

AHEAD OF ITS TIME. ORIGINAL IS THE BEST

SHOWA THE ORIGINAL INVENTOR OF NITRILE GLOVES



SHOWA
THE MOST
COMPLETE
SINGLE USE
NITRILE
S E R I E S



SHOWA
Always Innovating. Never Imitating.

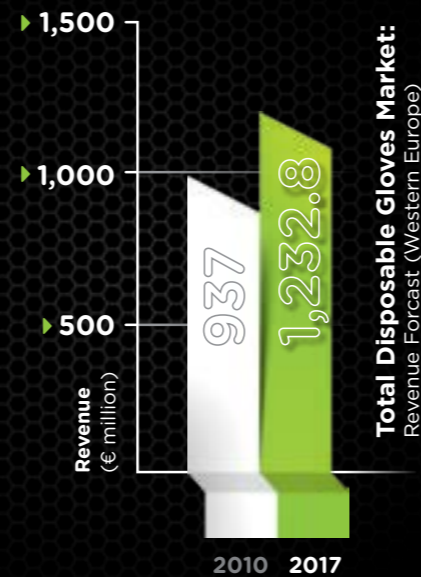


SHOWA THE MOST COMPLETE SINGLE-USE NITRILE SERIES

SUITABLE FOR LABORATORY, PHARMACEUTICAL, CLEANROOM, FOOD INDUSTRY, AUTOMOTIVE AND HARMFUL CHEMICAL USE

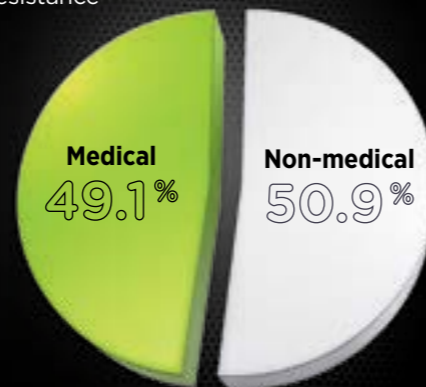
As the original inventor of N-DEX®, the world's first single-use nitrile glove in 1991, SHOWA has continued over the last two decades to bring further innovation to single-use nitrile. SHOWA has researched single-use market needs for personal and product protection, anticipating the increasing demand and global market potential. We analysed trends and growth drivers to become more competitive, now offering the most complete range of superior-quality single-use gloves and comprehensive solutions, complying with market requirements:

- Powder free and latex free
- Easy donning and doffing
- Chemical resistant
- Multiple choice colours, lengths and thicknesses
- Dual labelling
- High tensile strength
- Skin friendly
- Comfort in use and high sensitivity
- Ergonomic fit
- Durable and cost-effective glove
- Accelerator free
- Antistatic



SHOWA is known as a leader in the development, manufacturing and marketing of work gloves for personal protection. We engineer our gloves looking carefully at every single detail of worker and product protection. This means SHOWA is committed to manufacturing the highest quality and most competitive products featuring:

- 100% nitrile to avoid latex allergy risks whatever the user's task may be
- Chlorination for more comfort, grip and increased chemical resistance
- Silicone free for safer skin
- Powder free to avoid contamination of workplace
- Dual labeling for PPE and medical care
- Low modulus: moulds to your hand for greater fit
- Chemical resistance
- Multipurpose solution for all industries and usages
- Heavy exposure chemical permeation testing
- Inspection and quality control requirements - AQL 0.65 to 1.5



SHOWA SINGLE-USE NITRILE RANGE

Combining years of expertise and market insight, SHOWA introduces the most comprehensive single-use nitrile solution. The range offers a broad choice of single-use gloves, composed of 11 different styles with 4 thicknesses and 2 lengths, from XS to XXL sizes. With options suitable for laboratory, pharmaceutical, cleanroom, food industry, automotive and harmful chemical usage, the range is in compliance with all CE standards.

The single-use range is designed to feature all the following physical properties and benefits.



KEY FEATURES & PHYSICAL PROPERTIES

- 100% nitrile without plasticizers, powder free and silicone free
- Avoids latex allergies risks type I
- SHOWA quality AQL 0.65 to 1.5
- Force at break > 10N
- Elongation > 500%
- Dual labelling for expanded specific functions (excluding 6110 and 7505)

COMFORT & PERFORMANCES

- High chemical performance against permeation and degradation
- Chlorinated glove offers easy donning, increased chemical resistance and improved physical properties
- Second skin feel, softer texture
- Low-modulus formulation to improve fit and reduce fatigue
- Textured finish on fingertips to enhance grip

THE COMFORT YOU EXPECT

When disposable exam gloves first came into high demand, most gloves were powdered. Without the powder, gloves were difficult to don and doff. But cornstarch powder became a problem. **One way to remove residual powder from gloves is by chlorination.**

SO HOW DO GLOVE MANUFACTURERS MAKE A GLOVE DONNABLE WITHOUT CORNSTARCH POWDER?

Manufacturers employ one of two treatments - chlorination or polymer

coating. In the chlorination process, gloves on formers are dipped in a diluted chlorine solution. This reduces surface friction and tack on the interior of the glove. Then the glove is washed in an aqueous ammonia solution, then washed in water and dried. The result is a strong glove that dons easily, with a surface pH close to that of water.

EXPERTISE IN MANUFACTURING

Our brand symbolises superior quality and stands for the highest degree of hand protection and innovation. Our technology has forever changed our industry, what our hands are capable of and the impact we make on our environment.



WHY SHOWA

- Proven high quality product
- Strong quality management system
- State-of-the-art testing facilities
- Apply statistical process control in our Process Control System and Pre Shipment Testing as to ensure high product quality and consistency.
- In-house analytical lab facilities.

DIPPING PROCESS



► Compounding with our special formulation



► Dipping in progress



► Glove curing



► Glove stripping

CHLORINATION & CLEANROOM LAUNDRY



► Glove surface treatment - chlorination



► Glove laundry by using high quality D.I. water



► Glove drying in cleanroom environment





► Packing class in class 100 cleanroom

SINGLE-USE NITRILE SERIES RANGE SUMMARY



	7540	7545	7555	7580	7585	7505	7570	6110PF	7595	7550	7565
THICKNESS (mm)	0.10	0.10	0.12	0.20	0.20	0.10	0.10	0.10	0.12	0.10	0.15
LENGTH (mm)	240	300	300	240	300	240	240	240	300	240	300
SIZES	XS-XXL	S-XXL	XS-XL	S-XXL	S-XXL	XS-XXL	XS-XL	XS-XXL	XS-XL	S-XL	S-XL

	7540	7545	7555	7580	7585	7505	7570	6110PF	7595	7550	7565
CE CATEGORY	III	III	III	III	III	III	III	III	III	III	III
AQL	0.65	0.65	0.65	0.65	0.65	1	1.5	< 1.5	1.5	1.5	1.5
EN 388			2000	3001	3001				2000		1000
EN 374-2	•	•	•	•	•	•	•	•	•	•	•
EN 374-3	•	•	•	JKL	JKL	•	•	•	•	•	•
EN 455	•	•	•	•	•	•	•	•	•	•	•
FOOD APPROVED (EC No. 1935/2004)	•	•	•	•	•	•	•	•	•	•	•
SILICONE FREE	•	•	•	•	•	•	•	•	•	•	•
ACCELERATOR FREE							•				
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14	≥ 14	≥ 14	≥ 14	≥ 14	≥ 14	≥ 14	≥ 20	≥ 14	≥ 14	≥ 14
ELONGATION AT BREAK (%) MIN.	500	500	500	500	500	500	500	550	500	500	500
FORCE AT BREAK (N)	10	10	16	20	20	6	11	10	16	10	16

