

**SOLUTIONS ENGINEERED  
TO SOLVE EMS CHALLENGES**



# INTRODUCTION

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Dangerous drugs, blood-borne pathogens, traffic hazards - EMS definitely has its own set of challenges. Fortunately, Halyard offers products with the high level of personal protection EMS work demands.

Just one example: HALYARD\* BLACK-FIRE\* Nitrile Exam Gloves are designed to **resist permeation of the hazardous drug fentanyl for up to 240 minutes.** The orange underlayer makes breaches easy to see – and these gloves can be worn orange side out in situations calling for high visibility.

Halyard is focused on advancing health and health-care by delivering clinically-superior infection prevention and surgical solutions that deliver the protective products EMS providers have come to know and trust.

# RESPIRATORS

## HALYARD\* FLUIDSHIELD\* N95 RESPIRATOR

- NIOSH-approved
- Effective facial fit as required for proper respiratory protection against airborne pathogens
- Unique shape provides large breathing chamber
- Folded flat and individually wrapped for easy storage in a door or pocket



Item Code	Description	Size	Quantity		
46727	FLUIDSHIELD* N95 Respirator	Regular	35 masks/box	6 boxes/case	
46728	FLUIDSHIELD* N95 Respirator Singles (IWR)	Regular	35 masks/box	6 boxes/case	
46827	FLUIDSHIELD* N95 Respirator	Small	35 masks/box	6 boxes/case	
46828	FLUIDSHIELD* N95 Respirator Singles (IWR)	Small	35 masks/box	6 boxes/case	
47950	Qualitative Fit Test Kit		1 item/box	1 kit/case	

# GLOVES

## HALYARD\* PURPLE NITRILE\* EXAM GLOVES

### MAXIMUM PROTECTION FOR ALL RISKS

HALYARD\* PURPLE NITRILE\* Exam Gloves are often the glove of choice for first responders who need proven barrier protection from bacteria, blood-borne viruses and chemicals during procedures where risk of fluid exposure is moderate to high. PURPLE NITRILE\* gloves offer the highest level of chemical protection available in the Halyard line of nitrile exam gloves. They are especially appropriate in dealing with unknown risks.

These durable gloves are available in 9.5 and 12 inch lengths, sterile and non-sterile versions, to provide a full range of protection options. 12-inch PURPLE NITRILE-XTRA\* Gloves are NFPA 1999 Certified (National Fire Protection Association) and come in a SMART PULL\* dispenser that will reduce glove waste.

### PURPLE NITRILE\* EXAM GLOVES



- Proven barrier protection from bacteria, bloodborne viruses and chemicals during procedures where fluid exposure risk is moderate to high
- Available in both sterile and non-sterile versions
- 9.5" exam glove

Item Code	Description	Size	Quantity	
55080	PURPLE NITRILE* Exam Gloves	X-Small	100 gloves/box	10 boxes/case
55081	PURPLE NITRILE* Exam Gloves	Small	100 gloves/box	10 boxes/case
55082	PURPLE NITRILE* Exam Gloves	Medium	100 gloves/box	10 boxes/case
55083	PURPLE NITRILE* Exam Gloves	Large	100 gloves/box	10 boxes/case
55084	PURPLE NITRILE* Exam Gloves	X-Large	90 gloves/box	10 boxes/case

### PURPLE NITRILE-XTRA\* EXAM GLOVES



- Proven barrier protection from bacteria, bloodborne viruses and chemicals during procedures where fluid exposure risk is moderate to high
- Available in both sterile and non-sterile versions
- NFPA 1999 Certified
- 12" exam glove

Item Code	Description	Size	Quantity	
39504	PURPLE NITRILE-XTRA* Exam Gloves	X-Small	50 gloves/box	10 boxes/case
39505	PURPLE NITRILE-XTRA* Exam Gloves	Small	50 gloves/box	10 boxes/case
39506	PURPLE NITRILE-XTRA* Exam Gloves	Medium	50 gloves/box	10 boxes/case
39507	PURPLE NITRILE-XTRA* Exam Gloves	Large	50 gloves/box	10 boxes/case
39508	PURPLE NITRILE-XTRA* Exam Gloves	X-Large	50 gloves/box	10 boxes/case

