

Test Results – The iEvac® Smoke/Fire Hood



Overall Performance and Protection Capability

Tested by US Army Research,
Development and Engineering Command
Edgewood Chemical Biological Center

Function	Test Condition	Requirement	Result
Overall protection factor	Test subjects performing standard NIOSH exercises inside the fit test chamber at Edgewood	2,000	> 80,000
Protection factor inside the hood but outside the nose cup	Test subjects performing standard NIOSH exercises inside the fit test chamber at Edgewood	150	> 1,300

Tests to ANSI 110: Physical Properties

Challenge	Test Condition	Duration	Result
Vibration	19 mm at 100 rpm	10,000 cycles	pass
Puncture and tear	100 g striker dropped from 100 mm	Ready to use	pass
Pressure variation	Ambient to 300 mbar below	1,000 cycles	pass
Temperature variation	0°C (32°F) followed by 70°C (158°F)	24 hours each	pass
Flammability	250 mm (9.8 ins) away from a burner flame of 802°C (1476°F)	One rotation	pass
Molten drip	Molten polypropylene rod drip	Each location	pass
Radiant heat	Within 240 mm (9.5 ins) of heating panel between 527 and 927°C (980 and 1700°F)	15 secs repeated	pass
Corrosion	Salt spray at 35°C (95°F) then 22°C (72°F) at 50% RH	48 hours each	pass
Inhalation temperature	CO at 27°C (81°F) and 87%RH	15 mins	pass
Light transmission	Haze of vision area	left and right	pass

Field of vision	Apertometer headform	viewing	pass
Water leakage	Immerse in water at 70°C (158°F) to depth of 600 mm	5 mins	pass

Tests to ANSI 110: Hood Performance Tests

Function	Test Condition	Duration	Requirement	Result
Speed of donning	Remove from pack and wear properly	Less than 30 secs	< 30 secs	pass
Total inward leakage	Test subjects performing standard exercises	2.5 mins	< 2%	pass
Carbon dioxide build-up	Breathing machine	25 cycles per min	< 2.5%	pass
Breathing resistance	Probed headform with breathing machine	30 cycles	-2.1 +0.58	pass
Soot particulate	Breathing resistance with 200 mg/m ³ soot	5 mins	<153 mm	pass

Tests to ANSI 110: Gas and Particulate Tests

Challenge	Type	Concentration ppm	Requirement	Result
Carbon monoxide	Hazardous combustion by-product	3,000	15 mins	> 30 mins
Carbon monoxide	Hazardous combustion by-product	5,000	15 mins	> 30 mins
Hydrogen cyanide	Hazardous combustion by-product	400	15 mins	> 30 mins
Hydrogen chloride	Acid gas toxic industrial chemical	1,000	15 mins	> 30 mins
Sulfur dioxide	Acid gas toxic industrial chemical	100	15 mins	> 30 mins
Cyclohexane	Organic vapor toxic industrial chemical	500	15 mins	24 mins
Acrolein	Organic vapor toxic industrial chemical	100	15 mins	26 mins
Diocetyl phthalate	Particulate aerosol 0.185 micron	200 mg/m ³	>95%	pass

Additional Gas and Particulate Tests beyond the Requirements of ANSI 110

Challenge	Type	Concentration ppm	Requirement	Result
Carbon monoxide	Hazardous combustion by-product	10,000	15 mins	> 30 mins
Diocetyl phthalate (DOP)	HEPA filtration test for particulates and aerosols	200 mg/m ³	>99.97%	>99.996%
Ammonia	Toxic industrial gas	1,250	15 mins	> 60 mins
Formaldehyde	Toxic industrial gas	250	15 mins	> 60 mins
Phosgene	Toxic industrial gas	125	15 mins	> 60 mins
Phosphine	Toxic industrial gas	150	15 mins	> 60 mins
Chlorine	Toxic industrial gas	200	15 mins	> 60 mins
DMMP	Simulant for sarin nerve gas	1,000	15 mins	> 60 mins
Hydrogen sulfide	Toxic industrial gas	1,000	15 mins	>600 mins
Hydrogen sulfide	Toxic industrial gas	5,000	15 mins	>85 mins

Tear Gas (CN)	Irritant toxic chemical	16	15 mins	>500 mins
Tear Gas (CS)	Irritant toxic chemical	3	15 mins	>500 mins

Legal and trademark information. Copyright © 2008 Elmridge Protection Products, LLC. All rights reserved.

