## KAPPLER TECHNICAL DATA **ASTM F1001 Chemical Test Battery** CHEMICAL **Zytron® ChemTape®** 100 **100XP** 200 300 400 500 Acetone NT NT 17 >480 >480 >480 >480 Acetonitrile >480 >480 NT NT 52 50 >480 **Carbon Disulfide** 2 NT NT >480 >480 >480 >480 2 Dichloromethane NT NT 24 88 >480 >480 >480 Diethylamine NT NT 21 >480 >480 160 Dimethylformamide NT NT 77 151 >480 >480 >480 **Ethyl Acetate** NT NT 14 >480 >480 >480 >480 n-Hexane NT NT 7 >480 >480 >480 >480 Methyl Alcohol NT NT >480 43 >480 >480 >480 Nitrobenzene NT NT 97 >480 >480 >480 >480 Sodium Hydroxide >480 >480 >480 >480 >480 >480 >480 >480 >480 **Sulfuric Acid** >480 >480 >480 >480 >480 Tetrachloroethylene NT NT 21 >480 >480 >480 >480 Tetrahydrofuran NT NT 3 >480 >480 >480 >480 Toluene NT NT 6 >480 >480 >480 >480 **GASES** NT Ammonia Gas NT NT NT 39 NT >480 1,3 Butadiene NT NT NT >480 NT >480 NT **Chlorine Gas** NT >480 NT NT NT NT >480 **Ethylene Oxide Gas** NT NT NT 81 NT >480 NT **Hydrogen Chloride Gas** NT NT NT >480 NT >480 NT **Methyl Chloride Gas** NT NT NT >480 NT >480 NT

Typical Physical Properties for ZYTRON (measured per ASTM D751)									
TEST METHOD	100	100XP	200	300	400	500			
Grab Tensile Strength MD*	32 / 142	49 / 217	52 / 231	70 / 311	94 / 418	80 / 359			
Grab Tensile Strength CD*	24 / 106	38 / 169	39 / 173	54 / 240	98 / 435	73 / 325			
Tear Resistance MD*	11.5 / 51	17.4/77	22.9 / 101.8	16.4 / 71	28.2 / 125.4	27 / 120			
Trapezoid Method CD*	7.4/32	10.3 / 45	9.6 / 42.7	25.2 / 111	33.3 / 148.1	15 / 67			
Ball Burst	28 / 124	46 / 204	43 / 191	53 / 236	121 / 538	79 / 351			

## **NEED A CHEMICAL TESTED?**

## Kappler now offers free custom testing program.

If you need to document a Kappler fabric against a specific chemical hazard, we offer a custom testing program that makes it easy. When you order a standard minimum number of garments (varies by product), we will conduct custom third-party testing of your specific chemical at no charge. For details contact Customer Service at 1-800-600-4019 or usa@kappler.com.



## Know What You're Getting Into.

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Sources for all test data are independent laboratories. All tests were performed under laboratory conditions and not under actual use conditions.

**NOTE:** These tests were performed in accordance with ASTM standards by independent laboratories. This data is derived from tests performed on material samples only, not finished garments.

**WARNING:** There are uses, environments and chemicals for which these garments and/or fabrics are unsuitable. It is the responsibility of the user to review available data and verify that the garment and/or fabric is appropriate for the intended use and meets all specified government industry standards.

**CAUTION:** Do not use for fire protection. Avoid open flame or intense heat.

\*MD - Machine Direction, CD - Cross Direction

Chemical Warfare Agent Data										
	ZYTRON 300		ZYTRON 500		СНЕМТАРЕ					
CHEMICAL AGENT	Breakthrough Time	Breakthrough Criteria	Breakthrough Time	Breakthrough Criteria	Breakthrough Time	Breakthrough Criteria				
Bis (2-chloroethyl) sulfide (Mustard:HD)	>480 MINUTES	4.0 ug/cm²	>480 MINUTES	4.0 ug/cm <sup>2</sup>	>480 MINUTES	0.5 ug/cm <sup>2</sup>				
Isopropyl methylfluorophosphonate (Sarin:GB)	>480 MINUTES	1.25 ug/cm <sup>2</sup>	>480 MINUTES	1.25 ug/cm <sup>2</sup>	>480 MINUTES	0.5 ug/cm <sup>2</sup>				
Chlorovinyl arsinedichloride (Lewisite:L)	>240 MINUTES	4.0 ug/cm <sup>2</sup>	>480 MINUTES	4.0 ug/cm <sup>2</sup>	NT					
O-ethyl S-(2-diisopropylaminoethyl) methylphosphonothiolate (Nerve:VX)	>480 MINUTES	1.25 ug/cm <sup>2</sup>	>480 MINUTES	1.25 ug/cm <sup>2</sup>	>480 MINUTES	0.5 ug/cm <sup>2</sup>				
Pinacolyl methylfluorophosphonate (Soman:GD)	NT		NT		>480 MINUTES	0.5 ug/cm <sup>2</sup>				