



Tychem® LV. Low-Visibility Chemical Protection and Enhanced Flexibility.

Handling hazardous chemicals is a dangerous business. You need the most protection possible. That's where Tychem® LV fits in. Providing extensive protection, Tychem® LV is supported with a broad range of barrier documentation. In fact, Tychem® LV has been tested against more than 200 chemicals, including the ones most involved in industrial or HazMat incidents.

Lakeland Chemical protective clothing is known for offering excellent protection and value. Tychem® LV is another fine example. It offers the tear, puncture and abrasion resistance you deserve. Superior protection does not come at the expense of comfort. Tychem® LV garments are soft and lightweight, allowing workers to move with ease. Tychem® LV is ideal for a variety of work environments. Tychem® LV is olive drab for low visibility.



Tychem® BR. Chemical Protection and Enhanced Flexibility.

Handling hazardous chemicals is a dangerous business. You need the most protection possible. That's where Tychem® BR fits in. Providing extensive protection, Tychem® BR is supported with a broad range of barrier documentation. In fact, Tychem® BR has been tested against more than 200 chemicals, including the ones most involved in industrial or HazMat incidents.

Lakeland Chemical protective clothing is known for offering excellent protection and value. Tychem® BR is another fine example. It offers the tear, puncture and abrasion resistance you deserve. Superior protection does not come at the expense of comfort. Tychem® BR garments are soft and lightweight, allowing workers to move with ease. Tychem® BR is ideal for a variety of work environments.

Tychem® BR is yellow for high visibility. Whether there is bright or dim light, Tychem® BR can be seen. That's why it is an excellent choice for HazMat teams.

Tychem® SL Garments – Protection Against A Broad Range of Chemicals.

Tychem® SL is a laminated fabric incorporating DuPont's Tyvek® spunbonded olefin and Dow Chemical's Saranex® 23-P film. Tychem® SL protective clothing is available with a choice of two seam configurations: Sewn and Bound or Heat Sealed. Tychem® SL provides reliable and economical protection against a broad spectrum of chemicals. This apparel is a top choice among workers who are mixing, loading or applying agricultural chemicals, engaged in clean up operations, and general industrial environments.



For more information on Lakeland Homeland Security products, call 1-800-645-9291, or visit us on the web at www.lakeland.com

Tychem® Permeation Data

Permeation data for ASTM recommended list of chemicals for evaluating protective clothing materials (ASTM F1001)

Standardized Breakthrough Times

Sub-Class	Chemical Name	Physical Phase	CAS number	Tychem® QC	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR/ Tychem® LV	Tychem® TK
391	Acetone	L	67-64-1	imm.	12	433	>480	>480	>480
431	Acetonitrile	L	75-05-8	imm.	12	14	157	>480	>480
350	Ammonia Gas	G	7664-41-7	imm.	32	125	79	46	>480
296	1,3-Butadiene	G	106-99-0	imm.	>480	>480	>480	>480	>480
502	Carbon disulfide	L	75-15-0	imm.	imm.	>480	>480	>480	>480
330/350	Chlorine gas	G	7782-50-5	imm.	>480	>480	>480	>480	>480
261	Dichloromethane	L	75-09-2	imm.	imm.	imm.	imm.	432	>480
142	Diethylamine	L	109-89-7	imm.	12	>480	>480	>480	>480
132	N,N-Dimethylformamide	L	68-12-2	imm.	95	>480	>480	>480	>480
222	Ethyl acetate	L	141-78-6	imm.	14	>480	>480	>480	>480
275	Ethylene oxide gas	G	75-21-6	imm.	imm.	75	65	>480	>480
291	n-Hexane	L	110-54-3	imm.	10	>480	>480	>480	>480
350	Hydrogen chloride gas	G	7647-01-0	imm.	>480	195	>480	>480	>480
311	Methanol	L	67-56-1	imm.	>480	65	77	157	>480
261	Methyl chloride	G	74-87-3	imm.	>480	>480	>480	>480	>480
441	Nitrobenzene	L	98-95-3	imm.	102	>480	>480	>480	>480
380	Sodium hydroxide, 50%	L	1310-73-2	>480	>480	>480	>480	>480	>480
370	Sulfuric acid, 98%	L	7664-93-9	>480	>480	>480	>480	>480	>480
264	1,1,2,2-Tetrachloroethylene	L	127-18-4	imm.	imm.	>480	>480	>480	>480
241	Tetrahydrofuran	L	109-99-9	imm.	imm.	314	464	>480	>480
292	Toluene	L	109-88-3	imm.	imm.	>480	>480	>480	>480

