



Covestro Polycarbonates

Compatibility with Disinfectants
Used Against SARS-CoV-2



Through careful selection of disinfectant, it is possible to sterilize against SARS-CoV-2 while minimizing the effect on selected polycarbonate based surfaces. The United States Environmental Protection Agency (EPA) has published a list of disinfectants that meet its criteria for use against SARS-CoV-2, the novel coronavirus that causes the disease COVID-19. This "List N" is found here: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2> (Updated May 28, 2020).

Several of these disinfectants have been tested for compatibility with Covestro polycarbonates and polycarbonate blends commonly used in durable hospital equipment. The table below can be used to identify disinfectants that are less likely to damage plastics and to select plastics that are more resistant to disinfectants. Chemical compatibility was assessed by bending molded tensile

specimens to a fixed flexural strain of 1.0% (21-25 MPa stress) and then wiping the strained surface with the disinfectant. This accelerated test more closely replicates actual in use exposure compared to other test protocols which use surface saturation over an extended period. Ten (10) consecutive wet-to-dry wipe cycles were completed within 9 hours, with a ≥30-minute interval between wipe cycles for drying. After 24 hours of total strain exposure, the specimens were checked for retention of tensile properties per ASTM D638. The dominant failure mode of polycarbonate-based materials exposed to disinfectants is environmental stress cracking. None of the disinfectants changed the surface finish of the specimens, and all observed property changes were associated with the formation of stress cracks.

Chemical compatibility assessment: Repeat wiping

10× wet-to-dry wipe exposure
1.0% flexural strain (21-25 MPa stress)

- Unchanged: No detectable effect.
- m Minor effect: Tensile strength fully retained (>98%), but elongation-at-break reduced. Cracks typically tiny or invisible.
- s Significant effect: Tensile strength reduced (<98% retention). Cracks typically distinctive.

Disinfectant	EPA Reg. No.	Active ingredient(s)	Material													
			Bayblend® FR3010	Bayblend® M301 FR	Makroblend® EL700	Makroblend® EL703	Makroblend® M4000 FR	Makroblend® M525	Makroblend® UT403	Makroblend® UT408	Makrolon® 2458	Makrolon® Rx1805	Makrolon® FR6006	Makrolon® FR6011		
V-0 flammability rating			✓	✓	✓	✓	✓								✓	✓
Medical Grade				✓			✓	✓				✓	✓			
CaviCide™	46781-6	Quat. am.*; isopropanol	m	m	-	-	-	m	-	-	-	-	-	-	-	-
Clorox® bleach (10% in water)	5813-100	Sodium hypochlorite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clorox® Disinfecting Wipes	5813-79	Quaternary ammonium	s	s	s	s	m	m	s	m	s	s	m	m		
Clorox® Healthcare Bleach Germicidal Wipes	67619-12	Sodium hypochlorite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clorox® Healthcare Hydrogen Peroxide Wipes	67619-25	Hydrogen peroxide	s	s	s	s	s	m	s	m	s	m	m	m		
Envirocide®	46781-6	Quat. am.*; isopropanol	m	m	-	-	-	m	-	-	-	-	-	-	-	-
Formula 409® Cleaner Degreaser	67619-10	Quaternary ammonium	s	s	s	s	m	s	s	s	s	s	s	s	m	
Formula 409® Multi-Surface Cleaner	5813-73	Quaternary ammonium	s	s	m	m	-	m	m	-	s	m	m	-	-	-
Lysol® Disinfecting Wipes	777-114	Quaternary ammonium	m	m	-	-	-	-	-	-	-	-	-	-	-	-
Lysol® I.C.™ Quaternary Disinfectant Cleaner	47371-129	Quaternary ammonium	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micro-Kill™ One Germicidal Alcohol Wipes	88494-2	Ethanol; quat. am.*	m	s	m	m	m	m	m	-	-	-	-	-	-	-
Opti-Cide® Healthcare Wipes	70144-2	Quat. am.*; isopropanol	m	m	-	-	-	-	-	-	-	-	-	-	-	-
Oxivir® Five 16	70627-58	Hydrogen peroxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxivir® TB	70627-56	Hydrogen peroxide	m	m	s	s	-	-	s	m	s	s	m	m		
Sani-Cloth® AF3	9480-9	Quaternary ammonium	s	s	s	s	m	m	s	s	s	s	s	s	m	
Sani-Cloth® Bleach	9480-8	Sodium hypochlorite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Seventh Generation® Disinfecting Wipes	84683-4	Thymol														
Sporicidin® (Contec)	8383-3	Phenolic	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Super Sani-Cloth®	9480-4	Quat. am.*; isopropanol	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vesphene® Ilse	1043-87	Phenolic	m	m	-	-	m	-	-	-	-	-	-	-	-	-
Virex® II 256	70627-24	Quaternary ammonium	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virex® TB	70627-2	Quaternary ammonium	s	s	s	s	s	s	s	s	s	s	s	s	s	s

*Quat. am. = Quaternary ammonium

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