

Moisture Absorption

The 3M™ Nextel™ Ceramic Fibers 312, 440, 550, 610, and 720 absorb very little moisture due to their smooth, non-porous surface. Fibers exposed to 100% relative humidity for several hours at room temperature had 0.08% weight gain.

Jet Fuel and Hydraulic Fluid Compatibility

3M™ Nextel™ Woven Fabric 312 and 440
3M Nextel Woven Fabric 312 (AF-30) and 3M Nextel Woven Fabric 440 (BF-30) were heat cleaned, then immersed for thirty hours in JP-4 jet fuel or Chevron HyJet IV hydraulic fluid. After removal, the samples were dried at 230°F (110°C) for one hour and one inch tensile specimens were prepared.

Tensile Breaking Load (lb/in width)

Fabric	Heat Cleaned	JP-4	% Increase	HYJet IV	% Increase
AF-30	107	275	157%	287	168%
BF-30	235	334	42%	299	27%

The strength increases are due to residual organic material left on the surface of the fibers. If either fluid attacked the textiles one would expect a decrease in strength. 3M Nextel Woven Fabrics 312 and 440 show no degradation of the fiber strength after 30 hours in JP-4 jet fuel or HyJet IV hydraulic fluid.

Hydrazine and Ammonia Compatibility*

3M™ Nextel™ Woven Fabric 312 and 440
Compatibility with hydrazine and ammonia was also tested. 3M Nextel Woven Fabrics 312 and 440 were tested after exposure to both ammonia and hydrazine vapors for 48 hours per NHB 8606.1B. The 3M Nextel Fabrics did not exhibit any evidence of gross incompatibility with either fluid.

* Courtesy - NASA