

# DuPont™ Tychem® CPF 2

## Effective protection against a range of chemical environments

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

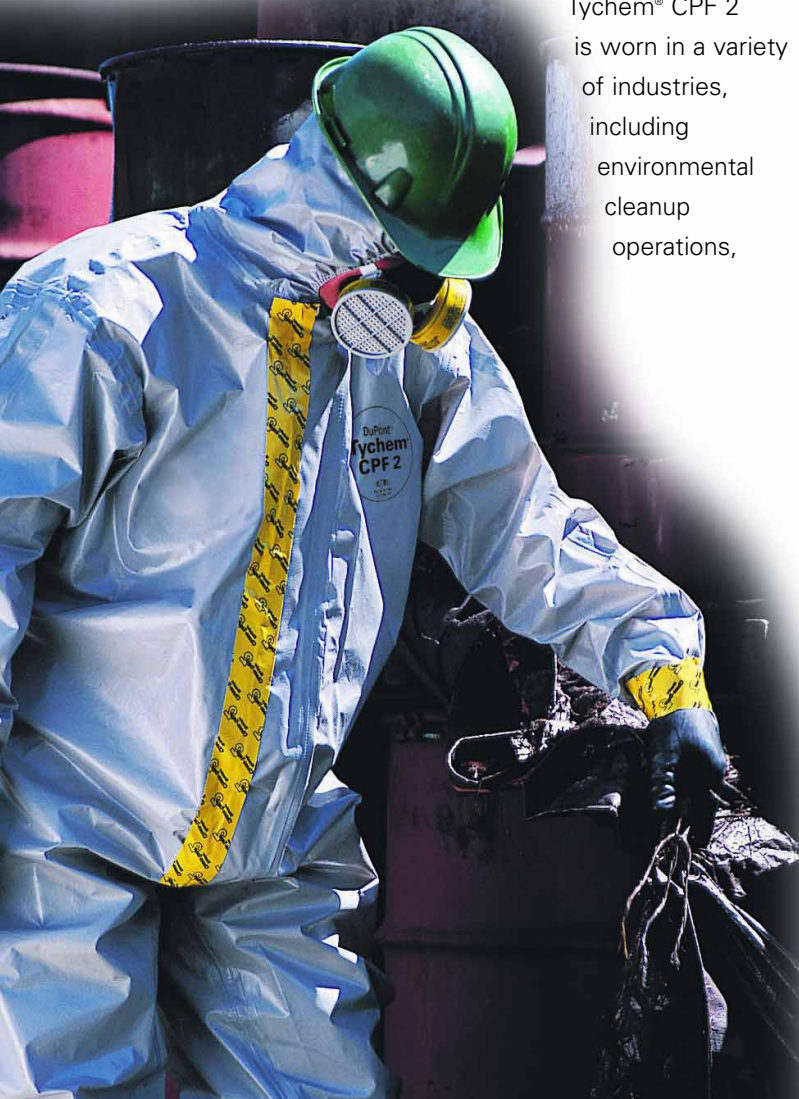
Tychem® CPF 2 delivers effective protection against a range of chemical environments.

Tychem® CPF 2 combines a tough polypropylene substrate laminated with a layer of co-extruded barrier film, resulting in a lightweight comfortable garment that is ideal for chemical mixing, remediation, emergency medical response, paint spraying, utilities, nuclear environments, and PCB cleanup.

Tychem® CPF 2 is worn in a variety of industries, including environmental cleanup operations,

waste management, industrial plants, and cleanroom applications. Its also used by hazardous material response teams and other emergency services for protection against biological and chemical weapons of mass destruction. General garment construction/wear guidelines should be followed according to the specific application<sup>1</sup>

The gray color of Tychem® CPF 2 makes it an excellent choice when there is a need for a discretionary protective garment.



### Chemical Warfare Agents

Agent	Protocol	Time (minutes)	Minimum Detectable Permeation Rate (µg/cm <sup>2</sup> /min)
GB, Sarin	DN5	360	1X10 <sup>-5</sup>
HD, Sulfur Mustard	DN3	180	0.002
L, Lewisite	DN3	>360	5X10 <sup>-4</sup>
VX, VX Nerve Agent	DN5	>720	5X10 <sup>-7</sup>

**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/m<sup>2</sup>.

**Protocol DN5**—MIL-STD-282, Method T-208 (GB) or modified for GA, GD, and VX, for 12 hours at 10 g/m<sup>2</sup>.

### Physical Properties of Tychem® CPF 2

Basis Weight ASTM D751	4.0 oz/yd <sup>2</sup>	Grab Tensile Strength (md/cd) ASTM D751	50 lbf/39 lbf
Thickness ASTM D1117	12 mils	Trap Tear (md/cd) ASTM D5597	13 lbf/23 lbf
Ball Burst ASTM D750	49 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 2

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	12	3.2
Acetonitrile	L	12	2.8
Ammonia (gas)	G	32	0.15
1,2-Butadiene	G	>480	<0.02
Carbon disulfide	L	immed.	>50
Chlorine gas	G	>480	0.1
Dichloromethane	L	immed.	>50
Diethylamine	L	12	>50
N,N-Dimethylformamide	L	95	0.11
Ethyl acetate	L	14	0.54
Ethylene oxide	G	immed.	8.4
n-Hexane	L	10	0.28
Hydrogen chloride	G	>480	<0.1
Methanol	L	>480	<0.001
Methyl chloride	G	>480	<0.006
Nitrobenzene	L	102	2.3
Sodium hydroxide, 50%	L	>480	<0.1
Sulfuric acid, 98%	L	>480	<0.1
Tetrachloroethylene	L	immed.	5.7
Tetrahydrofuran	L	immed.	>50
Toluene	L	immed.	39

#### INDEX OF CODES:

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

#### General Garment Specification Wear Guidelines

**Sewn Seams**—Sewn seams use a serge stitching. Serged seams are not liquid or particle tight. Serged seams have minimal liquid and particle holdout. The use of serged seams should be limited to light particle loading and liquid mists. Serged seams are not suitable for pooled liquids.

**Bound Seams**—Bound seams are tightly sewn and have a reinforced outer binding to enhance seam strength and barrier. Bound seams are suitable for light particle exposure and liquid misting. Bound seams are not liquid or particle tight. Bound seams are not suitable for pooled liquids.

**Taped Seams**—Sewn and taped seams offer higher strength as well as a high level of liquid, vapor and particle resistance. Taped seams are appropriate for applications involving pooled liquids, liquid splash under pressure, vapor protection and high levels of particle and aerosol challenges. In situations involving large columns of liquid and liquids under pressure, the zipper or closure should also be covered with one or more flaps of material.

**Pesticides:** To determine the appropriate garment for a liquid application, read the Pesticide Product Label. A chemical resistant coverall made of a Tychem® fabric can be substituted for coveralls worn over long-sleeve shirt and long pants or coveralls worn over short-sleeve shirt and short pants or for an apron worn over such ensembles. In California, garments made with microporous fabrics are not suitable as chemical resistant garments.

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 2 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 2 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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