#### Product Specifications

Gauge Thickness Measurements	MM	MIL
Middle Finger:	.15	5.9
Palm:	.12	4.7
Cuff:	.09	3.5
<b>Average Length</b>	242mm	(9.5")
	XTRA* 305mm	(12.0")

#### Physical Properties

After Aging	
Tensile Strength:	21 MPa
Ultimate Elongation:	500%

All physical properties are target measurements; target MIL measurements may differ due to rounding.

The COLOR PURPLE is a Registered Trademark or Trademark of O&M Halyard or its affiliates.

See Appendix for more information about the resistance of PURPLE NITRILE\* against 29 Chemo Drugs and 39 Chemicals.

# GLOVES



## HALYARD\* BLACK-FIRE\* NITRILE EXAM GLOVES

### Two Gloves In One



- Resists permeation of fentanyl **up to 240 minutes**
- NFPA 1999 Certified
- Breach Detection
- Length: 9.5 in.
- Made without Natural Rubber Latex
- Textured fingertips
- Ambidextrous

Item Code	Description	Size	Quantity	
44755	BLACK-FIRE* Nitrile Exam Gloves	X-Small	150 gloves/box	10 boxes/case
44756	BLACK-FIRE* Nitrile Exam Gloves	Small	150 gloves/box	10 boxes/case
44757	BLACK-FIRE* Nitrile Exam Gloves	Medium	150 gloves/box	10 boxes/case
44758	BLACK-FIRE* Nitrile Exam Gloves	Large	150 gloves/box	10 boxes/case
44759	BLACK-FIRE* Nitrile Exam Gloves	X-Large	140 gloves/box	10 boxes/case

### Product Specifications

Gauge Thickness Measurements	MM	MIL
Middle Finger:	.14	5.5
Palm:	.10	3.9
Cuff:	.09	3.5
<b>Average Length</b>	242mm	(9.5")

### Physical Properties

	Before Aging	After Aging
Tensile Strength:	42 MPa	38 MPa
Ultimate Elongation:	650%	550%

All physical properties are target measurements; target MIL measurements may differ due to rounding.

# GLOVES

## HALYARD\* STERLING\* NITRILE EXAM GLOVES

Latex allergy is a concern within the healthcare industry. With STERLING\* Nitrile Exam Gloves, Halyard has created a glove that is not made with natural rubber latex, but it has the protection, comfort, and tactile sensitivity of latex, at a comparable value.

### THE PROTECTION OF NITRILE

Our manufacturing process boosts the tensile strength of nitrile—the force required to break through the glove—to increase its already superior barrier protection qualities.

### THE TACTILE SENSITIVITY OF LATEX

The process also allows a reduction in glove thickness, which means that less force is required to stretch the material. That provides a latex-free glove with the dexterity and tactile sensitivity of natural rubber latex.

### STERLING\* EXAM GLOVES



- For procedures with low-to-moderate risk of exposure to fluid and abrasion
- Flexible with high tactile sensitivity
- Non-sterile
- Ambidextrous
- Textured fingertips
- Beaded cuffs
- Provides nitrile protection while avoiding latex
- Cleared for use in chemotherapy

Item Code	Description	Size	Quantity	
50705	STERLING* Nitrile Exam Gloves	X-Small	200 gloves/box	10 boxes/case
50706	STERLING* Nitrile Exam Gloves	Small	200 gloves/box	10 boxes/case
50707	STERLING* Nitrile Exam Gloves	Medium	200 gloves/box	10 boxes/case
50708	STERLING* Nitrile Exam Gloves	Large	200 gloves/box	10 boxes/case
50709	STERLING* Nitrile Exam Gloves	X-Large	170 gloves/box	10 boxes/case

