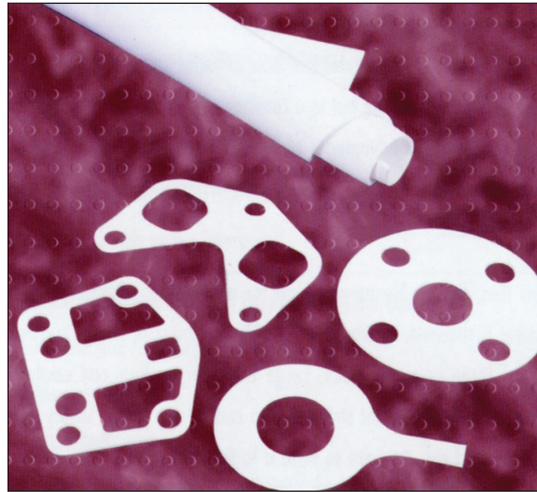


Once installed, the expanded PTFE sheeting compresses to around 30% of its original thickness to leave a solid uniform gasket. Due to its unique, highly fibrillated structure which imparts multi-directional, high tensile strength, the TEFCAN Sheet is extremely resistant to creep, relaxation and cold flow (unlike standard PTFE).

SUPERIOR SEALABILITY

This expanded PTFE sheet gasketing is tremendously versatile, capable of near universal application and seals easily, tightly and securely for the life of the joint. The self-moulding high conformability of TEFCAN Sheet Gasketing also allows it to seal distorted or damaged flanges. The effective service life of these flanges is increased tremendously, particularly since TEFCAN does not cause pitting and will not stick, nor bake, to the flange surfaces.

With a pH range of 0-14, pressure capability from vacuum to 3,000 psi and temperature range of non-brittle, cryogenic capability down to -240°C, up to 310°C, TEFCAN sheeting is **the** universal sheet gasket material.



EASIER TO USE

TEFCAN Sheet is soft and flexible making it easy to handle, cut and install. In use swiftly, easily torqued with low clamping force, virtually impossible to over-compress, TEFCAN Sheet Gaskets do not deteriorate in the joint. The Gasket will not cold flow, beyond initial relaxation which may occur usually in the first 12 hours of application, nor normally require bolt re-torquing and will last indefinitely.

Utilising this material removes the need to mitre or dove-tail large gasket sections. TEFCAN Sheet Gaskets are suitable for insertion in pipe-line joints and surfaces will part freely when required.

BETTER ECONOMY

TEFCAN, in sheet form, offers both flexibility and economy. Gaskets, can be purchased pre-cut and held in stock, or swiftly turned out from sheet as required. TEFCAN gaskets seal stronger and last longer, across the entire range of plant jointing applications to 310°C, than conventional sheeting. Joint sealing is simplified, faster and improved. Major reductions in gasket material and operating costs follow through less down-time, extended leak-tight gasket performance and the elimination of various gasket inventories.

TECHNICAL INFORMATION

- SHEET SIZE 1.6mm / 1/16" and 3.0mm / 1/8" thickness in various sheet widths
- COMPRESSIBILITY(ASTM.F-36) 72.6%
- CREEP RELAXATION (ASTM.F-38) 31.0%
- MATRIX TENSILE STRENGTH 5,800 To 6,800 psi
- RECOVERY (ASTM.F-36) 41%
- SPECIFIC GRAVITY (ASTM.D-792) 0.55-0.65
- DATA BASED ON 3mm / 1/8" THICK SHEET



TEFCAN GASKET TAPE

TAPE INFORMATION

TEFCAN Gasket Tape provides the same material and sealing benefits as TEFCAN Sheet Gasketing but in a continuous strip form. The flat gasket tape combines the advantages of TEFCAN Universal Joint Sealant and Sheet Gasketing to form cut full-face, or strip sheet, gaskets with Sheet Gasketing to form cut full-face, or strip sheet, gaskets with minimal waste.

This thin, flat profile tape is ideal for applications where a full face gasket is required, where gasket profile (thickness or width) is critical, or for large or small joints. Large diameter gaskets can easily be created from the gasket strip, with no cutting nor waste. Simply over-lap, or scarf-cut, the joint to form a lasting seal. Small, even intricate shape gaskets, are swiftly, accurately and easily cut from the flexible, pliable tape. Bolt holes, on full face joints, can be readily punched through the tape after it has been applied to the flange. TEFCAN Gasket Tape is adhesive-backed as standard for ease of installation.

The highly, fibrillated, expanded PTFE structure of TEFCAN tape offers a unique blend of extreme gasket sealing properties. TEFCAN Gasket Tape is unaffected by all common chemicals with a pH range of 0-14, performs from -240°C to +310°C and seals from vacuum to 3,000 psi.

The pliable nature of the tape allows it to be easily applied to any shaped flange and to fill surface irregularities. Due to its exceptional conformability, the tape will seal flanges that are rough or damaged with the bolt force spread over the complete gasket width. Minimum bolt loads required to seal are a fraction of other gasketing materials, making TEFCAN Gasket Tape ideal for safely, and securely, sealing glass, ceramic, plastic and other sensitive flanges.

