

Comparison of BREAKTHROUGH® Specifications with the Requirements for Mil-PRF-680C Type II

	BREAKTHROUGH® Performance	MIL-PRF-680C Type II Requirements	MIL-PRF-680C Type II Specification is this much less stringent than BREAKTHROUGH® and products supplied under the MIL-PRF-680C Specifications can have the following detrimental effects
Benzene	NON DETECTABLE	Max. .5 ^{mg/l}	2400% more exposure
Trichloroethylene	NON DETECTABLE	Max. .5 ^{mg/l}	900% more exposure
Chlorine	< 1 ppm	<100 ppm	Allows for 9900% more exposure
Aluminum immersion corrosion	<.01 (mg/cm ² /168hr)	<.15 (mg/cm ² /168hr)	Allows for 1400% faster corrosion
Vapor Pressure	0.1 mmHg	2 mmHg	1900% more exposure
Stock Loss Corrosion	<10 µin	Not Tested	PRF could cause stock loss corrosion
Non Volatile Residue	.2 mg/100 mls	Maximum allowed 8 mg/100 mls	MIL-PRF-680C can leave 3900% more residue
Hydrogen Embrittlement	Pass	Not Tested	MIL-PRF-680C could cause Hydrogen Embrittlement on high strength steel
Coating Adhesion	Pass	Not Tested	MIL-PRF-680C will not prep for painting
Stress Cracking of Acrylic Plastic	Pass	Not Tested	Could damage plastic parts
Stress Cracking of Polycarbonate Plastic	Pass	Not Tested	Could damage Lexan parts
Rubber Compatibility	Pass	Not Tested	Could damage rubber components
Polyimide Insulated wire Compatibility	Pass	Not Tested	Could damage wiring components
Flash Point	150°F PMCC	Must be between 141°F & 198°F TCC	MIL-PRF-680C allows the use of flashpoint test not recognized by EPA. MIL-PRF-680C solvents can be hazardous waste due to ignitability. BREAKTHROUGH® is not.

Notes:

- Benzene is a known carcinogen at 1 ^{mg/l}
Trichloroethylene is a known carcinogen } Either component can cause waste to designate as hazardous if present at .5 ^{mg/l} or more
- Chlorine is a known corrosive and is severely limited in nuclear activities
- Aluminum immersion corrosion is dangerous to aerospace metals
- NVR is non-volatile residue Low NVR is critical for surface preparation for bonding and painting
- Vapor Pressure – lower vapor pressure means lower emissions into the environment
- < means less than
- > means greater than
- mmHg means millimeters of mercury – higher numbers mean greater vapor pressure and a greater vapor pressure will result in greater emissions of VOC's over time.