

CHEMICAL PERMEATION / PENETRATION TESTING

ASTM F1001 Recommended List of Chemicals For Evaluating Protective Clothing Materials (ASTM F739)

Chemical Penetration Testing (ASTM P903)

Challenge Chemical	Average Normalized Breakthrough Time (minutes)	Average Permeation Rate (ug/cm ² /minute)	Penetration Results
Acetone	8	0.62	PASS
Acetonitrile	<4	8.7	PASS
Ammonia	4	4.5	N/T
1,3-Butadiene	8	11.9	N/T
Carbon Disulfide	<4	<50	PASS
Chlorine Gas	6	2.3	N/T
Dichloromethane	4	0.59	PASS
Diethylamine	4	9.5	PASS
N,N-Dimethylformamide	8	2.1	PASS
Ethyl Acetate	4	2.3	PASS
Ethylene Oxide	<4	359	N/T
n-Hexane	4	6.3	PASS
Hydrogen Chloride	30	>50	N/T
Methanol	<4	2.23	PASS
Methyl Chloride	4	0.38	N/T
Nitrobenzene	4	16	PASS
Sodium Hydroxide	ND	ND	PASS
Sulfuric Acid	ND	ND	PASS
Tetrachloroethylene	8	10	PASS
Tetrahydrofuran	<4	<50	PASS
Toluene	48	25	PASS

Breakthrough Time is taken between the first contact of the chemical with outer layer of the fabric and its direction on the inside. Permeation rate is the constant rate of permeation that occurs after chemical breakthrough occurs and all factors affecting the permeation have reached their equilibrium state.

COMPARATIVE COMPOSITE DATA SHEET

Property	Method	POSI-WEAR™	Tyvek® Grade 1422A
Weight (oz/yd ²)	ASTM D-1910	1.71	1.15
Thickness (mils)	ASTM 1777*64	10	5
Tensile Strength (lbs.) MD	ASTM D-1682	34	17
Tensile Strength (lbs.) CD	Grab	19	18
Tensile Strength (lbs.in) MD	ASTM D-1682	10	7
Tensile Strength (lbs.in) CD	Strip	6	9
Trapezoid Tear	ASTM D-2263	>10	5
Trapezoid Tear (lbs.) CD		>7	6
Bond Strength (lbs.) MD	IST 110*2*82	Min. 1.0	Not Applicable
Bond Strength (lbs.) CD		Min. 1.0	Not Applicable
Hydrostatic Head (cms)		>100	<75
Moisture Vapor Trans.	ASTM F-1249	Not Applicable	LOW
Resistance to Penetration by Liquids (2 psi)	ASTM ES-21	PASS	Not Applicable

Posi-Wear test data taken from POLY-BOND, INC. labs and independent test labs.

Posi-WearTM is manufactured from the material POLY-SAFE, which is manufactured by POLY-BOND, INC.