GLOVES PER DISPENSER 
DISPENSERS PER CARTON 

GLOVES PER DISPENSER	100	100	50	50	50	100	100	100	100	100	50
DISPENSERS PER CARTON	20	20	20	20	20	10	20	10	10	20	20



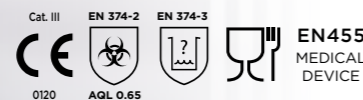
COBALT BLUE S E R I E S



SHOWA
7540

Single-use glove,
100% nitrile, powder
free, silicone free,
240mm long by
0.10mm thick

- Dual labelling:
PPE and medical device
- Ideal for chemical
splash protection
- Laboratory, food
industry, pharmaceutical,
medical, electronic



SHOWA
7580

Single-use glove,
100% nitrile, powder free,
silicone free, 240mm
long by 0.20mm thick

- Thicker glove provide more
resistance to chemicals
- Chemical industry,
printing, aerospace,
heavy chemical handling
- Dual labelling: PPE
and medical device



SHOWA
7545

Single-use glove,
100% nitrile, powder
free, silicone free,
300mm long by
0.10mm thick

- Dual labelling:
PPE and medical device
- Ideal for chemical
splash protection
- Laboratory, food
industry, pharmaceutical,
medical, electronic



SHOWA
7555

Single-use glove,
100% nitrile, powder free,
silicone free, 300mm
long by 0.12mm thick

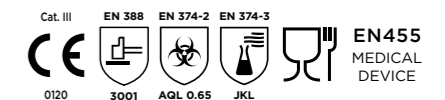
- Dual labelling:
PPE and medical device
- Ideal for chemical
splash protection
- Laboratory, food
industry, pharmaceutical,
medical, electronic



SHOWA
7585

Single-use glove,
100% nitrile, powder free,
silicone free, 300mm
long by 0.20mm thick

- Thicker glove provides more
resistance to chemicals
- Chemical industry,
printing, aerospace,
heavy chemical handling
- Dual labelling: PPE
and medical device



APPLICATIONS

- ▶ Laboratory & analysis
- ▶ Pharmaceuticals & API
- ▶ Emergency services
- ▶ Medical
- ▶ Chemical industry
- ▶ Printing industry
- ▶ Painting and spray workshops
- ▶ Electronics
- ▶ Intricate parts handling
- ▶ Light assembly of oil-coated pieces
- ▶ Glass manufacturing
- ▶ Food industry / HoReCa
- ▶ Aerospace
- ▶ Cytostatics



HIGH GRIP SYSTEM

Absolute precision
on your fingertips



PERFECT FIT

Fits perfectly to the contours of
your hand for increased efficiency

SUITABLE FOR LABORATORY, PHARMACEUTICAL,
CLEANROOM, FOOD INDUSTRY, AUTOMOTIVE
AND HARMFUL CHEMICAL USE

	SHOWA 7540 Cobalt blue	SHOWA 7580 Cobalt blue	SHOWA 7545 Cobalt blue	SHOWA 7555 Cobalt blue	SHOWA 7585 Cobalt blue
COLOUR	Cobalt blue	Cobalt blue	Cobalt blue	Cobalt blue	Cobalt blue
THICKNESS	4 mil - 0.10 mm	8 mil - 0.20 mm	4 mil - 0.10 mm	5 mil - 0.12 mm	8 mil - 0.20 mm
LENGTH	9.5" - 240 mm	9.5" - 240 mm	12" - 300 mm	12" - 300 mm	12" - 300 mm
SIZES	XS, S, M, L, XL, XXL	S, M, L, XL, XXL	S, M, L, XL, XXL	XS, S, M, L, XL	S, M, L, XL, XXL
CE CATEGORY	III	III	III	III	III
AQL	0.65	0.65	0.65	0.65	0.65
EN 388		3001		2000	3001
EN 374-2	•	•	•	•	•
EN 374-3	•	JKL	•	•	JKL
EN 455	•	•	•	•	•
FOOD APPROVED (EC No. 1935/2004)	•	•	•	•	•
SILICONE FREE	•	•	•	•	•
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14	≥ 14	≥ 14	≥ 14	≥ 14
ELONGATION AT BREAK (%)	500	500	500	500	500
FORCE AT BREAK (N)	10	20	10	16	20
GLOVES PER DISPENSER	100	50	100	50	50
DISPENSERS PER CARTON	20	20	20	20	20

BLACK SERIES

ADVANTAGE OF ANTISTATICS GLOVES

Antistatic gloves are required to prevent damage to electrical components or to prevent fires and explosions when working with flammable liquids and gases, otherwise, it could build-up or discharge static electricity. This can damage electrical components such as computer hard drives, and even ignite flammable liquids and gases.



SHOWA
7550

Single-use glove,
100% nitrile, antistatic
properties, powder free,
silicone free, 240mm
long by 0.10mm thick

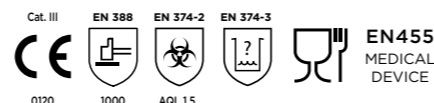
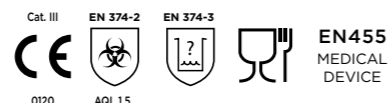
- Antistatic properties:
surface resistivity
between 10^{10} and $10^{11} \Omega$
- Lightweight glove



SHOWA
7565

Single-use glove,
100% nitrile, antistatic
properties, powder free,
silicone free, 300mm
long by 0.15mm thick

- Antistatic properties:
surface resistivity
between 10^{10} and $10^{11} \Omega$



	SHOWA 7550	SHOWA 7565
COLOUR	Black	Black
THICKNESS	4 mil - 0.10 mm	6 mil - 0.15 mm
LENGTH	9.5" - 240 mm	12" - 300 mm
SIZES	S, M, L, XL	S, M, L, XL
CE CATEGORY	III	III
AQL	1.5	1.5
EN 388		1000
EN 374-2	•	•
EN 374-3	•	•
EN 455	•	•
FOOD APPROVED (EC No. 1935/2004)	•	•
SILICONE FREE	•	•
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14	≥ 14
ELONGATION AT BREAK (%)	500	500
FORCE AT BREAK (N)	10	16
GLOVES PER DISPENSER	100	50
DISPENSERS PER CARTON	20	20

APPLICATIONS

- ▶ Intricate parts handling
- ▶ Police & defense
- ▶ Aerospace
- ▶ Printing industry
- ▶ Painting & spray workshops
- ▶ Mechanical engineering
- ▶ Automotive repairs and maintenance
- ▶ Petrochemical
- ▶ Food industry / HoReCa
- ▶ Electronics
- ▶ Tattooing
- ▶ Light chemical handling in agriculture, horticulture

HI VIZ GREEN SERIES

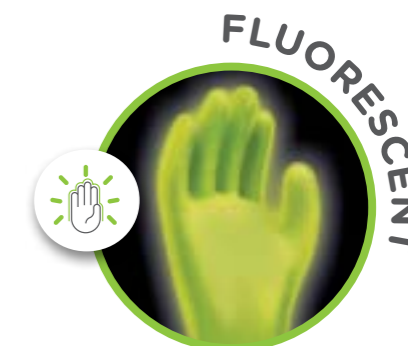
ACCELERATOR-FREE

While nitrile gloves are free from natural rubber latex proteins, a minority of individuals may still suffer from allergic reactions. SHOWA gloves with accelerator-free formulation remove the common accelerators found in all disposable nitrile gloves, further reducing the risk of common workplace conditions like Type IV dermatitis.

