

DuPont™ Tychem® Reflector®

“Single-skin” chemical holdout

When you need chemical protection in emergency situations, choose a DuPont™ Tychem® Reflector® NFPA 1991 (2000 edition) certified suit, the first limited-use garment certified to NFPA 1991 (2000 edition) in a “single skin” multi-layer construction.

Excellent chemical holdout protection in one Level A garment that is easy to don and doff, Tychem® Reflector® is often the garment of choice for HazMat duty in emergency situations.

The Tychem® Reflector® front-entry, expanded back, Level A, NFPA 1991 certified suit is silver in color.



Chemical Warfare Agents

Agent	Protocol	Time (minutes)	Minimum Detectable Permeation Rate (µg/cm²/min)
GA, Tabun	DN5	>720	8×10^{-7}
GB, Sarin	DN5	>720	4.2×10^{-7}
	DN6	>720	4×10^{-4}
GD, Soman	DN5	>720	4.2×10^{-7}
HD, Sulfur Mustard	DN3	>720	4.2×10^{-7}
	DN4	>720	8×10^{-4}
L, Lewisite	DN3	>720	2.5×10^{-5}
	DN4	120	7×10^{-5}
VX, Nerve Agent	DN5	>720	4.2×10^{-7}
	DN6	>720	8×10^{-7}

Fabric Test Protocols. All tests performed in triplicate for DuPont Personal Protection by an independent accredited laboratory at 22° C, 50% R.H.

Protocol DN3—MIL-STD-282, Method T-209 (HD) or modified for Lewisite, for 12 hours at 10 g/m².

Protocol DN4—MIL-STD-282, Method T-209 (HD) or modified for Lewisite, for 12 hours at 100 g/m² (total coverage).

Protocol DN5—MIL-STD-282, Method T-208 (GB) or modified for GA, GD, and VX, for 12 hours at 10 g/m².

Protocol DN6—MIL-STD-282, Method T-208 (GB) or modified for GA, GD, and VX, for 12 hours at 100 g/m² (total coverage).

Physical Properties of Tychem® Reflector®

Basis Weight ASTM D751	16 oz/yd ²	Grab Tensile Strength (md/cd) ASTM D751	208 lbf/214 lbf
Thickness ASTM D1117	59 mils	Puncture Propagation Tear (md/cd) ASTM D751	72 lbf/65 lbf
Ball Burst ASTM D750	326 lbf	Trap Tear (md/cd) ASTM D5597	76 lbf/61 lbf

These results are measured using the latest ASTM test methods. Results will vary due to the changes in test methods. A true test of performance is [in use](#).



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Tychem® Reflector®

Permeation Data for ASTM Recommended List of Chemicals for
Evaluating Protective Clothing Materials (ASTM F1001)

CHEMICAL NAME	PHYSICAL PHASE	AVERAGE STANDARDIZED BREAKTHROUGH TIME (minutes)	AVERAGE PERMEATION RATE ($\mu\text{g}/\text{cm}^2/\text{minute}$)
Acetone	L	>480	<0.1
Acetonitrile	L	>480	<0.1
Ammonia (gas)	G	>480	<0.1
1,3-Butadiene	G	>480	<0.1
Carbon disulfide	L	>480	<0.1
Chlorine gas	G	>480	<0.1
Dichloromethane	L	>480	<0.1
Diethylamine	L	>480	<0.1
N,N-Dimethylformamide	L	>480	<0.1
Ethyl acetate	L	>480	<0.1
Ethylene oxide	G	>480	<0.1
n-Hexane	L	>480	<0.1
Hydrogen chloride	G	>480	<0.1
Methanol	L	>480	<0.1
Methyl chloride	G	>480	<0.1
Nitrobenzene	L	>480	<0.1
Sodium hydroxide, 50%	L	>480	<0.1
Sulfuric acid, 98%	L	>480	<0.1
1,1.2.2 - Tetrachloroethylene	L	>480	<0.1
Tetrahydrofuran	L	>480	<0.1
Toluene	L	>480	<0.1

INDEX OF CODES:

> = greater than, < = less than,
L = liquid, G = gas

Numbers reported are averages of samples tested by the ASTM F739 test method. Sample results do vary and therefore averages for these results are reported.

This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of results and assumes no obligation or liability in connection with this information.

It is the user's responsibility to determine the level of toxicity and the proper personal protective equipment needed. The information set forth herein reflects laboratory performance of fabrics, not complete garments, under controlled conditions. It is intended for information use by persons having technical skill for evaluation under their specific end-use conditions, at their own discretion and risk.

Anyone intending to use this information should first verify that the garment selected is suitable for the intended use. In many cases, seams and closures have shorter breakthrough times and higher permeation rates than the fabric. Please contact the garment manufacturer for specific data. If fabric becomes torn, abraded or punctured, end user should discontinue use of garment to avoid potential exposure to chemical. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE AND ASSUME NO LIABILITY WHATSOEVER IN CONNECTION WITH ANY USE OF THIS INFORMATION.

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WARNING:

Garments made of Tychem® Reflector® should have slip-resistant or antislip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

For more information:

For specific permeation data and breakthrough times for other chemicals:

Visit our website at:

www.PersonalProtection.DuPont.com

DuPont Personal Protection Fax-On-Demand Service at 1-800-558-9329

DuPont manufactures a complete line of garments for personal protection.

For more information, call **1-800-931-3456**

DuPont Personal Protection

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