SLP LIGHTING

ChemShield PCX

# Polycarbonate (PC) vs. ChemShield PCX Chemical Resistance Comparison

Makroblend®EL703(PC/PET) •Makrolon®2458 (PC) Source: Covestro COV-280

SECTION 01 **DISINFECTANT COMPATIBILITY (SARS-COV-2 EPA LIST N)**

Repeat wiping method — 10× wet-to-dry wipe cycles, 1.0% flexural strain (21–25 MPa). ASTM D638 tensile property evaluation after 24 hr strain. Source: Covestro COV-280 (March 2020).

| DISINFECTANT | ACTIVE INGREDIENT(S) | PC Makrolon® | CHEMSHIELD PCX / PC/PET BLEND Makroblend® EL703 |
|---|---|---|---|
| **SODIUM HYPOCHLORITE (BLEACH-BASED)** | | | |
| Clorox® Bleach (10% solution) | *Sodium hypochlorite* | – Unchanged | – Unchanged |
| Clorox® Healthcare Bleach Germicidal Wipes | *Sodium hypochlorite* | – Unchanged | – Unchanged |
| Sani-Cloth® Bleach | *Sodium hypochlorite* | – Unchanged | – Unchanged |
| **HYDROGEN PEROXIDE** | | | |
| Oxivir® Five 16 | *Hydrogen peroxide* | – Unchanged | – Unchanged |
| Oxivir® TB | *Hydrogen peroxide* | S Significant | S Significant |
| Clorox® Healthcare Hydrogen Peroxide Wipes | *Hydrogen peroxide* | S Significant | S Significant |
| **QUATERNARY AMMONIUM** | | | |
| Lysol® Disinfecting Wipes | *Quaternary ammonium* | – Unchanged | – Unchanged |
| Lysol® I.C.™ Quaternary Disinfectant Cleaner | *Quaternary ammonium* | – Unchanged | – Unchanged |
| Virex® II 256 | *Quaternary ammonium* | – Unchanged | – Unchanged |
| Clorox® Disinfecting Wipes | *Quaternary ammonium* | S Significant | S Significant |
| Sani-Cloth® AF3 | *Quaternary ammonium* | S Significant | S Significant |
| Formula 409® Cleaner Degreaser | *Quaternary ammonium* | S Significant | S Significant |
| Formula 409® Multi-Surface Cleaner | *Quaternary ammonium* | S Significant | m Minor ↑ |
| Virex® TB | *Quaternary ammonium* | S Significant | S Significant |
| **QUATERNARY AMMONIUM + ISOPROPANOL** | | | |
| CaviCide™ | *Quat. am.; isopropanol* | – Unchanged | – Unchanged |
| Envirocide® | *Quat. am.; isopropanol* | – Unchanged | – Unchanged |
| Super Sani-Cloth® | *Quat. am.; isopropanol* | – Unchanged | – Unchanged |
| **PHENOLIC** | | | |
| Sporicidin® (Contec) | *Phenolic* | – Unchanged | – Unchanged |

† Indicates improvement vs. pure PC. Test method: 10× wet-to-dry wipe cycles within 9 hr, ≥30 min drying interval. Specimens evaluated per ASTM D638 after 24 hr total strain. Dominant failure mode is environmental stress cracking. No disinfectant changed surface finish; all property changes resulted from stress crack formation. Data source: Covestro COV-280, March 2020.

SECTION 02

## BROADER CHEMICAL RESISTANCE — PC VS. CHEMSHIELD PCX

PC data: Makrolon® published chemical resistance (Covestro/Bayer). PC/PET data: Makroblend® UT 1018 immersion test, outer fiber strains 0–1.4%, 73°F (23°C), 24 hr unless noted.