SHOWA
7570

Accelerator free single-use
glove, 100% nitrile, powder
free, silicone free, 240mm
long by 0.10mm thick

- Fluorescent High Visibility: increased safety in poor lighting conditions
- Lightweight glove
- accelerator-free formulation: protect very sensitive skins



APPLICATIONS

- ▶ Pharmaceutical
- ▶ Laboratories
- ▶ Hospital & medical care
- ▶ Pharmaceuticals & API
- ▶ Emergency services
- ▶ Agriculture, Horticulture
- ▶ Light assembly
- ▶ Chemical industry
- ▶ Petrochemical
- ▶ Automotive repairs and maintenance

SHOWA 7570

	SHOWA 7570 Hi Viz Green
COLOUR	Hi Viz Green
THICKNESS	4 mil - 0.10 mm
LENGTH	9.5" - 240 mm
SIZES	XS, S, M, L, XL
CE CATEGORY	III
AQL	1.5
EN 388	
EN 374-2	•
EN 374-3	•
EN 455	•
FOOD APPROVED (EC No. 1935/2004)	•
SILICONE FREE	•
ACCELERATOR FREE	•
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14
ELONGATION AT BREAK (%)	500
FORCE AT BREAK (N)	11
GLOVES PER DISPENSER	100
DISPENSERS PER CARTON	20



SKY BLUE SERIES

FEELS LIKE A SECOND SKIN

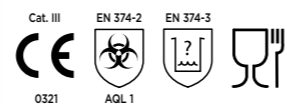
The patented low modulus formula of SHOWA's single-use nitrile gloves results in unparalleled comfort, dexterity and a significant reduction in hand fatigue. Our Sky Blue Series is no different, offering second-skin coverage and grip with high chemical resistance, for a wide range of applications.



SHOWA 7505PF

Single-use glove, 100% nitrile, powder-free, silicone-free, 240mm long by 0,10mm thick

- Patented low-modulus formulation to improve fit and reduce fatigue
- Easy to put on and remove
- Ambidextrous; can be worn on either hand



APPLICATIONS

- ▶ Electronic components
- ▶ Integrated circuits
- ▶ Chemical industry
- ▶ Laboratory & pharma
- ▶ Quality control
- ▶ Automotive

SHOWA 7505PF Sky Blue

COLOUR	Sky Blue
THICKNESS	4 mil - 0.10 mm
LENGTH	9.5" - 240 mm
SIZES	XS, S, M, L, XL, XXL
CE CATEGORY	III
AQL	1
EN 388	
EN 374-2	•
EN 374-3	•
FOOD APPROVED (EC No. 1935/2004)	•
SILICONE FREE	•
ACCELERATOR FREE	
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14
ELONGATION AT BREAK (%)	500
FORCE AT BREAK (N)	6
GLOVES PER DISPENSER	100
DISPENSERS PER CARTON	10



BIODEGRADABLE SERIES

ECO BEST TECHNOLOGY (EBT)

The inventors of the world's first disposable nitrile glove, now bring you the world's first biodegradable disposable nitrile glove. Regular nitrile gloves cannot attract enough (if any) microbial activity to begin breaking down the polymer's molecular structure, thus leaving the process of reclamation to light, heat, mechanical stress and moisture... unlike the NEW SHOWA 6110PF biodegradable glove.



SHOWA 6110PF

Biodegradable single-use glove, 100% nitrile with Eco Best Technology, powder-free, 240mm long by 0,10mm thick

- Gloves with EBT maintain the same properties as regular nitrile gloves
- EBT accelerates the biodegradation of nitrile in biologically active landfills
- EBT is composed of organic materials designed to make 6110PF attractive to microbial activity
- The microorganisms upon consuming the EBT material excrete enzymes that depolymerize the nitrile
- Second skin feel
- Ambidextrous; can be worn on either hand
- EU Food Safe approved



APPLICATIONS

- ▶ Janitorial/sanitation
- ▶ Laboratory analysis
- ▶ Automotive
- ▶ Intricate parts handling
- ▶ Technical maintenance
- ▶ Food processing

SHOWA 6110PF Green

COLOUR	Green
THICKNESS	4 mil - 0.10 mm
LENGTH	9.5" - 240 mm
SIZES	XS, S, M, L, XL, XXL
CE CATEGORY	III
AQL	< 1.5
EN 388	
EN 374-2	•
EN 374-3	•
FOOD APPROVED (EC No. 1935/2004)	•
SILICONE FREE	
ACCELERATOR FREE	
ULTIMATE TENSILE STRENGTH (MPa)	≥ 20
ELONGATION AT BREAK (%)	550
FORCE AT BREAK (N)	10
GLOVES PER DISPENSER	100
DISPENSERS PER CARTON	10



WHITE SERIES



APPLICATION GUIDE

CLEAN-PROCESSED

The purpose of cleanroom is to reduce the contamination and control environmental parameters such as temperature, humidity and pressure. The more sensitive the product, the stricter the requirements for production conditions to make sure all the items are under control. Used in cleanroom or critical environments, clean-processed products must be free from particles that could potentially contaminate the product or environment. The primary origin of particles comes from human skin cells, followed by tiny fibres from clothing or hair.

To remove and avoid any contamination risks, cleanroom gloves have to be used. To remove these particles clean-processed gloves are washed in highly filtered deionized water, processed and packaged in a cleanroom environment to prevent post-washing contamination



SHOWA 7595

Single-use glove, 100% nitrile, powder free, silicone free, 300mm long by 0.12mm thick

- Certified and suitable for use in Class 100 cleanroom environment.
- Process : Laundered with 0.2 micron filtered high resistivity D.I. water and packed in certified cleanroom environment
- White colour for cleanroom where high standards of industrial hygiene are required



APPLICATIONS

- ▶ Pharmaceuticals & API
- ▶ Biotechnology
- ▶ Optics
- ▶ Microelectronics
- ▶ Semiconductors
- ▶ Quality control
- ▶ Integrated circuits
- ▶ Laboratory



SHOWA 7595	
COLOUR	White
THICKNESS	5 mil - 0.12 mm
LENGTH	12" - 300 mm
SIZES	XS, S, M, L, XL
CE CATEGORY	III
AQL	1.5
EN 388	
EN 374-2	•
EN 374-3	•
EN 455	•
SILICONE FREE	•
ULTIMATE TENSILE STRENGTH (MPa)	≥ 14
ELONGATION AT BREAK (%)	500
FORCE AT BREAK (N)	16
GLOVES PER BAG	100
BAGS PER CARTON	10 bags

	MEDICAL	CHEMICAL SPLASHES	CHEMICAL HANDLING	CLEAN ROOM	FOOD	LABORATORY	THICKNESS	LENGTH
6110PF							4 mil 0.10 mm	9.5" 240 mm
7505							4 mil 0.10 mm	9.5" 240 mm
7540							4 mil 0.10 mm	9.5" 240 mm
7550							4 mil 0.10 mm	9.5" 240 mm
7570							4 mil 0.10 mm	9.5" 240 mm
7580							8 mil 0.20 mm	9.5" 240 mm
7545							4 mil 0.10 mm	12" 300 mm
7555							5 mil 0.12 mm	12" 300 mm
7595							5 mil 0.12 mm	12" 300 mm
7565							6 mil 0.15 mm	12" 300 mm
7585							8 mil 0.20 mm	12" 300 mm

QUESTIONS ABOUT NITRILE

WHAT MAKES SHOWA LOW MODULUS AND OTHERS NOT?