### STERLING NITRILE-XTRA\* EXAM GLOVES



- 12" length for more protection against fluid and splash
- Flexible with high tactile sensitivity
- Nitrile protection while avoiding latex
- Extended, beaded cuff for better coverage over the wrist
- Certified to meet NFPA 1999
- Cleared for use in chemotherapy

Item Code	Description	Size	Quantity	
53137	STERLING* Nitrile-XTRA* Exam Gloves	X-Small	100 gloves/box	10 boxes/case
53138	STERLING* Nitrile-XTRA* Exam Gloves	Small	100 gloves/box	10 boxes/case
53139	STERLING* Nitrile-XTRA* Exam Gloves	Medium	100 gloves/box	10 boxes/case
53140	STERLING* Nitrile-XTRA* Exam Gloves	Large	100 gloves/box	10 boxes/case
53141	STERLING* Nitrile-XTRA* Exam Gloves	X-Large	100 gloves/box	10 boxes/case

### Product Specifications

Gauge Thickness Measurements	MM	MIL
Middle Finger:	.10	3.8
Palm:	.07	2.8
Cuff:	.06	2.4
<b>Average Length</b>	242mm	(9.5")
	XTRA* 305mm	(12.0")

### Physical Properties

After Aging	
Tensile Strength:	39 MPa
Ultimate Elongation:	550%

All physical properties are target measurements; target MIL measurements may differ due to rounding.

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# GLOVES



## STERLING SG\* NITRILE EXAM GLOVES

- Non-sterile
- Textured fingertips
- Ambidextrous
- Beaded Cuff
- Higher Count
- Saves space and waste
- Length: 9.5 in. (242MM)

Item Code	Description	Size	Quantity	
41657	STERLING SG* Nitrile Exam Glove	X-Small	230 eaches/box	10 boxes/case
41658	STERLING SG* Nitrile Exam Glove	Small	230 eaches/box	10 boxes/case
41659	STERLING SG* Nitrile Exam Glove	Medium	230 eaches/box	10 boxes/case
41660	STERLING SG* Nitrile Exam Glove	Large	230 eaches/box	10 boxes/case
41662	STERLING SG* Nitrile Exam Glove	X-Large	230 eaches/box	10 boxes/case



## LAVENDER\* NITRILE EXAM GLOVES

- Higher count per box saves space and waste
- For low exposure to fluids or chemicals
- Not made with natural rubber latex
- Textured fingertips
- Ambidextrous
- Non-sterile
- Length: 9.5 in.

Item Code	Description	Size	Quantity	
52816	LAVENDER* Nitrile Exam Gloves	X-Small	250 gloves/box	10 boxes/case
52817	LAVENDER* Nitrile Exam Gloves	Small	250 gloves/box	10 boxes/case
52818	LAVENDER* Nitrile Exam Gloves	Medium	250 gloves/box	10 boxes/case
52819	LAVENDER* Nitrile Exam Gloves	Large	250 gloves/box	10 boxes/case
52820	LAVENDER* Nitrile Exam Gloves	X-Large	230 gloves/box	10 boxes/case



## AQUASOFT\* NITRILE EXAM GLOVES

- Higher count per box saves space and waste
- Ambidextrous
- Beaded cuffs
- Textured fingertips
- Non-sterile

Item Code	Description	Size	Quantity	
43932	AQUASOFT* Nitrile Exam Gloves	X-Small	300 eaches/box	10 boxes/case
43933	AQUASOFT* Nitrile Exam Gloves	Small	300 eaches/box	10 boxes/case
43934	AQUASOFT* Nitrile Exam Gloves	Medium	300 eaches/box	10 boxes/case
43935	AQUASOFT* Nitrile Exam Gloves	Large	300 eaches/box	10 boxes/case
43936	AQUASOFT* Nitrile Exam Gloves	X-Large	250 eaches/box	10 boxes/case

# PROTECTIVE APPAREL



## HALYARD\* FILM GOWN

- Fabric passed ASTM F1670 and F1671
- Perforated open back
- Thumbhooks
- Plastic film

