



PROTECTION

StarGuard[®] Gloves

A range of disposable gloves to cover a wide variety of daily routines

Passionate for Science.



www.starlabgroup.com

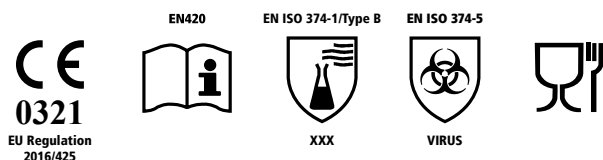
Your Personal Protection



Providing certified protection

Our range of StarGuard® gloves are in compliance with the highest EN safety standards. For the newest EN ISO 374-1, all gloves are classified as Type B and therefore belong to a high protection class against chemicals and micro-organisms. Two of our gloves have an **Acceptable Quality Level (AQL) of 0.65**.

All gloves have been tested against a variety of chemicals to EN16523-1:2015 standards (see *Chemical Break-through Times available separately*). For EN ISO 374-5, they also fulfill the ISO 16604:2004 which states the protection against bacteria, fungi and virus.



STARLAB is committed to providing the best hand protection available. Regardless of the application and user preferences, our four StarGuard® disposable gloves offer daily protection in the laboratory without sacrificing comfort.

Choose the StarGuard® glove best suited to your daily demands:

COMFORT – for enhanced nitrile comfort and dexterity

PROTECT – for nitrile strength and durability

SENSITIVE – comfortable nitrile protection that is clinically proven to reduce the potential of contact dermatitis

TOUCH – if you prefer the secure grip and tactile sensitivity of latex

Manufactured to the highest standards

All StarGuard® gloves are manufactured to the highest standards and have been tested and certified by a third-party notified body.

ALL StarGuard® gloves are in compliance with:

- ▶ EU Regulation 2016/425, PPE Category III.
- ▶ European Medical Device Directive 93/42/EEC, Class I Medical Device
- ▶ EN 420:2003 General requirements for protective gloves
- ▶ EN ISO 374-1:2016 Protection against chemicals and micro-organisms
- ▶ EN 374-2:2014 Protection against penetration by micro-organisms
- ▶ EN 16523-1:2015 Permeation by liquid chemicals under conditions of continuous contact
- ▶ EN 374-4:2013 Determination of resistance to degradation
- ▶ EN ISO 374-5:2016 Requirements for micro-organisms risks
- ▶ ISO 16604:2004 Protection against penetration by blood-borne pathogens
- ▶ EN 455 Parts 1, 2 & 3 Medical gloves for single use
- ▶ ISO 11193-1 Single-use medical gloves
- ▶ ISO 21171 / ASTM D6124 Determination of removable surface powder
- ▶ Regulation (EC) No 1935/2004 approved for testing and handling food stuffs

 www.starlab.click/protection

Guidelines and standards

Personal Protective Equipment

In Europe, Personal Protective Equipment (PPE) is either a device, clothing, glove or appliance, worn or held by a person at work, which is designed to protect that person against one or more health and/or safety hazards.

There are three categories of PPE:

- ▶ Category I (Simple Design) – for use against minimal or minor risks
- ▶ Category II (Intermediate Design) – for use against intermediate or reversible risks
- ▶ Category III (Complex Design) – for use against mortal or irreversible risks




PPE meeting the basic requirements of the EU Regulation 2016/425 is considered safe to be sold in Europe, and can be recognised as such by the CE Mark and other relevant information. The type of markings, pictograms and information provided with a particular PPE will vary depending on what the PPE is designed for. Where disposable gloves are concerned, the following is generally used (see table below):



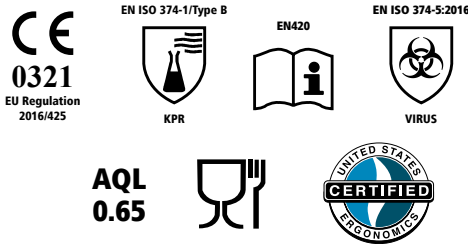
Who's certifying your gloves for PPE Compliance?

