

## CLEANING INSTRUCTIONS FOR ALL BULLET RESISTANT GLASS

Glass clad polycarbonate is made up of multiple layers of glass laminated together and finished with an interior layer of polycarbonate. Plastic materials that can be adversely affected by different chemicals and solvents. Many of the common household glass and hard surface cleaners contain harsh chemicals that should not be used when cleaning bullet resistant glazing. The following techniques are for cleaning the surfaces of Glass Clad Polycarbonate provided with the booth. Care should be taken to not expose the laminate edges to any moisture or chemicals. The following guidelines are based on standard industry practices, to ensure acceptable results, always test a sample of the material with the cleaner and technique to be used.

### **STEP #1**

Pre-rinse exterior glazing to remove any dust, dirt, or debris from glazing. (de-ionized water recommended for best results)

### **STEP #2**

Wash with a mild soap or detergent (see recommended cleaners) and lukewarm water using a clean sponge or soft microfiber cloth. Rinse well with water. Dry thoroughly with chamois or moist cellulose sponge. (Do not use a squeegee on polycarbonate.)

### **STEP #3**

Final Wash with a VERY mild soap or detergent (see recommended cleaners) and lukewarm water using a clean sponge or soft cloth. Rinse well with water. Dry thoroughly with chamois or moist cellulose sponge. (Do not use a squeegee on polycarbonate surface.)

### **GENERAL GUIDELINES:**

- ALWAYS use clean soft clothes or sponges for application of cleaners and again for washing and rinsing.
- ALWAYS follow application with warm water rinse.
- DO NOT use abrasives or high alkaline cleaners.
- DO NOT leave cleaners on surface for long periods of time, wash immediately.
- DO NOT use cleaners in direct sunlight or at elevated temperatures.
- DO NOT use scrapers or razors.
- DO NOT use squeegee on Polycarbonate surface.
- DO NOT use Benzene, Gasoline, Acetone, Carbon Tetrachloride or other detrimental chemicals. (See attached list)
- DO NOT expose the edges of laminates with PVB (Polyvinyl Butyral) Interlayers, to organic solvents, which can react with the plastic interlayer. This includes but is not limited to, Naphtha VM&P Grade, Isopropyl Alcohol, Kerosene, Petroleum Spirits, or any Aliphatic Hydrocarbons.

### **RECOMMENDED CLEANERS AND DETERGENTS:**

Joy, Palmolive, Novus Acrylic Bullet Resistant Glass Cleaner & Polish, General Dish Soap



CLEANING INSTRUCTIONS FOR ALL BULLET RESISTANT GLASS CONT.

**ADDITIONAL INFORMATION ON ENVIRONMENTAL RESISTANCE OF POLYCARBONATE:**

Polycarbonate sheet may be used in a diverse range of environmental conditions. However, as with any thermoplastic, some environmental conditions have proven to be detrimental to polycarbonate. Varying degrees of stress, strain and temperature may also alter the resistance of polycarbonate sheet.

**POLYCARBONATE IS NOT RESISTANT TO:**

Acetaldehyde	Caustic Soda Solution 5%	Nitrobenzene
Acetic Acid (concentrate)	Chlorothene	Nitrocellulose Lacquer
Acetone	Chlorobenzene	Ozone
Acrylonitrile	Cutting Oils	Phenol
Ammonia	Cyclo Hexanone	Phosphorous Hydroxy
Ammonium Fluoride	Cyclohexene	Chloride
Ammonium Hydroxide	Dimethyl Formamide	Phosphorous Trichloride
Ammonium Sulfide	Ethane Tetrachloride	Propionic Acid
Benzene	Ethylamine	Sodium Sulfide
Benzoic Acid	Ethyl Ether	Sodium Hydroxide
Benzyl Alcohol	Ethylene Chlorohydrin	Sodium Nitrate
Brake Fluid	Formic Acid (concentrate)	Tetradynaphthalene
Bromobenzene	Freon (refrigerant & propellant)	Thiophene
Butyric Acid	Gasoline	Toluene
Carbon Tetrachloride	Lacquer	Turpentine
Carbon Disulfide	Thinner	Xylene
Carbonic Acid	Methyl Alcohol	
Caustic Potash Solution 5%	Methyl Ethyl Ketone	

In general, polycarbonate sheet has good resistance to water, organic and inorganic acids, neutral and acid salts and aliphatic and cyclic hydrocarbons. Alkalines, amines, ketones, esters and aromatic hydrocarbons attack polycarbonate. Solvents for polycarbonate are: methylene chloride, ethylene dichloride and dioxane

Polycarbonate sheet has good resistance to water up to approximately 150°F Above this temperature, the effect of moisture is time- temperature related. Exposing polycarbonate sheet to repeated steam cleaning can create hydrolic crazing. The result can be a clouding of the surface.

