



**STERLING FIBERS**

**Technical Fact Sheet**

# CTF 525 High Strength Technical Fiber

## General Description

CTF 525 technical fiber is a high molecular weight polyacrylonitrile (PAN) homopolymer with superior mechanical properties and excellent thermal and environmental resistance compared to typical synthetic fibers. In many applications, CTF 525 technical fiber can be an economical alternative to aramid for demanding short-fiber reinforcement applications, such as: gaskets, specialty wet-laid papers / nonwovens, filtration media, pulp molded speaker cones, friction materials, concrete, and cement boards.

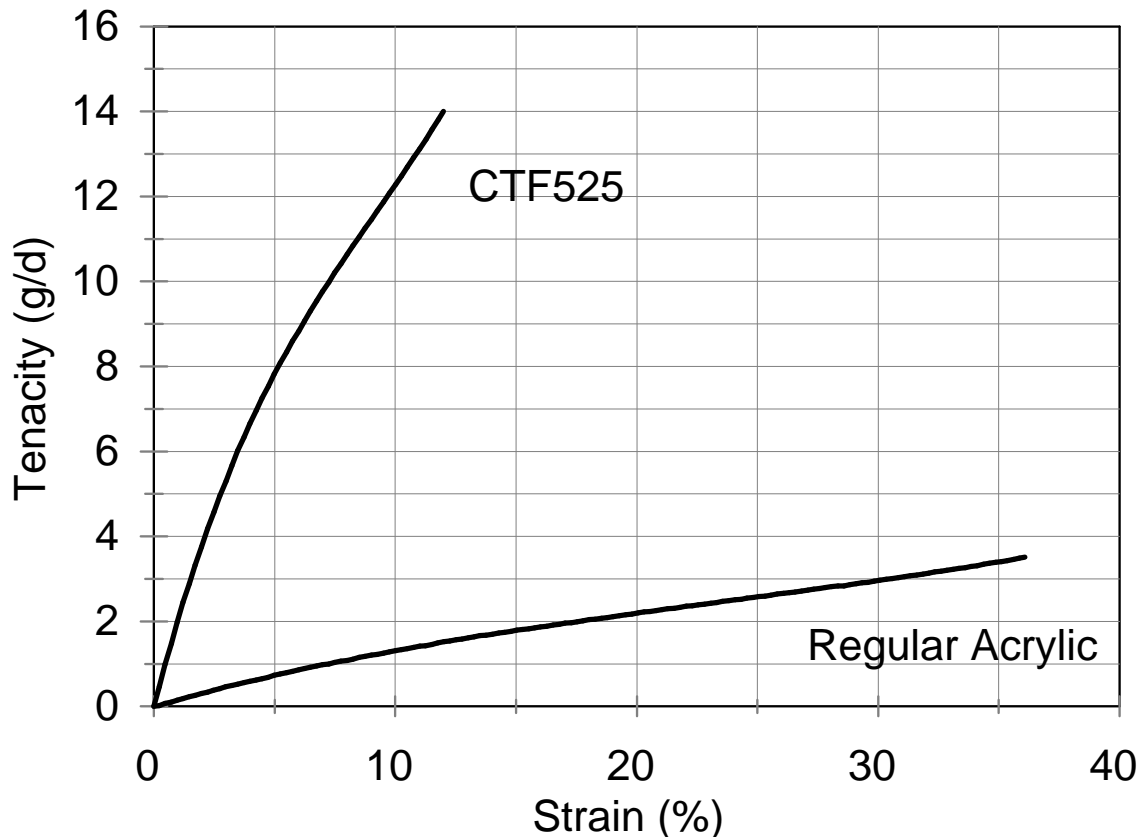
In gasket applications, CTF 525 technical fiber provides increased tensile strength and

provides comparable crush extrusion resistance to gaskets reinforced with aramid fibers over a wide range of temperature and pressure conditions.

It has also been found that CTF 525 technical fiber increases toughness in phenolic composites at low fiber concentrations. This can be used in NAO friction materials to reduce cracking, such as that found at rivet holes.

CTF 525 fiber can be provided in a wide range of fiber lengths from 0.25 mm to greater than 15mm.

**Stress-Strain Behavior versus Conventional Acrylics**



## Typical Physical Properties

Color	cream
Cross section	round
Density	1.18 g/cm <sup>3</sup>
Length	0.5 - 10 mm
Diameter	12 μm (0.0005 in)
Denier	1.2 dtex (1.1 denier)
Tensile strength	1100 MPa (160 ksi)
Modulus	13.8 GPa (2 Msi)
Elongation	12%
Shrinkage at 180°C	5%
Moisture content	< 4%
Dielectric Constant	2.8 @ 1MHz
Dissipation Factor	8.7 x10 <sup>-4</sup> @1MHz
Thermal Expansion	2x10 <sup>-4</sup> / °C
Surface charge	anionic

## Environmental Stability

CTF 525 fiber has excellent chemical and environmental resistance. It is not attacked by micro-organisms and has superior resistance to weathering and sunlight. CTF 525 fiber is insoluble in common organic solvents, and has excellent resistance to dilute alkalis and most acids. However, fiber degradation will occur under hot, concentrated alkaline conditions.

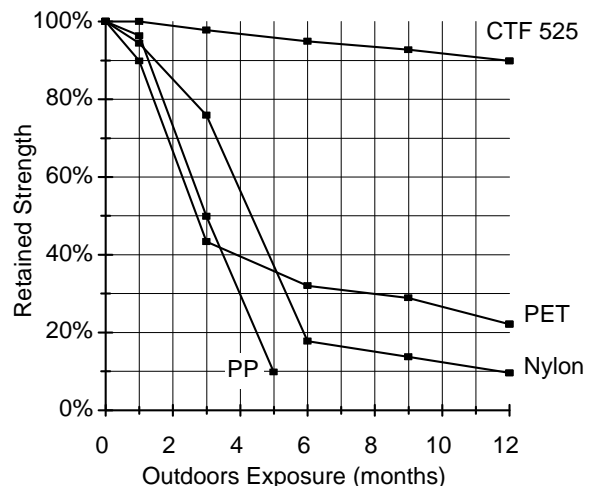
## Chemical Resistance

Environment	Strength Retention
150°C air, 20hrs	95%
200°C air, 8hrs	90%
80°C water, 24hrs	95%
150°C steam, 20hrs	95%
23°C conc. H <sub>2</sub> SO <sub>4</sub> , 60hrs	100%
23°C 10% NaOH, 60hrs	95%
80°C 10% NaOH, 20hrs	80%

## Steam Resistance

CTF 525 fiber is also more resistant to short term steam exposure than standard acrylics, so that CTF 525 papers, cement boards containing CTF 525 fiber, etc. can be autoclaved. Acrylic fibers are not recommended for applications requiring long term exposure to steam.

## Weathering Resistance



## IMPORTANT NOTICE

The information and statements herein are believed to be reliable, but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE. Nothing herein is to be taken as permission, inducement or recommendation to practice any patented invention without a license.

Sterling Fibers, Inc.  
5005 Sterling Way  
Pace, FL 32571

TEL: (800) 874-8593  
FAX: (850) 994-2609

FS-525-0801.wpd