Where is the Notified Body's ID Number on the box for the gloves you're wearing?

Without a number under the CE mark to identify the Third Party Registrar, the glove manufacturer is self-declaring the glove's EN credentials.

PROTECTIVE GLOVES AGAINST DANGEROUS CHEMICALS AND MICRO-ORGANISMS																																																																															
European Standard	Pictogram	Performance Ranking	Description																																																																												
EN 374-1:2016 Terminology and performance requirements for chemical risks	EN ISO 374-1:2016/Type A  XXXXXX	Type A Minimum breakthrough time for at least 6 reference chemicals >30 min.	List of 18 test (or "reference") chemicals which are used for glove classification <table border="1"> <thead> <tr> <th>Code letter</th> <th>Chemical</th> <th>CAS number</th> <th>Class</th> </tr> </thead> <tbody> <tr><td>A</td><td>Methanol</td><td>67-56-1</td><td>Primary alcohol</td></tr> <tr><td>B</td><td>Acetone</td><td>67-64-1</td><td>Ketone</td></tr> <tr><td>C</td><td>Acetonitrile</td><td>75-05-8</td><td>Nitrile compound</td></tr> <tr><td>D</td><td>Dichloromethane</td><td>75-09-2</td><td>Chlorinated paraffin</td></tr> <tr><td>E</td><td>Carbon disulphide</td><td>75-15-0</td><td>Organic compound containing sulphur</td></tr> <tr><td>F</td><td>Toluene</td><td>108-88-3</td><td>Aromatic hydrocarbon</td></tr> <tr><td>G</td><td>Diethylamine</td><td>109-89-7</td><td>Amine</td></tr> <tr><td>H</td><td>Tetrahydrofuran</td><td>109-99-9</td><td>Heterocyclic and ether compound</td></tr> <tr><td>I</td><td>Ethyl acetate</td><td>141-78-6</td><td>Ester</td></tr> <tr><td>J</td><td>n-heptane</td><td>142-82-5</td><td>Saturated hydrocarbon</td></tr> <tr><td>K</td><td>40 % Sodium hydroxide</td><td>1310-73-2</td><td>Inorganic base</td></tr> <tr><td>L</td><td>96 % Sulphuric acid</td><td>7664-93-9</td><td>Inorganic mineral acid</td></tr> <tr><td>M</td><td>65 % nitric acid</td><td>7697-37-2</td><td>Inorganic mineral acid</td></tr> <tr><td>N</td><td>99 % acetic acid</td><td>64-19-7</td><td>Organic acid</td></tr> <tr><td>O</td><td>25 % ammonium hydroxide</td><td>1336-21-6</td><td>Organic base</td></tr> <tr><td>P</td><td>30 % hydrogen peroxide</td><td>7722-84-1</td><td>Peroxide</td></tr> <tr><td>S or Q</td><td>40 % hydrofluoric acid</td><td>7664-39-3</td><td>Inorganic mineral acid</td></tr> <tr><td>T or R</td><td>37 % formaldehyde</td><td>50-00-0</td><td>Aldehyde</td></tr> </tbody> </table> The "reference chemicals" shall be identified by their code letter under the flask pictogram.	Code letter	Chemical	CAS number	Class	A	Methanol	67-56-1	Primary alcohol	B	Acetone	67-64-1	Ketone	C	Acetonitrile	75-05-8	Nitrile compound	D	Dichloromethane	75-09-2	Chlorinated paraffin	E	Carbon disulphide	75-15-0	Organic compound containing sulphur	F	Toluene	108-88-3	Aromatic hydrocarbon	G	Diethylamine	109-89-7	Amine	H	Tetrahydrofuran	109-99-9	Heterocyclic and ether compound	I	Ethyl acetate	141-78-6	Ester	J	n-heptane	142-82-5	Saturated hydrocarbon	K	40 % Sodium hydroxide	1310-73-2	Inorganic base	L	96 % Sulphuric acid	7664-93-9	Inorganic mineral acid	M	65 % nitric acid	7697-37-2	Inorganic mineral acid	N	99 % acetic acid	64-19-7	Organic acid	O	25 % ammonium hydroxide	1336-21-6	Organic base	P	30 % hydrogen peroxide	7722-84-1	Peroxide	S or Q	40 % hydrofluoric acid	7664-39-3	Inorganic mineral acid	T or R	37 % formaldehyde	50-00-0	Aldehyde
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EN 374-2:2014 Determination of resistance to penetration	no official pictogram	Level 1: AQL of 4.0 Level 2: AQL of 1.5 Level 3: AQL of 0.65	Tested for protection against liquid penetration and micro-organisms. Freedom from holes tested by air or water leak test for Acceptable Quality Level (AQL). PPE Gloves must be at least Level 2.																																																																												
EN 16523-1:2015 Permeation by liquid chemicals under conditions of continuous contact	no official pictogram	Level 1: >10 min Level 2: >30 min Level 3: >60 min Level 4: >120 min Level 5: >240 min Level 6: >480 min	Performance Levels which describes the resistance to permeation by chemicals. Chemical Breakthrough is the time from the start of the test to the time the chemical is detected moving through the material at a defined rate of 1µg per cm ² per minute. Three measurements are taken and the minimum breakthrough time is stated.																																																																												
EN 374-4:2013 Determination of resistance to degradation by chemicals	no official pictogram	no performance requirements	Degradation is the change of puncture resistance after chemical contact with the claimed "reference chemicals" noted below the pictogram of EN ISO 374-1.																																																																												
EN 374-5:2016 Terminology and performance requirements for micro-organisms risks	EN ISO 374-5:2016 	Minimum AQL of 1.5	Protection against bacteria and fungi.																																																																												
	EN ISO 374-5:2016  VIRUS	< 1 PFU* within Assay titer *Plaque-Forming Unit	ISO 16604:2004 (part B) Clothing for protection against contact with blood and body fluids - Determination of resistance of protective clothing materials to penetration by blood-borne pathogens - Test method using Phi-X 174 bacteriophage.																																																																												