Modulus is the force necessary to make an object change its shape. When it comes to gloves, the importance of the low modulus formulation is that low modulus gloves relax and conform to the shape of the hands within a few minutes of wearing. SHOWA gloves were specially formulated to relax on your hand to exert little or no pressure after 6 minutes. It is called low modulus because it takes a low amount of force to make the glove change its shape and conform exactly to your hand. This gives a more comfortable glove and reduces hand fatigue.

DO ALL NITRILE RELAX ON YOUR HAND DURING USE?

Nitrile gloves are made with different formulation that does not relax like the low modulus formulation of the SHOWA gloves.

THE ORIGINAL

MADE IN MALAYSIA

SOLUTION FOR LATEX ALLERGIES

CHEMICAL RESISTANT

MORE PUNCTURE RESISTANT

LOW MODULUS

GUIDE TO CHEMICAL-RESISTANT GLOVES

SHOWA THE MOST COMPLETE SINGLE-USE NITRILE RANGE

Chemical permeation testing of personal protective equipment is performed under laboratory conditions that cannot emulate every real world application. SHOWA single-use nitrile gloves can offer a variety of protection, from single splash protection (minor chemical exposure) to full chemical immersion applications, depending on the frequency and duration of exposure with any given chemical. Additional tests can be done by SHOWA Lab for various chemicals and conditions upon requests.



BREAKTHROUGH TIME AND PERMEATION PERFORMANCE LEVEL INDEX

The level (0 to 6) indicates the time required for different chemicals to permeate through the glove.

BREAKTHROUGH TIME	PERFORMANCE LEVEL	
≤ 1 minute	Level 0	Not recommended
1 to 5 minutes	Level 0+	Splash protection only; change the glove immediately after contact!
6 to 10 minutes	Level 0++	Splash protection only; change the glove immediately after contact!
> 10 minutes	Level 1	Short contact only; change the glove after 10 minutes max!
> 30 minutes	Level 2	Medium protection, 30 minutes contact.
> 60 minutes	Level 3	Medium protection, 60 minutes contact.
> 120 minutes	Level 4	Good protection level.
> 240 minutes	Level 5	Very good protection level.
> 480 minutes	Level 6	Excellent protection level.

TTL : total immersion chemical permeation breakthrough time.

INT : intermittent contact chemical permeation breakthrough time, one minute immersion out of every ten, repeatedly.



CHEMICAL TERMS AND PROCESSES TO NOTE

CAS NUMBERS

The Chemical Abstract Services identification numbers provide unique identifiers for easy cross-reference to Material Safety Data Sheets (MSDS). Some chemicals are widely known by other names. Several well-known synonyms appear in this guide and have the same CAS Number.

BREAKTHROUGH TIME

The number of minutes from initial contact with a test chemical until it is first detected on the inside of the protective glove measured using sensitive analytical testing. It is essentially the time period during which the glove is impermeable in contact with the given chemical.

DEGRADATION

Degradation is a deleterious change in one or more physical properties of a protective glove material due to contact with a chemical. Degradation changes may include delaminating, discoloration, hardening, loss of tensile strength.

HEAVY EXPOSURE

In permeation testing this term refers to constant total immersion of the protective glove material in the test chemical that represents the worst type of heavy exposure. The ASTM F739 Test Standard and EN 374 Test Standard refers to this type of exposure.

PERMEATION

The process by which a chemical moves through protective gloves materials at the molecular level. The passage of a liquid or gas through protective gloves consists of three steps; absorption, diffusion and desorption.

PENETRATION

The process by which a substance moves through a pinhole or other defective parts of the glove surface on a non-molecular level.

CONCENTRATION

The amount or mass of a constituent divided by the total mass of a solution. Acids and Caustics are solutions in water. In permeation testing of acids in particular, the concentration will affect the breakthrough time. More concentrated acids will permeate sooner than dilutions.

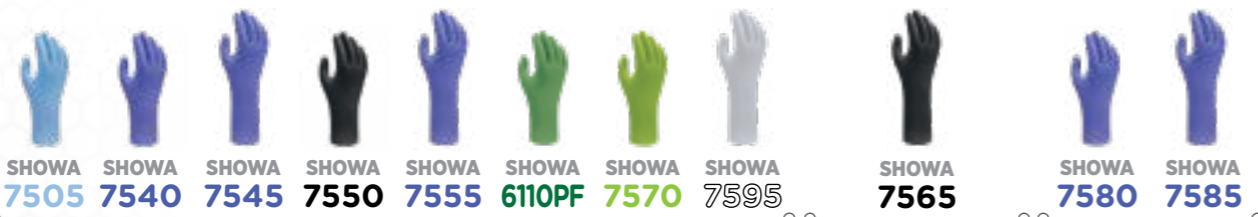




CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
ACETALDEHYDE	75-07-0	<1	1	1	2	1	6
ACETIC ACID (84%)	64-19-7	11	37	22	73	29	98
ACETONE	67-64-1	<1	2	1	4	2	6
ACETONITRILE	75-05-8	4	13	5	14	7	15
ACETOXYACETYL CHLORIDE	13831-31-7	4	8	8	25	15	30
ACRYLAMIDE	79-06-1	>120	>240	>240	>240	>480	>240
ACRYLONITRILE	107-13-1	<1	<1	<1	1	<1	3
ALKASOL 27	90111-76-3	>120	>240	>240	>240	>480	>240
ALLYL ALCOHOL	107-18-6	<1	4	1	6	4	16
ALODINE 1000 SOLUTION	97631-99-6	>120	>240	>240	>240	>480	>240
ALODINE 1200S SOLUTION	93755-29-8	>120	>240	>240	>240	>480	>240
AMMONIUM HYDROXIDE (29%)	1336-21-6	9	30	18	60	54	164
AMYL ACETATE	628-63-7	<1	1	1	4	3	11
AMYL ALCOHOL	71-41-0	24	37	48	93	72	149
ANILINE	62-53-3	<1	<1	<1	<1	<1	3
ANTIMONY TRIBUTYRATE (95%)	53856-17-0	>120	>240	>240	>240	>480	>240
BATTERY ACID (47%)	7664-93-9	>480	>240	>480	>240	>480	>240
BENZALDEHYDE	100-52-7	2	8	5	16	9	31
BENZENAMINE	62-53-3	<1	<1	<1	<1	<1	3
BENZENE	71-43-2	<1	<1	1	2	2	3
BENZYL ALCOHOL	100-51-6	<1	<1	1	2	6	20
BLASOCUT 2000 UNIVERSAL (70%)	98608-26-6	>120	>240	>240	>240	>480	>240
BLASOCUT 4000	94742-52-7	>120	>240	>240	>240	>480	>240
BLEACH: SODIUM HYPOCHLORITE (4-6%) (6%)	7681-52-9	>480	>240	>480	>240	>480	>240
BOEING ALKASOL 27 (10%)	90111-76-3	>120	>240	>240	>240	>480	>240
BOEING ALODINE 1000 SOLUTION (1%)	97631-99-6	>120	>240	>240	>240	>480	>240
BOEING ALODINE 1200S SOLUTION (2%)	93755-29-8	>120	>240	>240	>240	>480	>240
BOEING BLASOCUT 4000	94742-52-7	>120	>240	>240	>240	>480	>240
BORIC ACID-SULFURIC ACID (6%)	90043-35-4	>120	>240	>240	>240	>480	>240
BROMOETHYL ACETATE, 2-	927-68-4	2	7	4	12	7	35
BROMOFORM	75-25-2	<1	<1	1	2	3	11
BUTANOL	71-36-3	13	43	17	57	24	80
BUTOXYPROPANOL	5131-66-8	6	20	8	27	11	36
BUTOXYTRIGLYCOL	143-22-6	6	20	8	27	11	36
BUTYL ACETATE	123-86-4	<1	<1	<1	<1	<1	<1
BUTYL ACRYLATE	141-32-2	1	3	2	4	4	6
BUTYL ALCOHOL	71-36-3	13	43	17	57	24	80
BUTYL ETHANOATE	123-86-4	<1	<1	<1	<1	<1	<1
BUTYL TOLUENE P-TERT-	98-51-1	11	37	14	47	20	67
BUTYLAMINE	109-73-9	<1	<1	<1	<1	<1	<1

