

# Maintenance

To keep signage looking its best, it is recommended that periodic maintenance be performed. Every product Gemini offers best practices for cleaning and maintenance. Here you will find the dos and don'ts of maintaining metal and plastic Gemini products.

## Metal

### CLEANING METAL LETTERS & LOGOS

All Gemini metal letters (except anodized and stainless steel) are coated with clear poly paint to help protect the metal from corrosion. Based on where the letters are installed, periodic cleaning of this coating may be required. Wash these letters with a soft cloth and warm, soapy (dishwashing) water. Cleaning with harsh cleaners that contain chemicals is not recommended, as this may damage the clear poly coating. We recommend cleaning every few months or as needed to preserve the original finish.

### CLEANING ANODIZED ALUMINUM

Anodized Aluminum is a superior coating that is both weather- and abrasion-resistant. When your anodized letters require cleaning, just use a soft cloth, warm water, and mild dish soap. While the finish is hard and weather-resistant, do not use any solvent-based thinners (petroleum distillates) or abrasive cleaners, as they will degrade the chemical seal and will cause the finish to fail.

### STAINLESS STEEL CLEANING & CARE

Gemini's stainless steel fabricated letters are provided without a clear poly coating. While this metal is designed to stain or corrode less than other metals, periodic cleaning may be required to retain the original luster and preserve corrosion resistance.

Stainless steel is protected from corrosion by a thin layer of chromium oxide. Oxygen from the atmosphere combines with the chromium in the stainless steel to form this passive chromium oxide film that protects the steel from further corrosion. Any contamination of the surface by dirt, or other materials, hinders this passivation process and traps corrosive agents, thus further reducing corrosion protection. Excessive exposure to salty air or frequent watering (sprinkling) with city water containing chemicals and hard minerals may also stain your stainless letters. Therefore, routine cleaning not only protects the letter's appearance but also the integrity of the metal.

### GENERAL CLEANING

As with coated metal, these letters can be cleaned with liquid soap and warm water. Should mild soap and water not work, the next solution is to use a mild non-

scratching abrasive or chemical such as household cleaners. Most cleaners can be used with warm water, a soft brush, sponge, or clean cloth. Never use Comet, Ajax, Softscrub, or similar common household cleaners. They can scratch the finish, and some contain chloride compounds that can cause corrosion if not thoroughly washed off surfaces.

Depending on the level of dirt or grime, additional cleaning may be required by using water, white vinegar, and a soft cloth or a household stainless cleaner such as “Kleen King”- available for cleaning stainless appliances. Always wipe letter faces in the same direction as the grain. Should polishing be required, use a good stainless polish such as Wenol metal polish and a soft cloth to shine the letters.

Always handle stainless steel with clean gloves or clothes to guard against stains or finger marks. Avoid the use of any oily or greasy rags when wiping the surface.

## **REMOVING FINGERPRINTS & STAINS**

Fingerprints and stains usually affect only appearance and seldom have an effect on corrosion resistance. They are easy to remove by a variety of simple cleaning methods. Fingerprints can be removed with a glass cleaner, white vinegar, or by gently rubbing the surface with a paste of soda ash (sodium carbonate) and water applied with a soft rag. Follow this with a thorough warm water rinse. The key is to not use any cleaner that contains chlorine. Use acetone, methyl alcohol, or mineral spirits.

## **REMOVING CORROSION & RUST STAINS**

Coastal or deicing salts, atmospheric contaminants, inappropriate cleaning products, and superficial carbon steel or iron contamination can cause corrosion or rust staining. If corrosion becomes visible as soon as a few days or weeks after installation, the most likely cause is carbon steel or iron contamination of the surface. If it is surface contamination rather than deeply embedded particles, a surface chemical treatment can dissolve the carbon steel without damaging the stainless steel.

In some parts of the world, you can obtain mild abrasive (200 mesh or finer calcium carbonate) household cleaners that contain dilute acids that are very effective in dissolving rust stains. The acids that are often used for this purpose are citric acid, nitric acid, and oxalic acid.

- Citric acid passivation products can be used, but they are generally less effective than other options.
- There are Nitric acid gels, which can be painted on in the field and then rinsed away.
- Oxalic Acid can be effective if you want to try an intermediate step before stepping up to nitric acid. Both “Barkeepers Friend” and “Zud” contain oxalic acid and a fine abrasive that will not scratch the finish. Make it into a paste, apply to the surface

and let it sit on the surface for 10-15 minutes (giving the acid time to work) before rubbing. Thoroughly rinse off the paste.

Do not use any product that contains hydrochloric acid for this purpose because it can cause surface corrosion. The potential environmental impact of using acid must be assessed before use.

There are also commercial rust removal products that are specifically designed for use on stainless steel. Do not use a general “rust removal” product without identifying its ingredients and determining if they are acceptable for use on stainless steel. Test any new product on a small stainless steel surface prior to use to make sure that it does not cause color change.

## **Plastic**

### **CLEANING PLASTIC LETTERS & LOGOS**

As a general rule, most plastics will require some routine cleaning (every few months) to retain their original luster. Pigmented colors do contain UV stabilizers to slow down natural fading due to exposure to harmful UV rays. Painted colors also contain UV inhibitors and will also lose some original luster when exposed in exterior applications. This “fading” will vary based on color and installation location, as the hot desert sun will fade most colors faster than exposure in more northern climates.

Routine cleaning of plastics and painted plastics is best performed by using warm, soapy water and a soft cloth or sponge. Based on the local atmosphere, cleaning every few months is recommended. Locations such as industrial parks or inner-city installations may require more frequent cleaning as the air quality will affect the cleanliness of the letters. Never clean plastic or laminate letters with any harsh detergent or chemicals, as this will dull (matte) the finish.

### **REPAIRING PLASTIC SCRATCHES**

Scratches in letters can be a distraction, especially with interior installations. Smaller scratches can be minimized by first washing the letter, then lightly wiping the scratch with a soft cloth that has been dampened with isopropyl alcohol. Once cleaned, lightly flame the scratch by quickly heating it with a small propane torch. This will soften the plastic and possibly fill in the scratch. Be careful not to hold the flame on the letter too long as it will burn or catch fire.

## **Illuminated**

### **LED MAINTENANCE**

LEDs will not last forever. Most systems are designed to last approximately 50,000 hours, or around five years. After the LEDs fade or burn out, they will have to be replaced. Most power supplies carry a 3-4 year warranty.