Ansell

THE MEDICAL EXAMINERS & MORTUARY INDUSTRY

Protecting workers in a risk-filled sector

Medical examiners and mortuary workers face unique biological, chemical, and physical hazards to their health in the daily course of doing their jobs. These hazards include exposure to embalming fluids and chemicals such as formaldehyde, as well as airborne and bloodborne pathogens and COVID-19. To provide peace of mind during these challenging periods, Ansell PPE protects medical examiners and mortuary workers from the wide range of hazards they face.

Industry Chemicals

The embalming fluid used to preserve bodies typically contains a mixture of different chemicals, the major ones being formaldehyde, glutaraldehyde, methanol, phenol, acetone, and lutensit A-BO. Exposure to embalming products such as glutaraldehyde and formaldehyde can pose serious health risks to workers and can worsen existing health problems.

Formaldehyde is the harshest substance that these professionals handle; it has been identified as a carcinogen. It is highly toxic if inhaled, touched or ingested. The formaldehyde content in embalming fluid generally ranges from 5% to 37%.

Short and long term effects

Short-term effects from exposure to formaldehyde occur when it is present in the air at levels exceeding 0.1 parts per million (ppm). Embalmers are usually exposed to formaldehyde at concentrations averaging up to 9 ppm during embalming, making them particularly vulnerable to short-term effects.[1] Those include eye, nose, throat and skin irritation such as erythema, edema, vesiculation, hives or allergic contact dermatitis.[2] Exposure to liquid formalin or formaldehyde vapor can provoke skin reactions in sensitized individuals even when airborne concentrations of formaldehyde are well below 1 ppm.[3]

In some cases, long-term inhalation exposure can even lead to nose and throat cancers as well as leukemia.

Wearing adequate PPE is essential. If the wrong PPE is used, or if it is not fitted correctly, it is unlikely to provide adequate protection. Ansell has a well-rounded portfolio that provides robust protection to mortuary workers. From gloves to body protection, Ansell ensures that they are equipped to handle chemicals and biological matter, reducing the risk of harmful exposure.

Mortuary workers are almost
4.5x more likely to contract ALS (Lou Gehrig's Disease)
than people with no formaldehyde exposure at their jobs.[4]

Following OSHA protocols, good ventilation, proper PPE, and regular health monitoring are essential to maintaining worker health. In recognition of the hazards outlined above, mortuary and funeral home employers must abide by OSHA standard 1910.1048 to avoid the long and short-term health effects of harmful chemicals.[5] The standard also outlines specific medical actions to be taken in event of direct exposure to bloodborne pathogens.

> **"Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures and when handling or touching contaminated items or surfaces."[5]**
>
> *- OSHA standard 1910.1030(d)(3)(ix)*

AnsellGUARDIAN® Chemical for the Mortuary Industry

AnsellGUARDIAN® Chemical is a service that evaluates the resistance of glove materials against chemicals to offer a risk assessment with expected permeation breakthrough times. The AnsellGUARDIAN® Chemical database contains over 7,000 single chemicals and 17,500 mixed chemicals. This assessment can either be carried out during a personal consultation with one of our AnsellGUARDIAN® specialists or online by using our chemical permeation database. As a result, selecting the right chemical glove and suit has never been easier.

Material				Nitrile	Nitrile	Neoprene	Nitrile	Nitrile	Nitrile/ Neoprene
Thickness (mm)				N/A	0.46	0.16	0.14	0.14	0.20
Style				AlphaTec® 58-735	AlphaTec® Solvex® 37-175	MICROFLEX® NeoPro™ EC NEC-288	MICROFLEX® SUPRENO™ EC SEC-375	MICROFLEX® LIFESTAR EC™ LSE-104	MICROFLEX® 93-260
CAS	Chemical Name	%	PS						
50-00-0	Formaldehyde	37	I	>480'	240-480'	240-480'	>480'	>480' C	>480' C
111-30-8	Glutaraldehyde	50	I	>480'	>480'	>480'	>480'	>480'	>480'
67-56-1	Methanol	50	I	>480'	>480'	10-30'	30-60'	60-120'	60-120'
108-95-2	Phenol	90	I	30-60'	60-120'	10-30'	<10'	<10'	10-30'
67-64-1	Acetone	50	I	10-30'	10-30'	<10'	<10'	<10'	<10'
	Lutensit A-BO		I	60-120'	60-120'	10-30'	30-60'	30-60'	30-60'

Permeation Breakthrough Times (min)

PS - Physical State, A - Aerosol, G - Gas, L - Liquid, P - Paste, S - Solid

Not Recommended Splash Protection Medium Protection Good Protection

Permeation breakthrough time is the time (in minutes) for the chemical in question to permeate through the material at a rate of 1.0 µg /cm²/min (as per EN ISO 374) or 0.1 µg /cm²/min (as per ASTM F739).