Item Code	Description	Size	Quantity
69490	ASTM F1670 / F1671, Thumb Hooks, Blue	Universal	75 items/case
69316	ASTM F1670 / F1671, Thumb Hooks, Blue	X-Large	60 items/case



## HALYARD\* LAMINATED COMFORT GOWN

- Perforated open-back design
- Available with thumbhooks
- Film laminate
- For heavy exposure to fluid or chemical contact in front
- Recommended areas for product use: Decontamination, ER

Item Code	Description	Size	Quantity
46946	ASTM F1670 / F1671, Thumb Hooks, Blue	Universal	100 items/case
46947	ASTM F1670 / F1671, Thumb Hooks, Blue	X-Large	100 items/case



## HALYARD\* PROCEDURE GOWN

- Knit cuff
- Hook & loop neck closure
- Tie waist
- Full back
- Protective fluid-resistant 3-layer
- SMS fabric

Item Code	Description	Size	Quantity
69025	Hook and Loop Neck Closure, Knit Cuffs, Blue	Large	60 items/case
69028	Hook and Loop Neck Closure, Knit Cuffs, Blue	X-Large	60 items/case



## HALYARD\* UNIVERSAL PRECAUTIONS LAB COAT

- Available in blue or white
- Traditional collar and knit cuffs
- 6 snaps
- 3 reinforced pockets
- Back vent
- Neck loop for hanging
- Size/name label
- Protective 3-layer SMS fabric
- For low to moderate exposure to fluids or chemicals

Item Code	Description	Size	Quantity
10045	Snaps, Reinforced Pockets, Knit Cuffs, Blue	Small	25 items/case
10046	Snaps, Reinforced Pockets, Knit Cuffs, Blue	Medium	25 items/case
10047	Snaps, Reinforced Pockets, Knit Cuffs, Blue	Large	25 items/case
10048	Snaps, Reinforced Pockets, Knit Cuffs, Blue	X-Large	25 items/case
10049	Snaps, Reinforced Pockets, Knit Cuffs, Blue	XX-Large	10 items/case



# PROTECTIVE APPAREL



## HALYARD\* EXTRA PROTECTION COVERALL

- Elastic cuffs
- Back gather
- Protective 3-layer SMS fabric
- For low to moderate exposure to fluids or chemicals

Item Code	Description	Size	Quantity
10075	Elastic Cuffs, White	Large	24 items/case
10085	Elastic Cuffs, White	X-Large	24 items/case
10095	Elastic Cuffs, White	XX-Large	24 items/case
10096	Elastic Cuffs, White	XXX-Large	24 items/case



## HALYARD\* HI GUARD\* FULL COVERAGE BOOTS

- Covers the shoe and lower leg
- Features a plastic film coating
- Traction slips
- Elastic at the ankle
- Ultra-sonically bonded seams

Item Code	Description	Size	Quantity
69571	Adhesive Traction Strips, Blue	Universal	150 items/case
69671	Adhesive Traction Strips, Blue	X-Large	150 items/case
69572	Full Film Coating, Foam Traction Strips, Blue	Universal	120 items/case
69672	Full Film Coating, Foam Traction Strips, Blue	X-Large	120 items/case



## SINGLE USE LINENS

- Complies with standards of flammability testing
- Consumer Product Safety Commission (16CFR PART 1610)
- National Fire Protection Association (NFPA) Standard 702, Rated as Class I

Item Code	Description	Size	Quantity
67783	Stretcher Sheet, Blue	40"x 84"	Bulk • 80/case
67103	Stretcher Sheet, Long, Blue	40"x 96"	Bulk • 80/case
67963	Flat Top Sheet, Blue	60"x 96"	Bulk • 30/case
67803	Pillowcase, Blue	20"x 29"	Bulk • 200/case
67773	Half Sheet, Blue	40"x72"	Bulk • 90/case