StarGuard® Comfort



Enhanced comfort by improved fit

An extremely soft and strong glove that provides improved tactile sensitivity to help reduce the risk of hand fatigue.

- ▶ Certified to minimise the risk of ergonomic hand injuries
- ▶ A thinner-feel nitrile glove, ideal for work that requires great dexterity
- ▶ Larger pack size helps the environment by reducing packing materials and transportation



**PPE Cat. III Complex Design
Light Blue Nitrile Glove. Textured Fingers
Length: 245 mm. 250 Gloves per Box¹⁾**



Recommended for use when:

- ▶ Work demands dexterity and tactile sensitivity
- ▶ You require a lightweight glove with exceptional fit
- ▶ You want to reduce hand fatigue caused by gloves
- ▶ Comfort and chemical protections needs to combine

Combating hand fatigue

Hand fatigue not only severely impacts the work you do today, it can also have long-term ramifications. StarGuard® Comfort is recognised as an **Ergonomic Certified** glove that provides measurable ergonomic benefits to the user by improving comfort and fit, and minimising the risk factors that may contribute to ergonomic injuries.²⁾



Improved fit and longer length

StarGuard® Comfort have snug fitting fingers and are 245 mm long to provide full cover over the wrist.



Comfortable ...
made from soft nitrile for enhanced comfort and tactile sensitivity

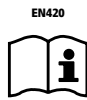


... yet Strong
an extremely soft but strong glove that provides excellent elasticity

Order information		
Description	Pack Size	Cat. No.
StarGuard® Comfort, Nitrile Gloves, XS	10 × 250	SG-C-XS
StarGuard® Comfort, Nitrile Gloves, S	10 × 250	SG-C-S
StarGuard® Comfort, Nitrile Gloves, M	10 × 250	SG-C-M
StarGuard® Comfort, Nitrile Gloves, L	10 × 250	SG-C-L
StarGuard® Comfort, Nitrile Gloves, XL ¹⁾	10 × 230	SG-C-XL