SHOWA 7505 SHOWA 7540 SHOWA 7545 SHOWA 7550 SHOWA 7555 SHOWA 6110PF SHOWA 7570 SHOWA 7595 SHOWA 7565 SHOWA 7580 SHOWA 7585

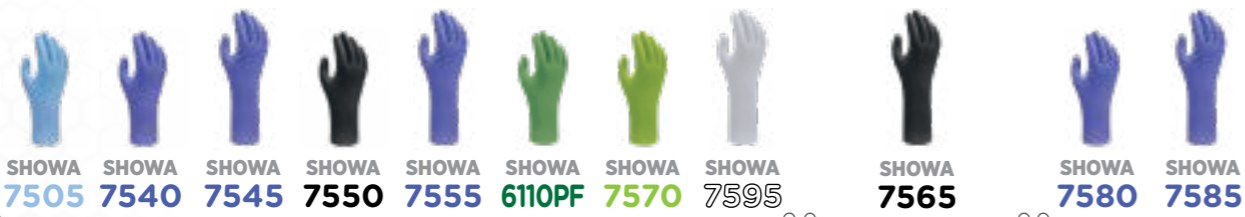
CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
CAPRINUS U MULTIGRADE RAILROAD OIL	66532-00-0	>480	>240	>480	>240	>480	>240
CARBON TETRACHLORIDE	56-23-5	1	2	2	6	7	24
CASCADE COLUMBIA 3 PART A	90112-34-7	35	115	69	230	138	>240
CELLOSOLVE ACETATE	111-15-9	<1	2	1	4	3	9
CHEVRON JET FUEL A	94742-80-1	>120	>240	>240	>240	>480	>240
CHLOROBENZENE	108-90-7	<1	2	1	4	2	6
CHLOROFORM	67-66-3	<1	<1	<1	<1	<1	<1
CHROMIC ACID	1333-82-0	<1	<1	<1	<1	<1	<1
CHROMIUM TRIOXIDE (50%)	1333-82-0	<1	<1	<1	<1	<1	<1
CITRA-SAFE DEODORIZER	95989-27-5	6	21	13	42	25	83
CITRIC ACID (30%)	77-92-9	>480	>240	>480	>240	>480	>240
CITRUS TERPENES MIXTURE	68956-56-9	65	216	130	>240	259	>240
CRESOLS	1319-77-3	<1	<1	<1	<1	<1	<1
CRESYLIC ACID	79-10-7	<1	<1	<1	<1	<1	<1
CUMENE	98-82-8	2	4	5	7	9	14
CYCLOHEXANE	110-82-7	10	33	20	67	38	>240
CYCLOHEXANOL	108-93-0	80	>240	160	>240	275	>240
CYCLOHEXANONE	108-94-1	1	3	2	4	2	6
CYCLOHEXYL KETONE	108-94-1	1	3	2	4	2	6
DARACLEAN 282	90112-34-9	>120	>240	>240	>240	>480	>240
DESOCLEAN 45 MIXTURE (50%)	90067-63-1	<1	2	1	3	3	10
DIACETONE ALCOHOL	123-42-4	<1	<1	<1	<1	<1	<1
DIBUTYL PHTHALATE N-	84-74-2	60	200	85	>240	120	>240
DICHLOROBENZENE O-	95-50-1	<1	<1	<1	<1	<1	<1
DICHLOROETHANE 1,2-	107-06-2	<1	2	1	3	4	15
DIESEL FUEL	77650-28-3	>480	>240	>480	>240	>480	>240
DIETHANOLAMINE	111-42-2	24	80	48	160	128	>240
DIETHYL ETHER	60-29-7	<1	1	1	2	2	3
DIETHYLAMINE	109-89-7	<1	2	1	4	4	10
DIETHYLENE GLYCOL	111-46-6	>120	>240	>240	>240	>480	>240
DI-ISOBUTYL KETONE	108-83-8	19	62	37	123	74	>240
DIMETHYL FORMAMIDE	68-12-2	<1	2	1	4	3	9
DIMETHYL SULFATE	77-78-1	8	25	15	32	30	40
DIMETHYL-4-HEPTANONE, 2,6-	108-83-8	19	62	37	123	74	>240
DIMETHYLACETAMIDE N,N-	127-19-5	2	8	5	15	9	30
DIMETHYLSULFOXIDE	67-68-5	23	77	46	153	61	204
DINITROL AV30 SPRAY	94894-36-1	>120	>240	>240	>240	>480	>240
DINITROL AV8 MOD	94742-48-1	>120	>240	>240	>240	>480	>240
DINITROTOLUENE (40% IN ROH) (40%)	121-14-2	1	3	2	7	6	21
DIOXANE 1,4-	123-91-1	2	6	4	12	7	14
DIVINYL BENZENE	1321-74-0	5	17	10	33	20	66
DMAC	127-19-5	2	8	5	15	9	30
DMF	68-12-2	<1	2	1	4	3	9
DMSO	67-68-5	23	77	46	153	61	204



CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
DONAX TG TRANSMISSION FLUID	60486-00-0	>480	>240	>480	>240	>480	>240
DOWTHERM, BIPHENYL (27%)	92-52-4	<1	<1	<1	<1	<1	<1
DUBL-CHEK PENETRANT MIXTURE	68131-40-8	>120	>240	>240	>240	>480	>240
ETHANOL	64-17-5	7	23	14	47	24	80
ETHANOLAMINE	141-43-5	6	20	12	40	24	80
ETHIDIUM BROMIDE (5%)	1239-45-8	>480	>240	>480	>240	>480	>240
ETHYL ACETATE	142-82-5	<1	4	2	7	4	14
ETHYL ALCOHOL	64-17-5	7	23	14	47	24	80
ETHYL ALDEHYDE	75-07-0	<1	1	1	2	1	6
ETHYL BENZENE	100-41-4	<1	<1	1	2	2	4
ETHYL BUTANOL	97-95-0	<1	3	1	6	3	11
ETHYL ETHER	60-29-7	<1	1	1	2	2	3
ETHYLAMINE	75-04-7	<1	<1	<1	<1	<1	<1
ETHYLENE DICHLORIDE	107-06-2	<1	2	1	3	4	15
ETHYLENE GLYCOL	107-21-1	>480	>240	>480	>240	>480	>240
ETHYLENEDIAMINE (99%)	107-15-3	<1	2	1	5	4	13
FCC-55	90108-10-2	2	5	3	10	6	20
FLUOBORIC ACID (49%)	16872-11-0	10	30	20	67	30	100
FORMALDEHYDE (37%)	50-00-0	>480	>240	>480	>240	>480	>240
FORMIC ACID	64-18-6	<1	2	1	4	9	30
FREON 113	76-13-1	3	10	6	20	12	40
FURFURAL	98-01-1	<1	2	1	3	2	9
FURFURALDEHYDE	98-01-1	<1	2	1	3	2	9
GASOLINE (PREMIUM UNLEADED)	8032-32-4	9	30	18	60	39	130
GASOLINE (UNLEADED)	8006-61-9	1	2	2	7	6	20
GLACIAL ACETIC ACID (84%)	64-19-7	11	37	22	73	29	98
GLUTARALDEHYDE	111-30-8	30	100	60	200	120	>240
HEPTANE	142-82-5	31	103	62	207	100	>240
HEXALIN	108-93-0	80	>240	160	>240	275	>240
HEXANE	110-54-3	11	30	15	50	20	85
HEXENE	592-41-6	<1	<1	<1	<1	<1	<1
HEXYL CELLOSOLVE	112-25-4	21	66	41	137	82	>240
HUNTSMAN DIMETHYLCYCLOHEXYL AMINE	98-94-2	4	13	8	25	15	50
HUNTSMAN DIMETHYLPIPERAZINE	106-58-1	8	25	15	50	30	100
HUNTSMAN JEFFCAT DMDEE	6425-39-4	4	13	8	25	15	50
HUNTSMAN METHYLMORPHOLINE	7529-22-8	113	>240	227	>240	453	>240
HYDRAZINE HYDRATE (85%)	302-01-2	>120	>240	>240	>240	>480	>240
HYDROCHLORIC ACID (37%)	7647-01-0	>480	>240	>480	>240	>480	>240
HYDROFLUORIC ACID (48%)	7664-39-3	7	23	14	47	19	50
HYDROGEN PEROXIDE (30%)	7722-84-1	>480	>240	>480	>240	>480	>240
ISO AMYL ACETATE	123-92-2	<1	2	1	3	3	7
ISO AMYL ALCOHOL	123-51-3	1	2	2	4	5	6
ISO-BUTANOL	78-83-1	40	133	80	>240	88	>240