| CHEMICAL / MEDIA | NOTES / CONDITIONS | PC<br>Makrolon® | CHEMSHIELD PCX / PC/PET BLEND<br>Makroblend® UT 1018 |
|---|---|---|---|
| **ACIDS & BASES** | | | |
| Acetic Acid, 10% | *Standard conditions* | + Resistant | + Resistant |
| Hydrochloric Acid, 5% & 10% | *Standard conditions* | + Resistant | + Resistant |
| Sulfuric Acid, 40% | *Standard conditions* | + Resistant | + Resistant |
| Ammonia | *Standard conditions* | – Not Resistant | + Resistant |
| Sodium Hydroxide, 10% | *Standard conditions* | – Not Resistant | 0 Limited |
| **FUELS, OILS & LUBRICANTS** | | | |
| Diesel Fuel | *Standard conditions* | + Resistant | + Resistant |
| Jet Fuel JP-4 | *Standard conditions* | + Resistant | + Resistant |
| Kerosene | *Standard conditions* | + Resistant | + Resistant |
| Motor Oil 10W-40 | *Standard conditions* | + Resistant | + Resistant |
| Mineral Oil | *Standard conditions* | + Resistant | + Resistant |
| Transmission Fluid, Type F | *Standard conditions* | + Resistant | + Resistant |
| Lithium Grease | *Standard conditions* | + Resistant | + Resistant |
| WD-40® Lubricant | *Standard conditions* | + Resistant | + Resistant |
| Gasoline, Amoco Premium | *Aromatic content* | 0 Limited | – Not Resistant |
| Brake Fluid | *DOT fluid* | – Not Resistant | – Not Resistant |
| **ALCOHOLS & GLYCOLS** | | | |
| Ethyl Alcohol | *4 hr exposure* | 0 Limited | + Resistant |
| Ethylene Glycol / Antifreeze | *Prestone™* | + Resistant | + Resistant |
| Isopropanol | *16 hr exposure* | 0 Limited | 0 Limited |
| Methanol | *Standard conditions* | – Not Resistant | 0 Limited |
| **SOLVENTS (CHLORINATED, KETONES, ESTERS)** | | | |
| Acetone | *Surface attack, crazing* | – Not Resistant | – Not Resistant |
| Ethyl Acetate | *Surface attack, crazing* | – Not Resistant | – Not Resistant |
| Ethylene Dichloride | *Solvent for both* | – Not Resistant | – Not Resistant |
| Methylene Chloride | *Solvent for both* | – Not Resistant | – Not Resistant |
| Methylethylketone (MEK) | *Surface attack, crazing* | – Not Resistant | – Not Resistant |
| Methylisobutylketone (MIBK) | *4 hr exposure, crazing* | – Not Resistant | – Not Resistant |
| Trichloroethane | *Surface attack, crazing* | – Not Resistant | – Not Resistant |
| **AROMATIC HYDROCARBONS** | | | |
| Toluene | *Aromatic hydrocarbon* | – Not Resistant | 0 Limited |
| Xylene | *Aromatic hydrocarbon* | – Not Resistant | 0 Limited |
| Nitrobenzene | *16 hr exposure* | – Not Resistant | 0 Limited |

| CHEMICAL / MEDIA | NOTES / CONDITIONS | PC<br>Makrolon® | CHEMSHIELD PCX / PC/PET BLEND<br>Makroblend® UT 1018 |
|---|---|---|---|
| **CLEANERS, DISINFECTANTS & HOUSEHOLD PRODUCTS** | | | |
| Clorox® Bleach | *Sodium hypochlorite* | 0 Limited | + Resistant |
| Clorox® Soft Scrub Cleaner | *Standard conditions* | 0 Limited | + Resistant |
| Betadine® Disinfectant | *Standard conditions* | + Resistant | + Resistant |
| Cidex® Disinfectant | *Glutaraldehyde-based* | + Resistant | + Resistant |
| Fantastik® All Purpose Cleaner | *Standard conditions* | 0 Limited | + Resistant |
| Formula 409® All Purpose Cleaner | *Quat. ammonium* | – Not Resistant | 0 Limited |
| Lysol® Basin, Tub & Tile Cleaner | *Standard conditions* | 0 Limited | + Resistant |
| Lysol® Deodorizing Cleaner | *Standard conditions* | – Not Resistant | 0 Limited |
| Pine-Sol® Cleaner | *Pine oil content* | 0 Limited | + Resistant |
| Top Job® Cleaner | *Standard conditions* | 0 Limited | + Resistant |
| Windex® Glass Cleaner | *Ammonia-based* | – Not Resistant | + Resistant |
| Wisk® Laundry Detergent | *Standard conditions* | 0 Limited | + Resistant |
| Spray 'n Wash® Stain Remover | *Standard conditions* | 0 Limited | + Resistant |
| **AQUEOUS SALTS & SURFACTANTS** | | | |
| Calcium Chloride, 10% | *Standard conditions* | + Resistant | + Resistant |
| Zinc Chloride, 10% | *Standard conditions* | + Resistant | + Resistant |
| Igepal® CO-630, 10% | *Nonionic surfactant* | 0 Limited | + Resistant |

→ Indicates ChemShield PCX improvement over standard PC. PC/PET rating scale — **+ Resistant:** strain limit ≥1.2% | **0 Limited:** strain limit 0.6%–1.0% | **– Not Resistant:** strain limit ≤0.4%. PC ratings sourced from published Makrolon® chemical resistance data (Covestro/Bayer). PC/PET data: Bayer Makroblend® UT 1018 Chemical Resistance Bulletin (June 1996). Results are concentration-, time-, temperature-, and design-dependent — production parts must be evaluated under actual application conditions.