# APPENDIX

## PURPLE NITRILE\*

Tested against 29 Chemo Drugs and 39 Chemicals



29 Chemo Drugs

### PURPLE NITRILE\* Non-Sterile Exam Gloves are tested for use with Chemotherapy Drugs: Per ASTM D6978

The following chemotherapy drugs and concentration had NO breakthrough detected up to 240 minutes:

<b>Bleomycin sulfate</b> (15 mg/ml)	<b>Dacarbazine</b> (10 mg/ml)	<b>Fludarabine</b> (25 mg/ml)	<b>Mechlorethamine HCL</b> (1 mg/ml)	<b>Rituximab</b> (10 mg/ml)
<b>Busulfan</b> (6 mg/ml)	<b>Daunorubicin HCL</b> (5 mg/ml)	<b>Fluorouracil</b> (50 mg/ml)	<b>Melphalan</b> (5 mg/ml)	<b>Trisenox</b> (0.1 mg/ml)
<b>Carboplatin</b> (10 mg/ml)	<b>Docetaxel</b> (10 mg/ml)	<b>Gemcitabine</b> (38 mg/ml)	<b>Methotrexate</b> (25 mg/ml)	<b>Vincristine Sulfate</b> (1 mg/ml)
<b>Cisplatin</b> (1 mg/ml)	<b>Doxorubicin HCL</b> (2 mg/ml)	<b>Idarubicin</b> (1 mg/ml)	<b>Mitomycin</b> (0.5 mg/ml)	
<b>Cyclophosphamide</b> (20 mg/ml)	<b>Ellence</b> (2 mg/ml)	<b>Ifosfamide</b> (50 mg/ml)	<b>Mitoxantrone</b> (2 mg/ml)	
<b>Cytarabine HCL</b> (100 mg/ml)	<b>Etoposide</b> (20 mg/ml)	<b>Irinotecan</b> (20 mg/ml)	<b>Paclitaxel</b> (6 mg/ml)	

The following chemotherapy drugs and concentration showed breakthrough detected in less than 30 minutes:

**Carmustine** (3.3 mg/ml): 1.8 minutes    **ThioTEPA** (10.0 mg/ml): 1.6 minutes

#### Warning: Not for Use with: Carmustine, ThioTEPA

**Caution:** The testing conditions used are intended to approximate the worst case conditions for clinical use. Testing was conducted on single layer glove material. It is the users' responsibility to determine the applicability of these gloves for their intended use with chemotherapy drugs.

*Standard Practice for Assessment of Resistance of Medical Gloves to Permeation by Chemotherapy Drugs*



39 Chemicals

### PURPLE NITRILE\* Exam Gloves provide protection against the following chemicals: Per ASTM F739

The following chemicals had breakthrough times as follows:

<b>Adhesive Tape Remover Pads</b>	132.7 min	<b>Ethyl Alcohol (95%)</b>	16 min	<b>OxyCide Concentrate</b>	146.7 min
<b>Alcoholic Bouin's Fixative</b>	140 min	<b>Formaldehyde (10%)</b>	≥240 min	<b>OxyCide Ready to Use</b>	≥480 min
<b>Alcoholic Eosin</b>	21.3 min	<b>Formalin 10% Buffered</b>	≥480 min	<b>Permaslip Mounting Medium</b>	
<b>B-Plus Fixative</b>	≥480 min	<b>Formalin Alcohol</b>	22 min	<b>&amp; Liquid Cover Slip</b>	0 min
<b>Bleach</b>	≥480 min	<b>Giemsa Stain Solution</b>	13.3 min	<b>Povidone Iodine (10%)</b>	≥240 min
<b>Bouin's Fixative</b>	≥480 min	<b>Gluteraldehyde (4%)</b>	≥240 min	<b>Quaternary Detergent</b>	≥240 min
<b>CarNoy's Fluid</b>	0 min	<b>Haematoxylin Stain</b>		<b>Reagent Alcohol</b>	13.3 min
<b>Chlorhexidine Gluconate (4%)</b>	≥240 min	<b>(Harris Solution)</b>	40 min	<b>Resert XL HLD</b>	266.7 min
<b>Cidex 14-Day</b>	≥480 min	<b>Hydrochloric Acid (35.5%)</b>	214.3 min	<b>Sodium Hydroxide (40%)</b>	≥240 min
<b>Cidex OPA</b>	213.3 min	<b>Hydrogen Peroxide (3%)</b>	≥480 min	<b>Sodium Hypochlorite (10-13%)</b>	≥240 min
<b>Decalcifier I</b>	≥480 min	<b>Isopropyl Alcohol (70%)</b>	40.3 min	<b>Sulfuric Acid (10%)</b>	≥240 min
<b>EM Fixative</b>	≥480 min	<b>Methanol (100%)</b>	8 min	<b>Trichloroacetic Acid (10%)</b>	≥480 min
<b>Eosin Stain</b>	80 min	<b>Methyl Methacrylate (100%)</b>	0 min	<b>Xylene (99%)</b>	0 min
<b>Ethidium Bromide (0.4%)</b>	≥240 min	<b>Monssel's Solution (Ferric Sulfate)</b>	≥480 min		