¹⁾ 230 gloves per box XL, ²⁾ www.us-ergo.com

StarGuard® Protect



AQL
0.65



Recommended for use when:

- ▶ Everyday protection requires strength and durability
- ▶ You need for excellent chemical splash protection
- ▶ A combination of protection and reliable, consistent grip is needed
- ▶ Protection is crucial while performing delicate tasks

Everyday protection from hazards

Nitrile gloves provide the best chemical splash resistance in a disposable glove, as well as excellent barrier protection against biohazards, water miscible substances, weak acids, and alkalis (pH 4–10), aliphatic solvents and grease.

Outstanding chemical breakthrough times

- ▶ Acrylamide (40%) > 480 mins
- ▶ Ethidium Bromide (5%) > 480 mins
- ▶ Gluteraldehyde (50%) > 480 mins

Order information		
Description	Pack Size	Cat. No.
StarGuard® Protect, Nitrile Gloves, XS	10 × 100	SG-P-XS
StarGuard® Protect, Nitrile Gloves, S	10 × 100	SG-P-S
StarGuard® Protect, Nitrile Gloves, M	10 × 100	SG-P-M
StarGuard® Protect, Nitrile Gloves, L	10 × 100	SG-P-L
StarGuard® Protect, Nitrile Gloves, XL	10 × 100	SG-P-XL

Strength and durability for reliable protection

A strong and comfortable glove that provides reliable protection against day-to-day laboratory hazards.

- ▶ Combines strength and durability for everyday protection
- ▶ Comfort, tactile sensitivity and consistent grip
- ▶ Excellent chemical splash protection
- ▶ Longer glove length (250 mm) covers the wrist



PPE Cat. III Complex Design
Violet-Blue Nitrile Glove. Textured Fingers
Length: 250 mm. 100 Gloves per Box



For everyday, reliable protection

The durable but soft material offers excellent comfort while performing delicate tasks, without compromising splash protection.



Longer!
250 mm long to provide splash protection for your hand and wrist



Strength and durability
hand protection you can rely on everyday

StarGuard® Sensitive



Recommended for use when:

- ▶ Concerns with glove contaminants interfering with experiments or sensitive products must be eliminated
- ▶ Working in wet conditions
- ▶ The everyday use of small instruments demands a dexterous, lightweight glove
- ▶ Users have concerns regarding hand health

Low Dermatitis Potential glove

StarGuard® Sensitive gloves have been clinically shown to **reduce the incidence of the redness and itching associated with contact dermatitis.**

They carry the US Food & Drug Administration (FDA) authorised claim for 'Low Dermatitis Potential'. StarGuard® Sensitive are extremely strong and comfortable, and an excellent choice for everyday use. You don't have to be susceptible to allergies to appreciate the quality and comfort of these gloves!

Accelerator-free hand protection for sensitive skin

A strong, lightweight glove that provides dexterity and comfort during long periods of wear, and is also kind to your hands.

- ▶ Low Dermatitis Potential – ideal for users with sensitive skin
- ▶ Contains no contaminants to interfere with experiments
- ▶ Textured fingers for improved tactile sensitivity
- ▶ Excellent grip in wet conditions



**PPE Cat. III Complex Design
Blue Nitrile Glove. Textured Fingers
Length: 250 mm. 200 Gloves per Box**



Excellent grip in wet conditions

A reduced amount of surfactants used during the manufacture of StarGuard® Sensitive results in an improved grip in wet conditions to rival that of latex gloves.

