Recommendation on Chemical Resistance

Below protective gloves have been tested in accordance with EN 16523-1:2015+A1:2018 “Determination of material resistance to permeation by chemicals” and achieve following test results.

Caution: Damaged or swelling gloves shall be changed immediately!
For reason of precaution it is recommended to change gloves after 2 hours!

TEST RESULTS by:

- **ProQares, Rijswijk, The Netherlands**
- **ARDL Akron Rubber Development Laboratory, Ohio, USA**
- **SATRA Technology Centre, UK**
- **SIRIM Berhad, Malaysia**

Chemicals (synonyms)	Brand Name	semperguard® sapphire	semperguard® sapphire XP black	semperguard® sapphire XP	semperguard® force blue	semperguard® force black	semperguard® Xpert black	semperguard® Xpert	semperguard® iconiX
	Cas-No. / Spec Code	NOF-030VB	NOF-035BK	NOF-035VB	NOF-047OB	NOF-050BK	NOF-065BK	NOT-063GB	NOF-085DB-D
Acetic acid (10%)	64-19-7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Level 6
Acetic acid (99%)	64-19-7	X	X	X	A	A	A	A	A
Acetone (2-propanone, methyl ketone)	67-64-1	X	X	X	X	X	X	X	X
Acetonitrile (cyanomethane, ethyl nitrile)	75-05-8	X	X	X	X	X	X	X	X
Acryl amide (40%)	79-06-1	n/a	n/a	n/a	n/a	n/a	Level 6	Level 6	Level 6
Ammonium hydroxide (25%)	1336-21-6	A	A	A	n/a	n/a	Level 1	Level 1	Level 1
Benzalconiumchloride liquid (Quarts)	63449-41-2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chlorhexidindigluconat (4%)	18472-51-0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chlorhexidindigluconat (20%)	18472-51-0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chloroform (99%) (trichlormethan)	67-66-3	X	X	X	X	X	X	X	X
Cyclohexanol (Hexalin / at 23°C)	108-93-0	n/a	X	X	X	X	n/a	n/a	n/a
Dichlormethan (Methylendichlorid, Freon 30)	75-09-2	X	X	X	X	X	X	X	X
Diethyl amine (DEA)	109-89-7	X	X	X	X	X	X	X	X
Diethyl ether (diethyloxid, ethoxyethane)	60-29-7	X	X	X	X	X	X	X	X
Dimethylsulfoxid DMSO (deltan, demasorb)	67-68-5	X	X	X	X	X	n/a	n/a	n/a
Ethanol (20%) (ethyl alcohol)*	64-17-5	n/a	n/a	n/a	X	X	Level 6	Level 6	Level 6
Ethanol (35%) (ethyl alcohol)*	64-17-5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ethanol (70%) (ethyl alcohol)*	64-17-5	A	Level 1	Level 1	A	A	n/a	n/a	Level 6
Ethidium bromide (1%) (homidium bromide)	1239-45-8	n/a	Level 6	n/a	n/a	n/a	Level 6	Level 6	Level 6
Ethidium bromide (5%) (homidium bromide)	1239-45-8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ethyl acetate (Aceto acid ether)	141-78-6	n/a	X	X	X	X	n/a	n/a	n/a
Formaldehyd (37%) with Methanol (10%)	50-00-0	Level 4	Level 4	Level 4	Level 4	Level 4	Level 5	Level 5	Level 5
Gasoline (Petrol, heavy, 150 - 190°C)	8032-32-4	X	X	X	X	X	X	X	X
Glutaraldehyde (5%) (Pentan-1,5- dial, Glutaral)	111-30-8	n/a	n/a	n/a	n/a	n/a	Level 6	Level 6	Level 6
Glutaraldehyde (50%) (Pentan-1,5- dial, Glutaral)	111-30-8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Heptane - n	142-82-5	Level 1	Level 1	Level 1	n/a	n/a	Level 6	Level 6	Level 6
Hexane - n	110-54-3	n/a	X	X	A	A	n/a	n/a	Level 6
Hydrochloric acid (10%) (muriatic acid, chlorhydric acid)	7647-01-0	n/a	Level 6	n/a	n/a	n/a	Level 6	Level 6	Level 6
Hydrochloric acid (36%) (muriatic acid, chlorhydric acid)	7647-01-0	n/a	A	A	n/a	n/a	Level 4	Level 4	Level 6
Hydrofluoric acid (40%)	7664-39-3	n/a	n/a	n/a	A	A	A	A	A
Hydrogen peroxide (30%)	7722-84-1	Level 2	Level 2	Level 2	Level 2	Level 2	Level 3	Level 3	Level 3
Isopropyl alcohol (40%) (2-propanol, IPA)*	67-63-0	n/a	Level 6	Level 6	n/a	n/a	n/a	n/a	Level 4
Isopropyl alcohol (70%) (2-propanol, IPA)*	67-63-0	Level 6	Level 1	Level 1	n/a	n/a	Level 6	Level 6	Level 4
Methanol p.a. (methyl alcohol)*	67-56-1	X	X	X	X	X	X	X	X