# APPENDIX

## PURPLE NITRILE\* EXAM GLOVES TEST & TECHNICAL DATA

Test & Technical Data	TEST	OBJECTIVE	RELEVANCE	FDA REQUIREMENT (Eff. 12/08)	ASTM D6319 REQUIREMENT	DESCRIPTIONS	PURPLE NITRILE* RESULTS
Irritation and Sensitization	Primary Skin Irritation ISO 10993-10	Estimate the potential to induce skin irritation from direct exposure.	Measures the likelihood of dermal irritation from contact with the product.	Pass			Pass
	Sensitization ISO 10993-10	Estimate the potential to induce contact sensitization Type IV delayed hypersensitivity immunological response via product extracts.	Measures the likelihood of adverse immunological dermal response from contact with the product over time.	Pass			Pass
Residual Chemicals	High Pressure Liquid Chromatography (HPLC)	Measure the type and amount of residual chemicals left on the glove.	Lower levels of residual chemicals decrease the risk of developing irritant and Type IV reactions.	Optional			Pass
Viral Penetration	Penetration by Bloodborne Pathogens Using Phi-X174 Bacteriophage (Viral Penetration) ASTM F1671-97b	Measure the resistance of materials used in protective apparel to penetration by bloodborne pathogens.	Measures resistance to potentially infectious body fluids permeating through the protective material.	Optional	Pass		Pass



The following chemotherapy drugs had NO breakthrough detected up to 240 minutes:

Bleomycin sulfate (15 mg/ml)	Doxorubicin HCl (2.0 mg/ml)	Mechlorethamine HCl (1.0 mg/ml)
Busulfan (6 mg/ml)	Epirubicin (Ellence) (2 mg/ml)	Melphalan (5 mg/ml)
Carboplatin (10 mg/ml)	Etoposide (20.0 mg/ml)	Methotrexate (25 mg/ml)
Cisplatin (1.0 mg/ml)	Fludarabine (25 mg/ml)	Mitomycin-C (0.5 mg/ml)
Cyclophosphamide (20.0 mg/ml)	Fluorouracil (50.0 mg/ml)	Mitoxantrone (2.0 mg/ml)
Cytarabine HCl (100 mg/ml)	Gemcitabine HCl (38.0mg/ml)	Paclitaxel (6.0 mg/ml)
Dacarbazine (10 mg/ml)	Idarubicin HCl (1.0mg/ml)	Rituximab (10 mg/ml)
Daunorubicin HCl (5.0 mg/ml)	Ifosfamide (50.0 mg/ml)	Trisenox (0.1 mg/ml)
Docetaxel (10.0 mg/ml)	Irinotecan HCl (20.0 mg/ml)	Vincristine Sulfate (1.0 mg/ml)

