

ASSI Teclog AG

BERICHT VON ANSELL CHEMICAL GUARDIAN

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Haftungsausschluss

In diesem Bericht finden Sie Informationen über die Barriereleistung, die persönliche Schutzausrüstungen (PSA) gegen von Ihnen gewählte Chemikalien erbringen. Diese Informationen sind dazu gedacht, dem Arbeitsschutzbeauftragten in Ihrer Organisation fundiertere Entscheidungen darüber zu ermöglichen, welche PSA von Ansell den besten Schutz für die vorgesehenen Arbeitsbedingungen bietet. Außerdem werden sie Ihnen bei der Durchführung einer Risikobewertung für Ihre Organisation helfen.

Wir möchten nachdrücklich darauf hinweisen, dass die Permeationszeiten nicht mit sicheren Tragezeiten gleichzusetzen sind. Die sichere Tragezeit ist abhängig vom ordnungsgemäßen Anziehen der PSA, der Umgebungstemperatur, der Toxizität der Chemikalie, sowie einer Reihe anderer Faktoren. Zuständig für die Durchführung einer Risikobewertung, vor der Auswahl der für die jeweilige Arbeit geeigneten PSA, ist der Beauftragte für Arbeits- und Gesundheitsschutz Ihres Unternehmens. Falls Sie einen Aspekt ausführlicher besprechen möchten, setzen Sie sich mit uns in Verbindung. Die Schätzungen der Barrierschutzeigenschaften von Handschuhen und PSA basieren auf Extrapolationen von Labortestergebnissen, sowie Informationen über die Zusammensetzung der Chemikalien. Synergieeffekte durch ein Mischen von Chemikalien sind hier nicht berücksichtigt.

Schätzwerte können sich ändern, wenn neu durchgeführte Tests bessere Grundlagen für Extrapolationen bieten. Aus diesen Gründen erfüllen die in diesem Bericht enthaltenen Informationen ausschließlich eine beratende Funktion und Ansell schließt aus diesem Grund eine Haftung, sowie eine Gewährleistung der hier getroffenen Aussagen in vollem Umfang aus.

Legende für Handschutz

Permeationsdurchbruchzeiten



<10	Nicht empfohlen
10-30	Spritzschutz
30-60	Spritzschutz
60-120	Mittlerer Schutz
120-240	Mittlerer Schutz
240-480	Guter Schutz
>480	Guter Schutz

PS - Physischer Zustand, A - Sprühdose,
G - Gas, L - Flüssigkeit, P - Paste, S -
Feststoff

Die normalisierte Permeationsdurchbruchzeit ist die Zeit (in Minuten), die die betreffende Chemikalie benötigt, um das Material mit einer Rate von $1,0 \mu\text{g} / \text{cm}^2 / \text{min}$ (nach EN ISO 374) oder $0,1 \mu\text{g} / \text{cm}^2 / \text{min}$ (nach ASTM F739) zu durchdringen.



Permeationsdurchbruchzeiten

Die in diesem Chart angegebenen Permeationsdurchbruchzeiten wurden gemäß der Norm EN ISO 374 evaluiert. Farbige Zellen mit Zahlen und dem Symbol (C) entsprechen experimentell ermittelten Daten eines akkreditierten Labors. Der Rest der Zellen entspricht Schätzungen.

Material				PVA	LLDPE
Wandstärke (mm)				N.A.	0.062
Marke				AlphaTec®	AlphaTec®
Product Group				15-554	02-100
CAS	Chemischer Name	%	PS		
67-56-1	(A) Methanol	100	I	5' C	>480' C
67-64-1	(B) Acetone	100	I	101' C	>480' C
75-05-8	(C) Acetonitrile	100	I	330' C	>480' C
75-09-2	(D) Dichloromethane	100	I	>480' C	65' C
75-15-0	(E) Carbon disulphide	100	I	>480' C	>480' C
108-88-3	(F) Toluene	100	I	>480' C	>480' C
109-89-7	(G) Diethylamine	100	I	9' C	>480' C
109-99-9	(H) Tetrahydrofuran	100	I	52' C	>480' C
141-78-6	(I) Ethyl acetate	100	I	>480' C	>480' C
142-82-5	(J) n-Heptane	100	I	>480' C	>480' C
1310-73-2	(K) Sodium hydroxide	40	I	<10'	>480'
7664-93-9	(L) Sulphuric acid	96	I	<5' C	>480' C
7697-37-2	(M) Nitric acid	65	I	<10'	>480' C
64-19-7	(N) Acetic acid	99	I	<10'	120-240'
1336-21-6	(O) Ammonium hydroxide	25	I	<10'	27' C

Permeationsdurchbruchzeiten

Die in diesem Chart angegebenen Permeationsdurchbruchzeiten wurden gemäß der Norm EN ISO 374 evaluiert. Farbige Zellen mit Zahlen und dem Symbol (C) entsprechen experimentell ermittelten Daten eines akkreditierten Labors. Der Rest der Zellen entspricht Schätzungen.

