Guide for Coating and Polymer
SHOWA Gloves

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COATINGS & POLYMERS EXPLAINED

Naturally occurring and man-made polymers are essential building blocks of hand protection. Specific polymers protect workers from specific hazards. That's why SHOWA utilizes a variety of polymers and coatings, delivering **hand protection for every pursuit**.

	STRENGTHS	WEAKNESSES
Nitrile Anti-slip vulcanized synthetic rubber	+ No latex proteins + Excellent abrasion and cut resistance + Three times the puncture resistance of latex + Excellent resistance to oil, grease and hydrocarbons + Resistance to acids, certain organic solvents, pesticides, oils and fuels + Heat resistance (no flame resistance)	– Relatively rigid – Normally low tear resistance (N-DEX® gloves are an exception) – No chemical resistance against ketones and some chlorinated hydrocarbons (methylene chloride and trichloroethylene).
Natural Rubber Natural rubber mainly from latex and the rubber tree	+ Very flexible and elastic + Very robust, provides secure grip + Excellent abrasion resistance to tearing and bending + Waterproof + Protects against weak acids, caustics, alcohols and detergents	– Poor chemical resistance against oils, greases, hydrocarbons and organic solvents – Proteins may cause allergic reaction
PVC *(poly vinyl chloride)* Economical synthetic thermoplastic	+ Functional in temperatures ranging from -30˚F (-34˚C) to 212˚F (100˚C) + Durable, provides high chemical resistance + Material softened by plasticizer + Good electrical insulator	– Low resistance to cuts and punctures – Disposable PVC gloves might have pinholes – Low resistance to solvents
Polyurethane (PU) Plastic that is micro-porous elastomer	+ Very flexible and elastic + No latex proteins + Clean - does not shed particles + Good resistance to abrasion and oils + Does not harden in cold or soften in heat + Porous ventilation reduces perspiration	– Low chemical resistance – Poor resistance to hot water
Neoprene Polychloroprene synthetic rubber	+ Flexible in temperatures ranging from -10˚F (-23˚C) to 300˚F (150˚C) + Soft like natural rubber, but contains no natural rubber latex proteins + Good abrasion and cut resistance + Chemical protection against acids, alcohols, fats, ketones, organic and inorganic solvents, oils, greases and petrochemicals + Heat resistant and flame resistant + Resists degradation from ozone, sunlight and oxidation	– Poor grip when wet – No chemical resistance against chlorinated hydrocarbon solvents
Butyl Synthetic rubber polymer for heavy chemical protection	+ Very elastic, even at low temperatures + Excellent chemical resistance against gases, ketones (MEK, acetone) and acids + Low gas permeability	– Limited grip and dexterity – Poor mechanical resistance – Poor resistance to alphatic hydrocarbons, aromatic hydrocarbons and halogenated solvents
Viton Synthetic rubber polymer - the last resort	+ Protects where nothing else protects + Chemical protection against PCBs + Excellent chemical protection against chlorinated, aliphatic and aromatic hydrocarbons	– Limited grip – Limited dexterity – Not suitable for ketones, esters and nitro compounds

POLYMER COMBINATIONS: THE BEST OF BOTH WORLDS

Certain combinations of polymers are used to make hybrid gloves. Neoprene over natural rubber latex is used in SHOWA® CHM and CHMY gloves. Viton over Butyl is used to make the highly chemical resistant SHOWA 890 and 892 gloves. Nitrile is used as an over-dip in several SHOWA natural rubber gloves to provide added resistance to aging, ozone and chemicals.