Purple Nitrile-Xtra\* sterile exam gloves also provide protection against the following drugs. Breakthrough times listed:

ThioTEPA (10.0 mg/ml)	No breakthrough to 240 minutes
Carmustine (3.3 mg/ml)	Breakthrough detected in 48 minutes



The following chemicals had NO breakthrough detected up to 240 minutes:

Ethidium Bromide, 0.4%
Sodium Hydroxide, 40%
Sulfuric Acid, 50%
Formalin, 10%
Glutaraldehyde, 4%
Chlorhexidine Gluconate, 4%
Sodium Hypochlorite, 10-13%
Quaternary Disinfectant Cleaner

Purple Nitrile-Xtra\* sterile exam gloves provide additional protection against the following chemicals. Breakthrough times listed:

Hydrogen Peroxide, 30%	20 minutes
n-Hexane, 96.1%	19 minutes
Isopropyl Alcohol, 70%	52 minutes
Ortho-phthalaldehyde/Cidex OPA HCL, 37%	93 minutes
	230 minutes

Chemotherapy Permeation Testing per ASTM D6978-05 "Standard Practice for Assessment of Resistance of Medical Gloves to Permeation by Chemotherapy Drugs"

ASTM F739 Standard Test Method for Permeation of Liquids and Gases through Protective Clothing materials under Conditions of Continuous Contact

# APPENDIX

## STERLING\* NITRILE EXAM GLOVES TEST & TECHNICAL DATA

Test & Technical Data	TEST	OBJECTIVE	RELEVANCE	FDA REQUIREMENT	ASTM REQUIREMENT	HALYARD REQUIREMENT	DESCRIPTIONS	STERLING RESULTS/TARGET
Physical Properties	ASTM D5151 Detection of Holes in Medical Gloves (Water Leak)	Determine acceptability of gloves with respect to freedom from holes. The lower the Acceptance Quality Level (AQL), the better.	Measures potential for glove barrier integrity failure using ASTM standards.	4.0 AQL	2.5 AQL	1.5 AQL		1.0 AQL
	ASTM D412 Standard Test method for Vulcanized Rubber and Thermoplastic Elastomers-Tension (Tensile Strength)	To assess the amount of force applied to a glove until it breaks. The lower the Acceptance Quality Level (AQL), the better.	The lower the tensile strength, the more easily materials of the same thickness can break when snagged or pressure is applied.	4.0 AQL	4.0 AQL	2.5 AQL	Before Aging After Aging	42 MPa 38 MPa
	ASTM D412 Standard Test method for Vulcanized Rubber and Thermoplastic Elastomers-Tension (Ultimate Elongation)	The ability to stretch a glove until it breaks. The lower the Acceptance Quality Level (AQL), the better.	Stretchability is very important at the microscopic level where the glove material must be able to give rather than break when stressed or snagged by instruments, fingernails, ridges on caps, twisting stop cocks on IV sets, or snapping off enclosures.	4.0 AQL	4.0 AQL	2.5 AQL	Before Aging After Aging	650% 550%
	ASTM 3767 Standard Practice for Rubber-Measurement of Dimensions (Thickness)	Thickness is measured in millimeters (mm) utilizing a micrometer at specified locations on the finger, palm, and cuff. The lower the Acceptance Quality Level (AQL), the better.	Thickness is a metric that can be used in determining both tactile sensitivity and barrier protection. Consistency for this metric is key for both durability and chemical permeation protection.	4.0 AQL	4.0 AQL	2.5 AQL	Finger Palm Cuff	0.09mm 0.08mm 0.06mm
	ASTM 3767 Standard Practice for Rubber-Measurement of Dimensions (Length)	Length is measured in millimeters (mm) utilizing a rule or tape from the upper finger tip to cuff. The lower the Acceptance Quality Level (AQL), the better.	This measurement helps ensure appropriate length and size correctness.	4.0 AQL 230 mm	4.0 AQL 230 MM	2.5 AQL 242 mm	U.S.	2.5 AQL 242 mm
	ASTM 6124 Residual Powder on Medical Gloves	Determine amount of residual powder on the glove surface; ASTM specifies the maximum allowed level of filter-retained substances for a powder-free claim.	A powder-free glove helps reduce powder associated wound healing complications caused by starch glove powder and helps reduce irritant reactions and the transfer of proteins and chemicals that could potentially result in Type IV or I reactions.	<2mg	<2MG	<2mg		<2mg; Pass
	System Biocompatibility	Systemic Toxicity ISO 10993-11	Evaluate the potential for harmful effects to organs or systems using specific product extracts.	Reduce risk of adverse systemic and local response due to contact with product.	Optional		Pass	Pass
Food Handling	Meets the requirements of: 1) 21 CFR 177.2600 2) 21 CFR 180.22 - Acrylonitrile Copolymers	To ensure that nitrile gloves can be safely used in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food.	Gloves that meet these requirements are safe to use in food handling activities.	Optional		Pass	Pass	