Order information		
Description	Pack Size	Cat. No.
StarGuard® Sensitive, Nitrile Gloves, XS	10 × 200	SG-N-XS
StarGuard® Sensitive, Nitrile Gloves, S	10 × 200	SG-N-S
StarGuard® Sensitive, Nitrile Gloves, M	10 × 200	SG-N-M
StarGuard® Sensitive, Nitrile Gloves, L	10 × 200	SG-N-L
StarGuard® Sensitive, Nitrile Gloves, XL	10 × 200	SG-N-XL

www.starlab.click/sg-sensitive



Comfortable

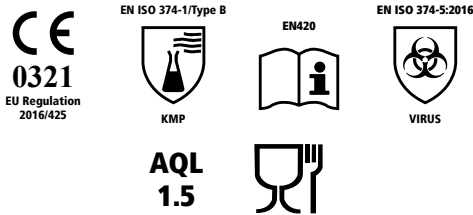
A lightweight glove that also provides exceptional strength



200 gloves per box

helps to conserve the environment by reducing packing materials, energy and fuel, and storage space

StarGuard® Touch



Recommended for use when:

- ▶ Durable comfort is required for lasting wear
- ▶ Working with blood-borne pathogens
- ▶ Secure and consistent grip is necessary for handling small instruments
- ▶ Tactile sensitivity is a must for working with a range of different instruments

Latex gloves provide the best elasticity in a disposable glove, as well as excellent barrier protection against blood-borne pathogens and other biohazards, water miscible substances, weak acids, and alkalis (pH 4–10).

Secure grip and tactile sensitivity

StarGuard® Touch is a comfortable, fully-textured latex glove that provides a secure, consistent grip and excellent tactile sensitivity.

- ▶ Excellent grip in both wet and dry conditions
- ▶ Great elasticity for comfort during long periods of wear
- ▶ Ideal for work that requires great dexterity



**PPE Cat. III Complex Design
Natural Latex Glove. Fully Textured
Length: 245 mm. 100 Gloves per Box***



Secure, latex grip

Latex gloves are ideal for work with small instruments. StarGuard® Touch are fully textured for a secure, consistent grip with the tactile sensitivity of latex.

Order information		
Description	Pack Size	Cat. No.
StarGuard® Touch, Latex Gloves, XS	10 × 100	SG-T-XS
StarGuard® Touch, Latex Gloves, S	10 × 100	SG-T-S
StarGuard® Touch, Latex Gloves, M	10 × 100	SG-T-M
StarGuard® Touch, Latex Gloves, L	10 × 100	SG-T-L
StarGuard® Touch, Latex Gloves, XL ¹⁾	10 × 90	SG-T-XL

¹⁾ 90 gloves per box XL



Natural rubber
for tactile sensitivity



Fully textured
for a secure grip

 www.starlab.click/sg-touch

StarGuard® Glove Specifications

	StarGuard® COMFORT	StarGuard® PROTECT	StarGuard® SENSITIVE	StarGuard® TOUCH
Gloves per Case	10 x 250 (XL 230)	10 x 100	10 x 200	10 x 100 (XL 90)
Glove Type	Nitrile	Nitrile	Nitrile	Latex
Type	Powder-Free, Ambidextrous, Single Use, Non-Sterile			
Colour	Light-Blue	Violet-Blue	Blue	Natural
Cuff	Beaded	Beaded	Beaded	Beaded
Texture	Fingers	Fingers	Fingers	Fully
Weight (g)	3.5	5.2	4.2	6
Length (mm)	245	250	240	245
Cuff Thickness (mm)	0.06	0.09	0.06	0.10
Palm Thickness (mm)	0.07	0.11	0.07	0.13
Finger Thickness (mm)	0.11	0.18	0.10	0.16
Minimum Elongation before Aging (%)	500	500	500	650
Elongation after Aging (%)	400	400	400	600
Tensile Strength before Aging (MPa)	33	30	29	22
Tensile Strength after Aging (MPa)	31	29	14	20
Force at Break before Aging (N)	7	10	7	9
Force at Break after Aging (N)	7	11	7	6
Shelf Life (years)	3	3	3	4
AQL	0.65	0.65	1.5	1.5
PPE EU Regulation 2016/425	Personal Protective Equipment (PPE) Category III			
MDD 93/42/EEC	Medical Device Class I			
EN420	In compliance, Sizing for special purpose			
EN 374-1	Type B	Type B	Type B	Type B
EN374-2	Level 3	Level 3	Level 2	Level 2
EN16523-1	In compliance, permeation by liquid chemicals ¹⁾			
EN 374-4	In compliance, determination of resistance to degradation			
EN 374-5	In compliance, requirements for micro-organism risks			
EN455	In compliance with Parts 1,2,3, medical gloves for single use			
ISO 11193-1	In compliance, single-use medical examination glove			
ISO 21171/ASTM D6124	In compliance, determination of removable surface powder			
ISO 16604	In compliance, protection against penetration by blood-borne pathogens			
ASTM D6319	✓	✓	✓	N/A
ASTM D5712	N/A	N/A	N/A	✓
ASTM D6978-05	In compliance, tested for use against chemotherapy drugs			N/A
Regulation (EC) No 1935/2004	In compliance, materials and articles intended to come into contact with food			