Material				PVA	LLDPE
Wandstärke (mm)				N.A.	0.062
Marke				AlphaTec®	AlphaTec®
Product Group				15-554	02-100
CAS	Chemischer Name	%	PS		
7722-84-1	(P) Hydrogen peroxide	30	I	<10'	>480'
7664-39-3	(S) Hydrofluoric acid	40	I	<10'	>480' C
50-00-0	(T) Formaldehyde	37	I	<10'	>480'

Acetone

What is Acetone?

Acetone, or 2- propanone, is the simplest and smallest ketone that can be found naturally in the environment and can also be produced by industries. It is a colorless, highly volatile, and flammable liquid with a characteristic sweet, mint-like odor.

Pictogram



Signal word

Danger

What are the associated health risks of exposure to Acetone?

Acetone can affect you when inhaled and may be absorbed through the skin. Short term exposure can irritate the eyes, respiratory tract, and skin. Exposure to high concentrations can cause dizziness, lightheadedness, and unconsciousness. Repeated skin exposure to acetone can cause dryness, irritation, and skin cracking with redness. The effects of long-term acetone exposure have been mostly studied in animals, and include kidney, liver, and nerve damage, birth defects and male infertility

Where is Acetone used?

Acetone is used in the manufacture of many chemicals (e.g., acetic acid, chloroform) to produce plastics, fibers, paints, coatings, drugs and cleaning products. Acetone finds also wide applications in various industries as an organic solvent. Its complete miscibility (can mix at any concentration) with water and its miscibility with numerous other solvents permits its use with them, thereby increasing their individual efficiency. Low-grade acetone is commonly found in academic laboratory settings as a

glassware rinsing agent for removing residue and other contaminants. Acetone is also found commercially as the primary component in cleaning agents such as nail polish as well as superglue and removers. Because it is an excellent solvent, acetone *wipes* remove many substances other methods struggle with, therefore are suitable for *aerospace*, automotive and other *industrial* applications.

Role of PPE

Personal protective equipment must always be the last line of protection and wherever possible, proper safe handling practices must be used to limit or eliminate the amount of direct contact with hazardous chemicals.

A good permeation barrier to a chemical does not guarantee safety, therefore careful selection must be made when choosing appropriate PPE. The PPE can only be selected after a full risk assessment is conducted by Health and Safety Manager to identify all hazards in the workplace.

What kind of protection is needed for Acetone?

Since acetone is a polar molecule, non-polar gloves such as butyl (e.g., AlphaTec® 38-514, 38-520 and 38-560) provide good protection against pure acetone. AlphaTec® 02-100 also protects against it, however it cannot provide mechanical protection. The AlphaTec® 4000 material is suggested for body protection if a good permeation barrier is needed but the AlphaTec® 3000 material also offers a short term permeation barrier. For those applications, where the exposure is very limited (e.g., acetone wipes where acetone evaporates rapidly), Microflex® 93-260 and NPG-888 could be used for splash protection and dexterity, and penetration barriers such as the AlphaTec® 2000 may be considered. Thick natural latex gloves could also be used for splash protection, but not for prolonged contact.

Please contact AnsellGuardian® Chemical team if more information is desired.

Hydrogen fluoride/Hydrofluoric acid

What is Hydrofluoric acid/Hydrogen Fluoride?

Hydrogen fluoride (CAS# 7664-39-3) is an extremely dangerous, corrosive chemical and a contact poison, making it extremely hazardous even at low concentrations. It can exist as a colorless gas or as a fuming liquid, or it can be dissolved in water. When it is dissolved in water, it is called hydrofluoric acid.

What are the associated health risks of exposure to Hydrofluoric acid/Hydrogen Fluoride?

