Tech-Patch
Technical Data Sheet

Tech-Patches are made of fluorosilicone (FVMQ). FVMQ is an elastomer that contains trifluoropropyl groups. These groups enhance fluorosilicone's chemical resistance to:

- non-polar solvents
- fuels
- oils
- acids
- alkaline chemicals.

This resistance to a wide variety of chemicals make FVMQ a problem-solving material that has found multiple uses in the industrial, aerospace, automotive and many other industries. In addition to its fuel properties, fluorosilicone is highly resistant to weather and temperature extremes, making fluorosilicone the preferred polymer for use in the petrochemical industry.

In all charts of characteristics, fluorosilicone has one large negative. These charts state that FVMQ has poor abrasion resistance. By definition, abrasion resistance in the polymer industry means putting the poly on the bottom of machinery then dragging that machinery over a cement floor. Teflon® is the poly of choice for abrasion resistance, not any elastomer.

Properties of Fluorosilicone

There are two grades of fluorosilicone, commercial and military. Commercial grade FVMQ is essentially the same as military grade, but without the certifications. There is little, if any, difference in performance between the two grades. Tech-Patches use commercial grade FVMQ.

Performance at Temperature

Fluorosilicone retains a high percent-age of its performance at extremely high and low temperature. Most elastomers do not. Bonds created by the Polymer Bonding Process have a broader temperature range than with other adhesives.

Fuel Resistance

Throughout all industries, the primary reason for using fluorosilicone is its excellent fuel resistance. Longer immersion times show very little change in volume. What changes occur happen with the first few hours. There is not ongoing degradation.

We've had fluorosilicone on aluminum soaking in gasoline for over two years now. Bonds have retained full strength. There have been several tests of FVMQ's in different fuels and at various temper-atures. The collected data demonstrate the viability of fluorosilicone for various fuel applications in a variety of environments.

Tech-Patches Properties Table

Tech-Patches are not usually in direct contact with the chemicals in the petrochemical industry. The following is provided for informational purposes only.

Physical (Mechanical" Properties	**Rating**
Tensile Strength	150 to 1500 psi – based on thickness and the manufacturing methodology
Abrasion resistance	Poor
Adhesion to metal	Excellent
Flex cracking resistance	Excellent
Impact Resistance	Fair
Environmental Performance	
Flame resistance	Excellent
Gas Permeability (Hydrogen)	Poor
Ozone resistance	Excellent
Radiation resistance	Good
Steam resistance	Fair
Sunlight resistance	Good
Weather resistance	Excellent
Water resistance	Excellent
Chemical resistance	
Fuels	Excellent
Dilute Acids	Very good
Concentrated Acids	Poor
Alcohols	Good
Alkalies	Very Good
Amines	Poor
Non-petroleum-based brake fluid	Poor
Silicone Oil	Very Good

Any analysis reflects that the strengths of fluorosilicone matches the needs of the water and petrochemical industries

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