Since TEFCAN materials do not creep, relax or cold flow under practically all conditions, completed joints do not need re-torquing. Start up re-torquing and fugitive leaks during the joint's life are eliminated with tremendous savings in maintenance and produce-loss costs.

SIZES

TEFCAN Gasket Tape is available as a thin, flat gasket strip of 1, 1.5 and 3mm ($\frac{1}{25}$, $\frac{1}{16}$ and $\frac{1}{8}$ ") thickness by 25, 50, 100 and 200mm (1, 2, 4 and 8") width. Standard spool lengths are 15.2m (50ft) or 4.6m (15ft) solely for 3mm ($\frac{1}{8}$ ") thick tape. Also available non-adhesive backed to order.



APPLICATIONS

- Anywhere a non-contaminating, non-ageing, non-hardening, flexible and versatile, secure and tight, long-lasting gasket seal with extreme chemical, pressure and temperature capability is required.
- Where a wide but low profile, thin gasket is best. Such as vacuum distillation vessels, heat exchangers etc.
- To make large ring, or complex joints, with no waste from cutting.
- To readily cut or punch small accurate gasket geometries with minimal waste.
- As a less expensive, superior sealing, more convenient, alternative to cut joints, envelope gaskets and spiral wound gaskets.
- Use in multiple layers to replace conventional PTFE envelope gaskets.
- Reface new, worn or damaged envelope, ring joint, or spiral wound gaskets, with a ring of 1mm thick tape.
- To protect flanges from corrosion, fit TEFCAN Gasket Tape to the inside edge, leaving no room for corrosive media to attack the flange surfaces.
- Use as a full face gasket with no need to stock individual gasket sizes. Lay the strip, over-lap or scarf joint the ends, (scarf jointing is recommended for 3mm thickness) and punch bolt holes once in place.
- When you need a wide gasket to tight seal with low clamping force. Examples; fragile material flanges such as glass and ceramic.



VULCAN TEFCAN

TEFCAN PROPERTIES	USER BENEFITS
1. UNIQUE FORMS	<ul style="list-style-type: none"> • Outstanding versatility: different types/sizes seal almost any static application. • Easier to install and remove, with adhesive-backing where needed. • Economical to use with minimal, to no, waste. • No need to make special gasket joints - simply over-lap TEFCAN at the joint. • Few sizes/types cover all requirements and greatly reduce inventories.
2. MADE FROM 100% EXPANDED PTFE	<ul style="list-style-type: none"> • Soft but strong. High tensile strength and structural integrity yet flexible, pliable and easily cut. • Non-contaminating with near universal chemical resistance. • High temperature and extreme pressure range. • One material for all plant services: use virtually anywhere. • FDA suitable for use in food and pharmaceutical industries. TEFCAN meets the FDA requirements of : PTFE:- FDA21 CFR177.1550, Adhesive where used meets the requirements of:- FDA 21 CFR175.105. • Non-ageing and non-hardening. Will not adhere to flange surfaces. Flanges part easily leaving no residue.
3. HOMOGENOUS STRUCTURE WITH HIGH TENSILE STRENGTH	<ul style="list-style-type: none"> • Resists gasket relaxation, cold flow and creep in all directions. Once bolted up, TEFCAN remains leak tight. • No bolt retorquing required except in some extreme, heat cycling operations. • Contains no fillers nor binders so it's mechanical, physical and seal retention properties remain constant. • Compresses to solid homogeneous mass making it virtually impossible to over compress the joint. • Tight, structurally stable seal ensures minimal product loss even in the most demanding of applications.
4. BETTER COMPRESSIBILITY/CONFORMITY WITH SUPERIOR SEALABILITY	<ul style="list-style-type: none"> • Sealable with low clamping force, only relatively light bolting required. Ideal for brittle flange materials such as ceramics or glass. • Conforms to, and fills, surface irregularities to seal worn or uneven surfaces. • Extends plant service life through ability to seal damaged or distorted flanges. Material seals without pitting nor adhering to surfaces. • Increases gasket performance and life to give ultimate emission control.
5. STABLE	<ul style="list-style-type: none"> • Lasts and seals indefinitely. Sealing performance and bolt torque retention will not deteriorate with time in the joint. • Retains structure and high tensile strength right up to service limits. • Inert to practically all chemicals for use in chemical, processing and transporting operation to 310°C. • Sealing against steam or condensates, impervious to most gases, it is ideal for boiler and piping flanges.

TYPICAL APPLICATIONS

By Industry:

TEFCAN Sealants are so versatile they are suitable for use in virtually any industry. From the most straight forward, non-hazardous application to the most complex and aggressive environment, TEFCAN Sealants will provide exceptional performance. Industries widely utilising TEFCAN Sealants include: Pulp and Paper Industry, Chemical Processing, Petrochemical, Pharmaceutical, Food and Drink, Offshore Oil and Gas, Automotive, Power, Marine and Mining.

By Equipment:

- Pipe Flanges
- Glass Joints
- Pressure Vessels
- Heat Exchangers
- Pump Gaskets
- Gear-box Lids
- Compressor Flanges
- Manhole Gaskets
- Fan Housings
- Turbine Cases
- Steam Vessels
- Hydraulic Systems
- Reactor Lids
- Diesel Engines



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