SHOWA 7505 SHOWA 7540 SHOWA 7545 SHOWA 7550 SHOWA 7555 SHOWA 6110PF SHOWA 7570 SHOWA 7595 SHOWA 7565 SHOWA 7580 SHOWA 7585

CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
ISO-OCTANE	540-84-1	120	>240	240	>240	389	>240
ISOPENTANOL	123-51-3	1	2	2	4	5	6
ISOPENTYL ACETATE	123-92-2	<1	2	1	3	3	7
ISOPROPYL ACETATE	108-21-4	1	3	3	8	5	10
ISOPROPYL ALCOHOL	67-63-0	28	93	43	143	60	200
ISOPROPYLBENZENE	98-82-8	2	4	5	7	9	14
JET FUEL A	94742-80-1	>120	>240	>240	>240	>480	>240
JET FUEL JP-4	94742-47-9	8	28	17	55	33	110
JET FUEL JP-8	98008-20-6	>120	>240	>240	>240	>480	>240
KEROSENE	8008-20-6	8	25	15	50	30	100
LACTIC ACID (85%)	50-21-5	>480	>240	>480	>240	>480	>240
LIMONENE D-	5989-27-5	8	26	16	52	31	>240
MADRELLA P 150 OIL	56930-00-0	>480	>240	>480	>240	>480	>240
MEK	78-93-3	<1	1	1	3	2	5
MEK/SBA	90078-92-3	2	6	4	12	7	23
METHANOIC ACID (90%)	64-18-6	<1	2	1	4	9	30
METHANOL	67-56-1	1	2	2	5	7	13
METHYL ACETATE	79-20-9	<1	2	1	2	3	3
METHYL ALCOHOL	67-56-1	1	2	2	5	7	13
METHYL CYANIDE	75-05-8	4	13	5	14	7	15
METHYL ETHYL KETONE	78-93-3	<1	1	1	3	2	5
METHYL ETHYL KETOXIME	96-29-7	19	53	38	127	76	>240
METHYL IODIDE	74-88-4	<1	<1	<1	<1	<1	2
METHYL ISOBUTYL KETONE	108-10-1	1	4	2	7	5	15
METHYL ISOBUTYL KETOXIME	105-44-2	>480	>240	>480	>240	>480	>240
METHYL METHACRYLATE	80-62-6	<1	2	1	3	3	9
METHYL PROPASOL SOLVENT	107-98-2	6	20	8	27	10	33
METHYL PROPYL KETONE	107-87-9	<1	1	1	2	3	10
METHYL PYRROLIDONE N-	872-50-4	2	6	4	12	7	24
METHYLENE CHLORIDE	75-09-2	<1	1	1	2	1	4
METHYLENE OXIDE (37%)	50-00-0	>480	>240	>480	>240	>480	>240
METHYLENEDIANILINE 4,4- (190 C)	101-77-9	5	15	9	30	18	60
METHYLMORPHOLINE (65%)	7529-22-8	113	>240	227	>240	453	>240
METHYL-TERT-BUTYL ETHER	1634-04-4	<1	<1	<1	<1	<1	<1
METRICIDE (50%)	111-30-8	30	100	60	200	120	>240
MIBK	108-10-1	1	4	2	7	5	15
MICROCUT 26	98330-12-9	>120	>240	>240	>240	>480	>240
MINERAL SPIRITS	64475-85-0	>480	>240	>480	>240	>480	>240
MONOBUTYLAMINE	109-73-9	<1	<1	<1	<1	<1	<1
MONOCHLOROBENZENE	108-90-7	<1	2	1	4	2	6
MONOETHANOLAMINE	141-43-5	6	20	12	40	24	80
MORPHOLINE	110-91-8	<1	<1	<1	<1	<1	<1
MPK	107-87-9	<1	1	1	2	3	10
MTBE	1634-04-4	<1	<1	<1	<1	<1	<1
MURIATIC ACID (10% HCL) (10%)	7647-01-0	>480	>240	>480	>240	>480	>240
NAPHTHA	8032-32-4	9	30	18	60	39	130
NINHYDRIN	485-47-2	>480	>240	>480	>240	>480	>240



CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
NITRIC ACID (23%)	7697-37-2	>120	>240	>240	>240	>480	>240
NITRIC ACID (70%)	7697-37-2	2	7	4	13	5	18
NITRIC/HYDROFLUORIC PICKLING SOLUTION (50%)	97697-37-4	>120	>240	>240	>240	>480	>240
NITROBENZENE	98-95-3	<1	2	1	3	2	9
NITROMETHANE	75-52-5	<1	1	1	3	3	5
NITROPROPANE	79-46-9	<1	<1	<1	<1	<1	<1
NMP	872-50-4	2	6	4	12	7	24
NYCOTE 7-11 MIXTURE	90064-17-7	1	3	2	7	5	17
OCTANOL N-	111-87-5	>480	>240	>480	>240	>480	>240
OLEIC ACID (98%)	112-80-1	>480	>240	>480	>240	>480	>240
ORTHO DICHLOROBENZENE	95-50-1	<1	<1	<1	<1	<1	<1
OXALIC ACID (s)	144-62-7	>480	>240	>480	>240	>480	>240
OXYBISBENZENE, 1,1- (DOWTHERM) (73%)	101-84-8	<1	<1	<1	<1	<1	<1
PENTANE	109-66-0	4	13	8	27	21	59
PENTANONE, 2-	107-87-9	<1	1	1	2	3	10
PENTYL ACETATE	628-63-7	<1	1	1	4	3	11
PENTYL ALCOHOL	71-41-0	24	37	48	75	72	149
PERACETIC ACID (39%)	79-21-0	2	7	5	17	13	44
PERCHLOROETHYLENE	127-18-4	6	20	7	23	9	27
PETROL	8006-61-9	1	2	2	7	6	20
PETROLEUM ETHER	8032-32-4	9	30	18	60	39	130
PHENOL	108-95-2	2	6	4	8	8	10
PHENYL ALCOHOL	108-95-2	2	6	4	8	8	10
PHENYL HYDRIDE	71-43-2	<1	<1	1	2	2	3
PHENYLETHANE	100-41-4	<1	<1	1	2	2	4
PHOSPHORIC ACID (85%)	7664-38-2	>480	>240	>480	>240	>480	>240
POTASSIUM HYDROXIDE (45%)	1310-58-3	>480	>240	>480	>240	>480	>240
PROPANEAMIDE (50%)	79-06-1	>120	>240	>240	>240	>480	>240
PROPANEDIAMINE, N,N'-DIMETHYL	109-55-7	3	10	6	20	15	50
PROPANOL N-	71-23-8	7	12	10	24	15	48
PROPANOL, 2-	67-63-0	28	93	43	143	60	200
PROPANONE, 2-	67-64-1	<1	2	1	4	2	6
PROPYL ACETATE	109-60-4	1	3	2	7	7	15
PROPYL ALCOHOL	71-23-8	7	12	10	24	15	48
PROPYL CARBINOL	71-36-3	13	43	17	57	24	80
PROPYL CELLOSOLVE N-	2807-30-9	6	8	13	21	25	35
PROPYLENE GLYCOL	57-55-6	>480	>240	>480	>240	>480	>240
PROPYLENE GLYCOL MONOBUTYL ETHER	5131-66-8	6	20	8	27	11	36
PROPYLENE OXIDE	75-56-9	<1	1	1	2	2	7
PSEUDOCUMENE	95-63-6	3	11	7	22	13	84
P-TERT BUTYL TOLUENE	98-51-1	11	37	14	47	20	67
PYRIDINE	7291-22-7	<1	1	1	2	1	6
ROUNDUP (CONCENTRATED)	1071-83-6	>480	>240	>480	>240	>480	>240