Hydrofluoric acid is readily absorbed by human tissues. However, it often shows no immediate noticeable effects because it reacts with the nerve endings at the point of contact. After this chemical has entered the tissue, it can enter the bloodstream and bones where it reacts with the calcium causing, among other things, **bone damage**, **gangrene**, **severe burns** and **death**.



In what forms can Hydrofluoric/Hydrogen Fluoride be found?

Hydrogen Fluoride Pure form; A gas at room temperature but it is often handled below 19.5 °C (67 °F); it is a liquid below this point. A colourless liquid or gas with an irritating odour.

Hydrofluoric acid Hydrogen Fluoride dissolved in water, can be up to 99% Hydrogen fluoride. A colourless liquid that at lower concentrations may be indistinguishable from water.

Where is Hydrofluoric acid/Hydrogen Fluoride used?

Hydrofluoric acid/Hydrogen fluoride is widely used in different industrial applications. It is utilized in different concentrations to produce refrigerants, herbicides, pharmaceuticals, gasoline, stainless steel kitchen products, aluminum, plastics, and electrical components.

In laboratories applications and industrial settings, hydrofluoric acid can be used for etching glass and enamel, removing rust, and cleaning brass and crystal. It also is used in manufacturing silicon semiconductor chips and as a catalyst in oil refineries to make high-octane gasoline as well as power nuclear reactors.

Role of PPE

Personal protective equipment must always be a last line of protection and wherever possible, proper safe handling practices must be used to limit or eliminate the amount of direct contact with hazardous chemicals.

A good permeation barrier to a chemical does not guarantee safety and careful selection must be made when choosing appropriate safety clothing. Appropriate PPE can only be selected after a full risk assessment to identify the hazards and decide what appropriate type of clothing that has been deemed necessary.

What kind of hand protection is needed for Hydrofluoric acid?

Hydrogen fluoride/Hydrofluoric acid

Depending on the concentration, an appropriate Hand protection can be used. Generally, the thick **butyl/Viotn, butyl** gloves provide good level of protection whereas **LDPE** materials provide medium protection level. Even though the very low concentration of hydrofluoric acid can be **fatal**, other hand protection gloves materials could be considered when the end-user handles different concentrations.

What kind of body protection is needed using Hydrogen fluoride?

Barrier Information

The below suits may not be appropriate for all situations and may or may not provide a full permeation barrier. For a full list of breakthrough times please request a Chemical Guardian report.

Hydrogen Fluoride, Gas

As a gaseous hazard, a gas-tight suit may be considered, this would include the AlphaTec® 6000 and the AlphaTec® Super and up.

Under certain situations a risk assessment may find a gas-tight suit is not necessary, in which case the AlphaTec® 4000 and 5000 have both been tested against this gas, with the AlphaTec® 5000 having particularly good permeation times.

Hydrogen Fluoride, Liquid

Hydrogen Fluoride is a liquid when below 19.5 °C (67 °F), however it is often handled much colder than this. As our body protection range is not designed to offer any thermal protection, additional thermal protective clothing may have to be worn under the garment to prevent frostbite.

Several materials in our body protection range have been tested against Hydrogen fluoride liquid. The AlphaTec® 4000 may be suitable for lower levels of exposure while the AlphaTec® 5000 shows a good permeation barrier. For gas-tight suit options the AlphaTec® 6000 would be expected to offer a medium to good permeation barrier. AlphaTec® VPS, Flash and EVO would all be expected to show medium to good permeation barriers.

Hydrofluoric acid

The barrier offered by Ansell body protection suits will vary depending on the concentration of the Hydrofluoric acid handled. For general barriers, we would expect the AlphaTec® 3000 to show a barrier to concentrations of Hydrofluoric acid below 50 % and a medium barrier up to 75 %. We would expect the AlphaTec® 4000 to show a good barrier to concentrations of Hydrofluoric acid up to 75% and a medium barrier above this. We would expect the AlphaTec® 5000 to offer a good barrier at any concentration of Hydrofluoric acid.

In gas-tight suits category, we would expect a good barrier from the AlphaTec® 6000 at any concentration of Hydrofluoric acid and a good barrier from the AlphaTec® VPS, FLASH and EVO.

Although most of our non-gastight chemical protective suits offer at least some protection to this chemical, the AlphaTec® 4000 and 5000 may be considered for their greater mechanical strength.

Please contact Ansell Guardian Chemical Technical team if more information is desired.