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	Cas-No. / Spec Code	NOF-030VB	NOF-035BK	NOF-035VB	NOF-047OB	NOF-050BK	NOF-065BK	NOT-063GB	NOF-085DB-D
Methanol 5%	**67-56-1**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Level 6
Nitric acid (10%)	**7697-37-2**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nitric acid (50%)	**7697-37-2**	n/a	A	A	A	A	n/a	n/a	n/a
Nitric acid (65%)	**7697-37-2**	X	X	X	A	A	A	A	A
Phenol (0,1%)	**108-95-2**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Phenol (10%)	**108-95-2**	X	X	X	X	X	n/a	n/a	n/a
Povidone iodine (10%)	**25655-41-8**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Potassium Hydroxide (50%)	**1310-58-3**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Level 6
Sodium hydroxide (40%) (caustic soda, lye, white caustic)	**1310-73-2**	Level 6	Level 6	Level 6	Level 6	Level 6	Level 6	Level 6	Level 6
Sodium hypochlorite (10%)	**7681-52-9**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sodium Percarbonate (10%)	**15630-89-4**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sulfuric acid (50%) (vitriol)	**7664-93-9**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sulfuric acid (96%) (vitriol)	**7664-93-9**	A	A	A	A	A	A	A	A
Toluene (methylbenzol, phenylmethan, toluol)	**108-88-3**	X	X	X	X	X	X	X	X
Trichlorethane (methyltrichloromethane)	**71-55-6**	X	X	X	X	X	X	X	X
Xylene (xylol, dimethylbenzene)	**95-47-6**	X	X	X	X	X	X	X	X

X	Not Recommended	Level 3	> 60min
A	Splash Protection - change glove immediately after contact!	Level 4	> 120min
Level 1	> 10min	Level 5	> 240min
Level 2	> 30min	Level 6	> 480min

* Special caution advised in conjunction with concentrated alcohols and organic solutions.
n/a ..... not available

IMPORTANT NOTE: The latest chemical resistance list can be found at www.sempermed.com. Please note that the product characteristics are directly dependent on the conditions of use and on the purity of the chemical substances concerned. The chemical resistance has been assessed under laboratory conditions and cannot reflect all actual conditions. When working with materials that are harmful to the skin, please always inspect the glove for any holes or tears prior to use. In principle, tests and certificates may only be regarded as general indications and do not exempt the user from the responsibility of making sure that the glove affords the protection requirements for the intended purpose prior to use. The chemical resistance recommendations do not form part of the specifications.

CAUTION: Failure to observe this information, in particular with regard to (chemical) resistance, frequency of use and tolerability of the gloves, can result in personal injury and/or material damage. HARPS does not accept any liability for incorrect use of the gloves. In case of doubt, obtain expert advice before use.

This document was issued electronically and is therefore valid without signature and has a validity of up to two years.

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