Protection Solutions

CHEMICAL SPLASH PROTECTION GLOVES			RISKS
MICROFLEX® LIFESTAR EC™ LSE-104	**MICROFLEX® SUPRENO™ EC SEC-375**	**MICROFLEX® NeoPro™ EC NEC-288**	Examination gloves are recommended to protect against accidental splashes, or when handling hazardous chemicals for **short periods of time**. They are also worn to protect against exposure to bloodborne or airborne diseases (i.e. HIV, hepatitis B and C) and tuberculosis.
Dual-layer gloves that offer barrier protection against opioids and chemical hazards	Durable nitrile gloves with extended cuff	Exceptional grip in wet and dry environments	
			

CHEMICAL PROTECTION GLOVES			RISKS
AlphaTec® 58-735	**AlphaTec® Solvex® 37-175**	**MICROFLEX® 93-260**	Chemical protection gloves are recommended in case of contact with hazardous chemicals for **long periods of time**.
Cut-protective chemical-resistant gloves with high-visibility liner for advanced protection	Durable, comfortable chemical gloves that offer versatile hand protection	Three layer design chemical-resistant disposable gloves that offer tough chemical protection and unparalleled comfort	
			

CHEMICAL BODY PROTECTION				RISKS
AlphaTec® 2000 STANDARD Bound - Model 111		**AlphaTec® 56-802**		Chemical protective clothing can be worn in addition to gloves, to be fully protected for the job.
Superior, breathable microporous laminate protective suit that is ideal for industrial applications		Endurosaf™ high performance aprons		

See below table for detailed product recommendations.

Roles, risks and recommendations

Title	Hazards	Product recommendations
Forensic Technician	• Manual handling involving grip	**MICROFLEX® 93-260** **MICROFLEX® NeoPro™ EC NEC-288** **MICROFLEX® LIFESTAR EC™ LSE-104** **MICROFLEX® SUPRENO™ EC SEC-375** **AlphaTec® 56-802**
Medical Examiner's Office	• Bloodborne diseases (i.e. HIV, Hepatitis B, and Hepatitis C) • Airborne diseases (i.e. tuberculosis)	**MICROFLEX® 93-260** **MICROFLEX® NeoPro™ EC NEC-288** **MICROFLEX® LIFESTAR EC™ LSE-104** **MICROFLEX® SUPRENO™ EC SEC-375** **AlphaTec® 56-802**
Pathologist	• Airborne and bloodborne pathogens • Cutting, slicing, incising, sawing • Organ manipulation • Undertaking special tests with equipment • Musculoskeletal diseases (MSDs)	**MICROFLEX® 93-260** **MICROFLEX® NeoPro™ EC NEC-288** **MICROFLEX® LIFESTAR EC™ LSE-104** **MICROFLEX® SUPRENO™ EC SEC-375** **AlphaTec® 2000 STANDARD Bound - Model 111** **AlphaTec® Solvex® 37-175** **AlphaTec® 56-802** **AlphaTec® 58-735**
Pathologist/Lab Tech	• Airborne and bloodborne pathogens • Cut, lacerations and puncture • Wet grip	**MICROFLEX® 93-260** **MICROFLEX® NeoPro™ EC NEC-288** **MICROFLEX® LIFESTAR EC™ LSE-104** **MICROFLEX® SUPRENO™ EC SEC-375** **AlphaTec® Solvex® 37-175** **AlphaTec® 56-802** **AlphaTec® 2000 STANDARD Bound - Model 111** **AlphaTec® 58-735**
Funeral Home Employees	• Airborne and bloodborne pathogens • Manual handling • Puncture	**MICROFLEX® 93-260** **MICROFLEX® NeoPro™ EC NEC-288** **MICROFLEX® LIFESTAR EC™ LSE-104** **MICROFLEX® SUPRENO™ EC SEC-375** **AlphaTec® 56-802** **AlphaTec® 58-735**
Mortician	• Chemical exposure to formaldehyde and other commonly-used chemicals • Airborne and bloodborne pathogens • Musculoskeletal diseases (MSDs)	**MICROFLEX® 93-260** **AlphaTec® Solvex® 37-175** **AlphaTec® 56-802** **AlphaTec® 58-735** **AlphaTec® 2000 STANDARD Bound - Model 111**

REFERENCES

1 https://www.cdc.gov/niosh/docs/hazardcontrol/hc26.html#:~:text=Short%2Dterm%20exposures%20to%20this,the%20lungs%2C%20followed%20by%20death
2 https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet#:~:text=through%20the%20skin.-,What%20are%20the%20short%2Dterm%20health%20effects%20of%20formaldehyde%20exposure,%3B%20nausea%3B%20and%20skin%20irritation
3 OSHA
4 BMJ Journals https://jnnp.bmj.com/content/87/7/786
5 https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1048AppC

For more information, please reach out to your local Ansell Sales Representative or Customer Service Representative.
www.ansell.com