

# DuPont™ Tychem® CPF 3

## Strong and durable garments with broad chemical barrier

When you need chemical protection, consider DuPont™ Tychem® garments.

Tychem® CPF 3 is a multi-layer barrier film laminated to a durable 2.0 oz. polypropylene.

Tychem® CPF 3 is often the garment of choice by hazardous material response teams and other emergency services when potential exposure to chemical warfare agents exists.

These strong, durable garments are used in industry to protect against a broad range of chemicals.

Also available are ensembles made from Tychem® CPF 3 that are certified to Class 3 of the chemical/biological standard, NFPA 1994.

The tan color of Tychem® CPF 3 makes it an excellent choice when there is a need for low visibility.



Chemical Warfare Agents			
Agent	Protocol	Time (minutes)	Minimum Detectable Permeation Rate (µg/cm²/min)
GB, Sarin	DN5	120	0.004
GD, Soman	DN5	>480	0.004
HD, Sulfur Mustard	DN3	120	0.004
L, Lewisite	DN3	120	0.005
VX, VX Nerve Agent	DN5	>480	0.0042

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

Physical Properties of Tychem® CPF 3			
Basis Weight	4.5 oz/yd²	Grab Tensile Strength	
ASTM D751		(md/cd)	ASTM D751 60 lbf/50 lbf
Thickness	16 mils	Puncture Propagation Tear	
ASTM D1117		(md/cd)	ASTM D751 6.0 lbf/12.6 lbf
Ball Burst	47 lbf	Trap Tear	
ASTM D750		(md/cd)	ASTM D5597 23 lbf/30 lbf
Flammability	Class 1		

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® CPF 3

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 STEADY-STATE PERMEATION RATE ( $\mu\text{g}/\text{cm}^2/\text{minute}$ )
Acetone	L	>480	<0.1
Acetonitrile	L	immed.	0.78
Ammonia (gas)	G	12	1.4
1,2-Butadiene	G	>480	<0.1
Carbon disulfide	L	16	0.51
Chlorine gas	G	>480	<0.1
Dichloromethane	L	immed.	>11.0
Diethylamine	L	>480	<0.1
N,N-Dimethylformamide	L	>480	<0.1
Ethyl acetate	L	>480	<0.1
Ethylene oxide	G	>480	<0.01
n-Hexane	L	>480	<0.1
Hydrogen chloride	G	nt	>480
Methanol	L	immed.	0.98
Methyl chloride	G	nt	>480
Nitrobenzene	L	>480	<0.1
Sodium hydroxide, 50%	L	>480	<0.1
Sulfuric acid, 98%	L	>480	<0.1
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, nt = not tested,  
Immed. = immediate (<10 minutes)

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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#### WARNINGS:

- 1) Tychem® CPF 3 is not flame-resistant and should not be used around heat, flame, sparks or in potentially flammable or explosive environments.
- 2) Garments made of Tychem® CPF 3 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](http://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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