CHEMICAL AGENT	CAS Number	TTL	INT	TTL	INT	TTL	INT
SAFROTIN	31218-83-4	>120	>240	>240	>240	>480	>240
SHELL AEROSHELL GREASE 22	56280-00-0	>480	>240	>480	>240	>480	>240
SHELL ALVANIA GREASE 3	57120-00-0	>480	>240	>480	>240	>480	>240
SHELL DIALA OIL AX BASE OIL	60030-00-0	>480	>240	>480	>240	>480	>240
SHELL FIRE & ICE 2000 10W OIL	60015-00-0	>480	>240	>480	>240	>480	>240
SHELL HVI 100 NEUTRAL MQ	63050-00-0	>480	>240	>480	>240	>480	>240
SHELL ROTELLA T MULTI 15W OIL	71630-00-0	>480	>240	>480	>240	>480	>240
SHELL SPIRAX S 85W-140 OIL	86404-00-0	>480	>240	>480	>240	>480	>240
SHELL TURBO T 68 HYDRAULIC FLUID	60220-00-0	>480	>240	>480	>240	>480	>240
SHELLWAX 100	8210-00-0	>480	>240	>480	>240	>480	>240
SKYDROL LD-4 HYDRAULIC FLUID	2528-36-1	27	90	54	180	71	237
SODIUM HYDROXIDE (50%)	1310-73-2	>480	>240	>480	>240	>480	>240
STODDARD SOLVENT	8052-41-3	126	>240	252	>240	>480	>240
STYRENE	100-42-5	<1	1	1	3	1	6
SULFURIC ACID (97%)	7664-93-9	8	27	16	53	25	83
TANNIC ACID	1401-55-4	>480	>240	>480	>240	>480	>240
TETRACHLOROETHYLENE	127-18-4	6	20	7	23	9	27
TETRACHLOROMETHANE	56-23-5	1	2	2	6	7	24
TETRAHYDROFURAN	109-99-9	<1	1	1	2	2	7
THF	109-99-9	<1	1	1	2	2	7
TOLUENE	108-88-3	<1	1	1	2	2	5
TOLUENE/MEK MIXTURE (65:3 RATIO) (65%)	90108-88-5	1	3	2	7	7	23
TOLUIDINE,O-	95-53-4	1	3	2	7	4	14
TOLUOL	108-88-3	<1	1	1	2	2	5
TRIBROMOMETHANE	75-25-2	<1	<1	1	2	3	11
TRICHLOROBENZENE 1,2,4-	120-82-1	<1	<1	1	3	4	14
TRICHLOROETHANE 1,1,1-	71-55-6	<1	<1	1	3	2	8
TRICHLOROETHYLENE	79-01-6	<1	<1	1	3	3	11
TRICHLOROFLUOROETHANE	76-13-1	3	10	6	20	12	40
TRICHLOROMETHANE	67-66-3	<1	<1	<1	<1	<1	<1
TRIETHANOLAMINE	102-71-6	9	30	18	60	24	80
TRIETHYLAMINE	121-44-8	10	33	20	67	39	130
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6	6	20	8	27	11	36
TRIMETHYL BENZENE (98%)	95-63-6	3	11	7	22	13	84
TRIMETHYLPENTANE, 2,2,4-	540-84-1	120	>240	240	>240	389	>240
TURCO 5351 MIXTURE	90075-09-4	1	2	2	7	5	17
TURPENTINE	8006-64-2	52	173	104	>240	152	>240
VINYL ACETATE	108-05-4	1	2	2	7	5	14
VINYL BENZENE	100-42-5	<1	1	1	3	1	6
VINYL CYANIDE	107-13-1	<1	<1	<1	1	<1	3
VINYL PYRROLIDINONE	88-12-0	<1	<1	<1	<1	<1	<1
VINYL STYRENE	1321-74-0	5	17	10	33	20	66
VINYLBUTYROLACTAM	88-12-0	<1	<1	<1	<1	<1	<1
VINYLDIENE CHORIDE	75-35-4	<1	<1	1	2	1	6
XYLENE	1330-20-7	1	2	3	8	5	11

Choosing the right chemical protective glove is a very difficult task for health and safety managers. Choices are made following multiple criteria such as chemical, time of immersion, splash protection or heavy exposure, repetitiveness of tasks, etc. Our tables give a comparable chemical protection level against 21 established chemicals, representing 19 different chemical classes. These are generally the smallest molecules in their class and are readily available and reasonably easy to handle in a laboratory.

These chemicals were chosen to give a wide range in potential chemical/barrier interactions, not on the basis of toxicity, although several of these materials are widely used in hazardous chemical products. The SHOWA ChemRest laboratory can conduct more tests in case of uncertainty concerning the choice of protective glove with a given chemical.



UNSUPPORTED NITRILE

Resistance against acids, oil, grease, hydrocarbons, certain organic solvents, pesticides and fuels

	DEG	TTL	INT
Acetone 67-64-1	NR	3	18
Acetonitrile 75-05-8	F	6	21
Ammonia 7664-41-7	F	6	21
Butadiene 1,3- 106-99-0	E	>480	>240
Carbon Disulfide 75-15-0	NR	NR	NT
Chlorine 7782-50-5	E	>480	>240
Dichloromethane 75-09-2	NR	4	5
Diethylamine 109-89-7	F	60	60
Dimethylformamide (DMF) 68-12-2	P	NR	25
Ethyl Acetate 141-78-6	P	30	77
Ethylene Oxide (Gas) 75-21-8	E	17	NT
Hexane 110-54-3	E	>480	>240
Hydrogen Chloride (Gas) 7647-01-0	E	433	>480
Methanol 67-56-1	G	28	84
Methyl Chloride 74-87-3	E	>480	>240
Nitrobenzene 98-95-3	NR	52	67
Sodium Hydroxide 50% 1310-73-2	E	>480	>240
Sulfuric Acid 97% 7664-93-9	F	180	NT
Tetrachloroethylene 127-18-4	E	>480	>240
Tetrahydrofuran (THF) 109-99-9	NR	5	18
Toluene 108-88-3	P	26	36

PVC

Protects against acids, oil, grease, hydrocarbons, some organic solvents, pesticides and fuels

NEOPRENE OVER NATURAL RUBBER

Protects against acids, alcohols, ketones, organic and inorganic solvents, oils, greases and petrochemicals.