> = greater than, < = less than, imm. = immediate (<10 minutes), L = Liquid, G = Gas

Permeation data for 595 Class/Subclass Chemical Warfare Agents

Agent	Common Name	CAS Number	Protocol	Tychem® SL	Tychem® 7500	Tychem® F	Tychem® BR/ Tychem® LV	Tychem® TK
GA	Tabun	77-81-6	DN5	nt	nt	nt	>720 8 x 10 ⁻⁷	>720 8 x 10 ⁻⁷
			DN6	nt	>720 2 x 10 ⁻⁸	>720 2 x 10 ⁻⁸	nt	>720 4 x 10 ⁻⁷
GB	Sarin	107-44-8	DN5	360 1 x 10 ⁻⁵	nt	nt	>720 4.2 x 10 ⁻⁷	>720 4.2 x 10 ⁻⁷
			DN6	nt	>720 2 x 10 ⁻⁸	>720 2 x 10 ⁻⁸	>720 4 x 10 ⁻⁴	>720 1 x 10 ⁻⁸
GD	Soman	99-64-0	DN5	nt	nt	nt	>720 4.2 x 10 ⁻⁷	>720 2.1 x 10 ⁻⁷
			DN6	nt	>720 2 x 10 ⁻⁸	>720 2 x 10 ⁻⁸	nt	>720 4 x 10 ⁻⁷
HD	Sulfur Mustard	505-60-2	DN3	180 0.002	nt	nt	>720 4.2 x 10 ⁻⁷	>720 0.00021
			DN4	nt	>720 <0.002	>720 <0.002	>720 8 x 10 ⁻⁴	>720 8 x 10 ⁻⁴
L	Lewisite	541-25-3	DN3	>360 8 x 10 ⁻⁴	nt	nt	>720 2.5 x 10 ⁻⁵	>720 0.0000125
			DN4	nt	360 0.006	360 0.006	120 7 x 10 ⁻⁵	>720 8 x 10 ⁻⁴
VX	VX Nerve Agent	20785-69-9	DN5	>720 5 x 10 ⁻⁷	nt	nt	>720 4.2 x 10 ⁻⁷	>720 2.1 x 10 ⁻⁷
			DN6	nt	>720 2 x 10 ⁻⁸	>720 2 x 10 ⁻⁸	>720 8 x 10 ⁻⁷	>720 8 x 10 ⁻⁷

Fabric Test Protocols – All tests performed in triplicate for DuPont Nonwovens 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).

HOMELAND SECURITY

PROTECTIVE
CLOTHING FOR
FIRST
RESPONDERS



NFPA 1991

Tychem® TK 645 NFPA 1991 Ensemble

Fully encapsulated front entry vapor-protective suit (Level A), expanded back, sealed seam plus inside and out, 48" zipper, double storm flap with hook and loop closure, 2 layer faceshield (10 mil Teflon®/40 mil PVC), 3 layer glove combination of Viton®, North Silvershield®, and outer knit Kevlar®, 3 exhaust valves, attached sock boots with boot flaps, 1.5" waist belt with 3 belt loops sewn (inside) and sealed. Includes aluminized fiberglass overcover. Storage bag and Bata Hazmax® boots included.

Also available in rear entry Style TK655



NFPA 1991 certified to current edition.



NFPA 1994

NFPA 1994 Certified Garments

NFPA 1994 is the Standard for Protective Ensembles for Chemical/Biological Terrorism Incidents.