# APPENDIX

## STERLING\* NITRILE EXAM GLOVES TEST & TECHNICAL DATA

Test & Technical Data	TEST	OBJECTIVE	RELEVANCE	FDA REQUIREMENT	ASTM REQUIREMENT	HALYARD REQUIREMENT	DESCRIPTIONS	STERLING RESULTS/TARGET
Irritation and Sensitization	PRIMARY Skin Irritation ISO-10993-10	Estimate the potential to induce skin irritation from direct exposure.	Measures the likelihood of the patient experiencing dermal irritation.	Pass		Pass		Pass
	Sensitization ISO-10993-10	Estimate the potential to induce contact sensitization Type IV delayed hypersensitivity immunological response via product extracts.	Decrease the likelihood of adverse immunological dermal response from product use over time	Yes		Pass		Pass
Residual Chemicals	High Pressure Liquid Chromatography (HPLC)	Measure the type and amount of residual chemicals left on the glove.	Lower levels of residual chemicals decrease the risk of developing irritant and Type IV reactions.	Optional		Pass		Pass
Viral Penetration	Penetration by Bloodborne Pathogens Using Phi-X174 Bacteriophage (Viral Penetration) ASTM F1671-97b	Measure the resistance of materials used in protective apparel to penetration by blood-borne pathogens.	Measures resistance to potentially infectious body fluids permeating through the protective material.	Pass		Pass		Pass
Barrier	Resistance of Protective Materials to permeation by Liquids ASTM F739 Formalin - 10%	Determine the level of barrier protection against Formalin, which is commonly used in a healthcare setting.	Helps measure barrier effectiveness against chemicals for aid in selecting appropriate PPE.				Specific breakthrough times on record	>480 min.
	Resistance of Protective Materials to permeation by Liquids ASTM F739 Gluteraldehyde- 4%	Determine the level of barrier protection against Gluteraldehyde, which is commonly used in a healthcare setting.	Helps measure barrier effectiveness against chemicals for aid in selecting appropriate PPE.				Specific breakthrough times on record	>480 min.
	EN 374-3 Norm Sodium Hydroxide (NaOH) - 40%	Determine the level of barrier protection against sodium hydroxide commonly used in a healthcare setting.	Helps measure barrier effectiveness against chemicals for aid in selecting appropriate PPE.				European Norm	Class 4 >120 min.
	EN 374-3 Norm Ethyidium Bromide - 0.4%	Determine the level of barrier protection against chemicals commonly used in a health care setting.	Helps measure barrier effectiveness against chemicals for aid in selecting appropriate PPE.				European Norm	Class 6 >240 min.
	EN 374-3 Norm Sulfuric Acid - 50%	Determine the level of barrier protection against chemicals commonly used in a health care setting.	Helps measure barrier effectiveness against chemicals for aid in selecting appropriate PPE.				European Norm	Class 6 >240 min.

Sterling\* Nitrile Powder-Free Exam Gloves have been tested according to the tests listed above.



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