¹⁾ See chemical breakthrough charts for chemicals and cytostatics at www.starlabgroup.com

Chemical Breakthrough Times

	StarGuard® COMFORT	StarGuard® PROTECT	StarGuard® SENSITIVE	StarGuard® TOUCH	
Chemicals	Acetic Acid (50%)	25	50	41	5
	Acetone	0	0	0	0
	Acetonitrile (5% in Ethanol)	0	3	0	0
	Acrylamide (40%)	>480	>480	>480	>480
	Beta-Mercaptoethanol (<100%)	0	5	2	8
	Chloroform (1% in Ethanol)	1	2	1	1
	Cyclohexane (99%)	10	14	33	0
	Dimethylsulfoxide (>99.5%)	2	5	2	18
	Ethanol	0	1	1	0
	Ethanol (70%)	23	43	35	1
	Ethidium Bromide (5%)	>480	>480	>480	>480
	Formaldehyde (37%)	241	>480	121	0
	Glutaraldehyde (50%)	>480	>480	>480	>480
	Hydrochloric Acid (36%)	133	222	222	103
	Hydrofluoric Acid (40%)	17	13	23	2
	Hydrogen peroxide (30%)	31	121	177	121
	Iso-Propanol	2	62	5	28
	Methanol	16	13	0	0
	Methanol at 8% in industrial methylated Spirit	138	>480	-	-
	n-Heptane	22	98	14	0
	Nitric Acid (65%)	-	-	-	44
	Nitric Acid (50%)	21	66	9	-
	Phenol (0.1%)	188	292	>480	1
	Phenol (50% in Ethanol)	0	0	1	1
	Silver Nitrate 0.171 N	>480	>480	>480	>480
	Sodium Hydroxide (40%)	>480	>480	>480	193
	Sodium Hypochlorite, Bleach (5%)	>480	>480	>480	>480
	Sulfuric Acid (96%)	2	0	2	14
	Tetrachloroethylene (>99%)	0	1	1	0
	Toluene	0	0	0	0
	Trichloroacetic Acid (>99%)	15	30	23	10
	Disinfectants	Chemgene Laboratory Disinfectant (1:20)	>480	>480	>480
Distel Laboratory Disinfectant (1:10)		>480	>480	>480	421
Phagogermyl		26	50	40	45
Sterillium (Alcohol based)		14	21	18	9
Stokosept® protect (Alcohol based)		16	27	21	4
Virkon Disinfectant (3%)		>480	>480	>480	>480

Caution: All tests for determination of breakthrough times were carried out in minutes according to the EN16523-1:2015 standard under laboratory conditions. The actual conditions at the actual working space might have an impact on the resistance to chemical permeation and can lead to varying chemical breakthrough times. The test results are no substitute for an evaluation carried out by the user. All StarGuard® gloves are non-sterile, ambidextrous and intended for single-use only. All recommendations and test results are for reference purpose only and are subject to errors and data revision if updated data becomes available. Every effort has been made to ensure the content of this publication is correct. STARLAB can not take responsibility for any errors or omissions. Please visit starlabgroup.com for the most current information.

 **How to find the right protection for each application**
www.starlab.click/starguardselect



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