

## What are glycol ethers and what gloves can be recommended against them?

Glycol ethers are solvents; i.e. liquid petrochemical substances, and form a group of approximately 80 different chemicals (glycol ethers and derivatives).

We can identify two important groups of glycol ethers and their derivatives:

- E-series: derivatives from ethylene glycol (EGE)
- P-series: derivatives from propylene glycol (PGE)

Glycol ethers have an important unusual property: these compounds are both soluble in water and in oils. Because of this feature, they are excellent solvents and enable non-miscible substances to be mixed with each other.

Glycol ethers are quite environmental-friendly, as they break down rapidly under reaction with sunlight and are biodegradable in aquatic environments.

When referring to glycol ethers, this usually includes the glycols themselves (EGE or PGE), the derived ethers and/or the acetates.

### What are they used for?

Glycol ethers are in use for more than 50 years in a vast range of very different applications. In consumer products they are found in cosmetics, cleaning and household products, glues, etc. In the industry, they are present in the following areas: painting, printing, textile and dyeing, cosmetics, etc.

### Which health effects are related to glycol ethers?

Each glycol ether has its own typical toxic properties. Few of them have reproductive toxic effects (EGEE, EGME, EGEEA, EGMEA, DEGDME), although there's a tendency to replace those by less hazardous substances. Under the right conditions, glycol ethers can be used without any risks for the health of the user.

Also, glycol ethers used in consumer goods (detergents, cosmetics) present no risk to the health. However, when using detergents it is recommended to wear gloves to avoid any skin irritations, as recommended for any chemical substances.

The 5 glycols ethers identified as the most hazardous are completely banned from consumer goods.

### What gloves can be recommended for use with glycols / glycol ethers?

Based on EN374 test results and different publications (with sometimes contradictory information), the following chart was produced. The data should only be treated as guidelines and have to be tested in practice. As a general guideline, we recommend to determine the time of use of a chosen glove in practice and in function of the application.

Generally, we recommend Barrier<sup>®</sup> gloves as a first option, and neoprene (Scorpio<sup>®</sup>) or nitrile (Solvex<sup>®</sup>, Alphatec<sup>®</sup>) gloves for limited exposures.

Glycol ethers have a lot of synonyms, so it is useful to use the CAS-number and/or abbreviation to indicate them, as stated in the table below.

*Recommendations made in this note are based on extrapolations from laboratory test results and information regarding the composition of chemicals and may not adequately represent specific conditions of end use. Synergistic effects of mixing chemicals have not been accounted for. For these reasons, and because Ansell has no detailed knowledge of or control over the conditions of end use, any recommendation must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.*

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### Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				Butyl	LLDPE	Neoprene	Neoprene	Nitrile	Nitrile	Nitrile/Neoprene	PVA	PVC	Viton Butyl
Thickness (mm)				0.35	0.062	0.13	N.A.	0.12	0.38	0.19	N.A.	N.A.	0.2
Product Name / Style				ChemTek	Barrier	NeoTouch	Scorpio	TouchNTuff	Solvex	Microflex	PVA	Snorkel	ChemTek
Type	CAS	Chemical name	%	38-514	02-100	25-101.201	08-352.354	92-500.600.605 / 93-250.300.700	37-675.676	93-260	15-554	04-414	38-612
sgl	107-21-1	Ethylene Glycol	100	>480'	>480'	30-60'	>480'	30-60'	>480'	>480'	120-240'	>480'	>480'
sgl	107-98-2	Propylene Glycol-1-methylether	100	240-480'	>480'	10-30'	60-120'	14'	236'	30-60'	>480'	10-30'	240-480'
sgl	108-65-6	1-Methoxy-2-Propylacetate	100	>480'	>480'	<10'	10-30'	<10'	132'	30-60'	>480'	<10'	10-30'
sgl	109-86-4	Methyl Glycol	100	>480'	>480'	30-60'	240-480'	10-30'	60-120'	30-60'	>480'	<10'	>480'
sgl	110-49-6	Ethylene glycol monomethyl ether acetate	100	120-240'	>480'	10-30'	60-120'	<10'	10-30'	10-30'		<10'	
sgl	110-80-5	Ethyl Glycol	100	>480'	>480'	30-60'	290'	30-60'	120-240'	120-240'	60-120'	10-30'	60-120'
sgl	111-15-9	Ethyl glycol ethyl ether acetate	100	>480'	>480'	<10'	30-60'	10-30'	60-120'	30-60'	>480'	10-30'	
sgl	111-76-2	Butylglycol	100	>480'	>480'	30-60'	>480'	10-30'	240-480'	240-480'	120-240'	<10'	>480'
sgl	112-07-2	Ethylene glycol monobutyl ether acetate	100	120-240'	>480'	<10'	<10'	<10'	10-30'	10-30'	240-480'	<10'	10-30'
sgl	34590-94-8	Dipropyleneglycolmonomethylether	100	>480'	>480'	60-120'	240-480'	60-120'	>480'	240-480'	>480'		>480'
sgl	57-55-6	Propylene Glycol	100	>480'	>480'	30-60'	>480'	30-60'	>480'	>480'	>480'	>480'	>480'