Class I Ensembles

Class I Ensembles offer the highest level of protection. They are intended for the worst case circumstances, where the substance involved creates an immediate threat, is unidentified, and of unknown concentration. Such situations would occur where there is still an on-going release with likely gas/vapor exposure, the responder is close to the point of release, and most victims in the area appear to be unconscious or dead from exposure. Stay times in the hazard zone are likely to be short and limited to the breathing air available from the SCBA.

Class III Ensembles

Class III ensembles offer the lowest level of protection. They are intended for use well after the release has occurred or in the peripheral zone of the release scene for such functions as decontamination, patient care, crowd control, and clean-up. Class 3 ensembles should only be used when there is no potential for vapor or gas exposure and exposure to liquids is expected to be incidental through contact with contaminated surfaces. Class 3 ensembles must cover the individual and it is preferred that this clothing also cover the wearer's respirator to limit its potential for contamination. Because these ensembles are intended for longer wearing periods, the use of air-purifying respirators with these suits is likely.



Tychem® TK644W NFPA 1994 Class III Ensemble

Fully encapsulated front entry vapor-protective suit (Level A), expanded back, sealed seam plus inside and out, 48" gas tight zipper, double storm flap with hook and loop closure, 2 layer wide-view faceshield (10 mil Teflon®/40mil PVC), 3 layer glove combination of Viton, North Silvershield® and outer knit Kevlar®, 3 exhaust valves, attached sock boots with Silvershield® boot flaps, 1.5" waist belt with 3 loops sewn (inside) and sealed. Storage bag included.

Must be worn with NFPA Certified boots.

Tychem® LV980 NFPA 1994 Class III Ensemble

Coverall with collar, zipper, double storm flap with hook and loop closure, sock boots with boot flaps, glove ring and clamp assembly with attached 3-layer glove system, North Silvershield® (inner) Viton® (middle) Knit Kevlar® (outer) gloves. Includes separate bib-style hood with 10 mil Teflon® outer/40 mil PVC inner lens, wide-vision lens system, 1" adjustable waist belt. Also available in Tychem BR.

Must be worn with NFPA Certified boots.

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TYCHEM

Tychem® F Garments – A High Level of Protection Against Chemical and Biological Warfare Agents.

Tychem® F represents a remarkable step forward in the provision of individual protection for both Armed Forces and Civilian Populations in areas where chemical and/or biological warfare could take place, or where there is a risk of contamination from an industrial accident.

Tychem® F provides a tough and safe barrier to all known chemical warfare agents in liquid, gas or aerosol formats and represents the first simple, economic and disposable material for individual protection suits.



Coverall, Style 60132
Coverall, respirator-fit hood, storm flap, elastic face, wrists and ankles.



Coverall, Style 60151
Coverall, zipper front, attached respirator-fit hood, storm flap, elastic face and wrists, attached boots.



Get Comfortable with a Phase Change Cool Vest®

Working in HazMat/Protective suits can make anyone lose their cool. The Phase Change Cool Vests worn under these suits give the user a greater degree of comfort. In fact, it creates a climate of 58° F./14° C for up to three hours (depending on work environment).

These vests create a cooling energy from a unique Phase Change Material that is mechanically sealed in durable inserts. After freezing the inserts in ice water or a refrigerator for just 30 minutes, the vests deliver the constant cool temperature. Unlike frozen water or gel products, our Phase Change Material maintains a consistent temperature of 58° F./14° C during its transition from a solid to a liquid. This ensures that the wearer receives a constant cooling temperature throughout the entire two to three hour period.

Comfort is Key

Designed for comfort, these vests are washable and lightweight. The built-in side and shoulder adjustments provide a better fit. To suit a variety of users, the vests come in many styles, sizes and fabrics, including polycotton and Nomex®.

Style 00055 – Polycotton Cool Vest®
Style 00058 – Nomex® Cool Vest®
Style 00056 – Banox (FR Cotton)
Style 00057 – Set of 4 Cool Vest replacement inserts