SUPPORTED NEOPRENE

Protects against acids, alcohols, ketones, organic and inorganic solvents, oils, greases and petrochemicals.

BUTYL

Protects against gases, ketones, aldehydes, amines, nerve agents and other polar aprotic solvents.

VITON

Protects against aliphatic, aromatic and halogenated hydrocarbons.

	DEG	TTL	INT	DEG	TTL	INT	DEG	TTL	INT	DEG	TTL	INT	DEG	TTL	INT
P	3	NT	E	13	17	E	35	43	E	139	NT	NR	NR	NR	
E	14	NT	E	4	15	E	65	72	F	>480	>240	P	NR	>240	
NT	NT	NT	NT	NT	NT	E	29	NT	E	>480	>240	E	>480	>240	
NT	NT	NT	NT	NT	NT	E	33	NT	E	473	>240	E	>480	>240	
NT	NT	NT	NT	NT	NT	NR	NR	NT	NR	NR	NT	E	>480	>240	
NT	NT	NT	NT	NT	NT	E	>480	>240	E	>480	>240	E	>480	>240	
NR	7	NT	NR	NR	7	NR	4	18	P	7	NT	E	113	NT	
P	NR	NT	P	NR	10	F	13	50	F	20	NT	G	9	NT	
NR	NR	NT	E	>480	>240	E	100	118	E	>480	>240	NR	NR	NT	
P	NR	NT	F	8	30	G	24	88	E	212	NT	NR	NR	NR	
NT	NT	NT	NT	NT	NT	E	21	NT	E	189	NT	E	48	NT	
E	14	NT	E	24	30	E	173	>240	P	13	NT	E	>480	>240	
NT	NT	NT	E	>480	>240	NT	NT	NT	E	>480	>240	E	>480	>240	
G	50	NT	E	34	45	E	64	>240	E	>480	>240	E	>480	>240	
NR	7	NT	NT	NT	NT	E	84	NT	E	>480	>240	E	>480	>240	
NT	NT	NT	P	NR	35	F	136	160	E	>480	>240	E	>480	>240	
E	>480	>480	E	>480	>240	E	>480	>240	E	>480	>240	E	>480	>240	
E	>480	>480	E	>480	>240	E	>480	>240	E	>480	>240	E	>480	>240	
F	NR	NT	NR	NR	32	NR	40	66	NR	28	NT	E	>480	>240	
NR	NR	NT	NR	NR	9	P	13	17	P	24	NT	NR	NR	NT	
F	14	NT	NR	NR	10	P	25	33	NR	22	NT	E	>480	>240	

SINGLE-USE NITRILE

Chemical splash or limited/brief exposure protection against acids, oil, grease, hydrocarbons, certain organic solvents, pesticides and fuels.

0,10 - 0,15mm			0,20mm		
DEG	TTL	INT	DEG	TTL	INT
NR	NR	NT	NR	NR	6
P	4	NT	P	7	15
NT	NT	NT	NT	NT	NT
NT	NT	NT	NT	NT	NT
NR	NR	NT	NR	NR	4
NT	NT	NT	NT	NT	NT
NR	NR	NR	NR	NR	4
P	NR	NT	P	NR	10
NT	NT	NT	NR	NR	9
NR	NR	NT	NR	NR	14
NT	NT	NT	NT	NT	NT
E	11	NT	E	20	85
NT	NT	NT	NT	NT	NT
NT	NT	NT	G	7	13
NT	NT	NT	NT	NT	NT
NR	NR	NT	NR	NR	9
NT	NT	NT	E	>480	>240
NR	NR	NT	NR	NR	NR
NR	6	NR	E	9	11
NR	NR	NT	NR	NR	7
NR	NR	NT	NR	NR	5

CHECK OUR INFORMATION TABLE

▶ LEGEND:

DEG: Degradation rating
TTL: Total immersion chemical permeation breakthrough time
INT: Intermittent contact chemical permeation breakthrough time, one minute immersion out of every ten, repeatedly.

▶ KEY TO DEGRADATION RATING:

E = Excellent **P** = Poor
G = Good **NR** = Not Recommended
F = Fair **NT** = Not Tested

SHOWA REFERENCES

- **Nitrile:** SHOWA 727
- **Neoprene over natural rubber:** SHOWA CHM
- **Neoprene:** SHOWA 3415, 3416, 6781R, 8814
- **PVC:** SHOWA 660
- **Butyl:** SHOWA 878
- **Viton:** SHOWA 890
- **Nitrile 0,10 - 0,15mm:** 7540, 7545, 7555, 7550, 7565, 7570, 7595, 6110PF
- **Nitrile 0,20mm:** SHOWA 7580-7585

GLOSSARY

Dual Labelling: Products complying with both regulation, Medical Devices Directive 93/42/EEC and Personal Protective Equipment Directive 89/686/EEC and labeled products as both medical device and personal protective equipment (PPE).

AQL: Acceptable Quality Level (AQL) refers to the barrier protection confidence level. A lower AQL represents a higher quality glove.

Powder Free: Gloves are made powder free through the chlorination or polymer coating processes. The latex protein content is substantially removed from the glove when these processes are used to remove powder.

Tensile strength: This refers to the force (in mega pascals, MPa), required to stretch a glove until it breaks.

Ultimate elongation: This measurement indicates how far a glove can stretch before it breaks.

Modulus: Modulus is a measure related to comfort—specifying how much force, in MPa, is necessary to stretch a glove to twice its length. A lower number reflects a softer, more comfortable glove.

Permeation: Movement of substance through a thin film, such as a glove, on a molecular level.

(Source: CEMag.us, Frost and Sullivan, Wikipedia)



THE GLOVE THAT CHANGED THE WORLD

N-DEX[®], the first family of low-modulus nitrile, single-use gloves. This ground breaking innovation was commercialized by Best Manufacturing Company in 1991. Thus solving the human allergy to natural latex proteins, while providing the same, if not superior, barrier of protection.

Sociological climate (*AIDs, demand for latex gloves*): the AIDS epidemic exposed humans to natural latex proteins on a global scale. As a result, it revealed the fact that a certain percentage of the human population is allergic to natural latex. The allergy can range from contact dermatitis to fatal. The N-DEX glove solved this issue by provided a non-latex, low-modulus glove to be used in medical, dental, and exam applications.

Features (*superior protection to latex*): the features are non-latex, low-modulus which affords an increased amount of tensile strength and durability. Additionally, disposable nitrile will not degrade from the heat or the sun like natural latex. Finally, the glove has the fit and feel of natural latex. So first responders, TSA, physicians, laboratory professionals, and food handlers are assured the highest level of protection found in single-use hand protection.

Commitment from SHOWA (*innovations formulation and manufacturing*): Best Manufacturing Company was acquired by SHOWA Glove Japan in 2007. This acquisition allowed SHOWA R&D to work in concert with Best R&D in the development of countless innovations since the acquisition. Now, SHOWA, is able to globally distribute unique innovations that continue to raise the bar. Many SHOWA products are copied by companies that have a commitment to piracy, not innovation.



Call: **+44 (0)161 877 4747**
Email: **sales@globus.co.uk**
www.globus.co.uk/showa-single-use



Descriptions, characteristics, applications and photos are provided purely for information and do not constitute a contractual commitment. The manufacturer reserves the right to make any modifications it deems necessary.
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