

Glass Cleaning Instructions

1. Introduction

As part of a façade, glass is subject to natural and building-related contamination. Normal contamination, properly cleaned at appropriate intervals, does not pose any problems for glass. Depending on the time, location, climate and the building situation, however, significant chemical and physical deposits of contamination can build up on the glass surface for which correct expert cleaning is especially important.

This instruction document is intended to supply advice on the prevention and reduction of contamination during the service life and for the correct and relevant cleaning of different glass surfaces.

2. Types of cleaning

2.1 During building work

It is of fundamental importance to avoid any form of aggressive contamination during the course of the building construction. If this does happen, the contamination must be washed off as soon as it occurs by the person who caused it using non-aggressive agents with no residue(s).

In particular, concrete or cement slurries, plaster and mortar are highly alkaline and lead to etching (dulling) of the glass if they are not immediately rinsed off with lots of clean water. Dusty and granular deposits must be removed correctly but never when dry. Because of these subsidiary and protective duties, the customer has the responsibility of regulating the different trades and in particular he must inform the trades following about the necessary protective measures.

Minimization of contamination can be achieved by an optimized building sequence and by separately commissioned protective measures, such as the application of protective film to the windows or façade surfaces. The so-called initial cleaning operation has the task of cleaning the components once the building has been completed. It cannot however be expected to be able to eliminate all the contamination which has arisen during the whole building period.

2.2 During use

In order to maintain the properties of the glass over the whole period of use, it is a precondition that correct cleaning, which is matched to the respective type of glazing, is carried out at suitable intervals.

3. Cleaning specifications for glass

3.1 General

The following cleaning instructions apply to all glass products used in building work. When cleaning glass, it is always essential to use lots of water, which must be as clean as possible to avoid a scouring effect from dirt particles. Clean sponges, leather, cloths or rubber squeegees are for example suitable as hand tools. The cleaning effect can be supported by the use of cleaning agents, which should be as neutral as possible, or by commercially available household glass cleaners. If the contamination involves grease or sealant residues, then commercially available solvents such as spirit or isopropyl can be used for cleaning. Of all the chemical cleaning agents, alkaline solutions, acids and fluoride-containing agents should in general not be used. In the case of surface smudges below the surface of the glass, such as on acid etched glass, you can use one of the two following options:

1. Spray the affected area with regular glass cleaner (non-foaming cleaner). Use Bar Helpers Friend (found in most supermarkets and hardware stores), (powder form, not the liquid soft scrub) with water, applied with "000" steel wool. Lightly scrub these stains until the smudge has been removed, then apply clean water to rinse away all the Bar Helpers Friend residue and then clear with regular window cleaner. Do not rub the glass hard or for a prolonged time as this may begin to abrade the actual surface of the glass.
2. Spray the effected area with regular glass cleaner (non-foaming cleaner). Use a Mr. Clean Extra Power Magic Eraser Pad to scrub the affected area in small circles. The pad has a slightly abrasive texture and it will help remover dirt and grime. Also, be careful to not rub the glass too hard as it may begin to abrade the glass surface.

An important note is that if the affected area has silicone or silicone residue on the surface, it may be very difficult to clean, and you will need to contact us at *Pulp Studio* for additional instructions.

Any glass that is frosted with a polymer coating should only be cleaned with ammonia free cleaners such as "Sprayaway", "**DO NOT USE ANY CAUSTIC CLEANING AGENTS**" or any cleaner with any type of aggressive additives. Use of these products can remove the polymer coating.

The use of pointed, sharp metallic objects, such as blades or knives, can cause surface damage (scratches). A cleaning agent should not discernibly attack the surface. So-called "shaving" of the glass with a blade in order to clean complete glass surfaces is not permitted. If damage to the glass products or glass surfaces, caused by the cleaning, are found during cleaning work, the cleaning must be stopped immediately, and the necessary information obtained to avoid any further damage.

3.2 Especially refined and externally coated glass

The following specially refined and externally coated glass products are high-quality products. They require special care and attention during cleaning. Damage to such products can be more visible or impair the function. Certainly, in the case of externally coated products the special recommendations by the individual manufacturer concerning cleaning must also be observed. "Shaving" of the glass surface with a blade is not permitted.

- Certain types of sun protection (dark) glass panes are used as the external layers (Position 1 = weather side). These can often also be recognized by a very high level of reflection in the visible range. Sun protection glass panes are often at the same time also thermally tempered, in particular for façade panels or sun skirts.
- Additional reflection-reducing layers (anti-reflection layers) can also be applied to the external or internal sides of glazing panels (Pos.1 or Pos. 4), which are difficult to recognize because of their nature.
- External or internal thermal insulating layers are a special case (Pos.1 or Pos.4). In the case of special window structures these layers in certain exceptional cases may not face the intermediate gap of the insulating glass. Mechanical damage to these layers is mostly seen in the form of abrasion stripes because of the slightly rough surface.
- Dirt-deflecting/self-cleaning surfaces are optically difficult to recognize. Because of their benefits these coatings are mostly arranged on the side of the glazing, which is turned towards the weather. In the case of self-cleaning layers mechanical damage (scratches) does not just represent visually recognizable damage to the glass but can also lead to functional losses at the damaged positions. Silicon or grease deposits must also be avoided on these surfaces. Therefore, rubber squeegees in particular must be free from silicone, grease and foreign bodies.
- ESG BI-Tensit (tempered glass) as well as TVG BI-Hestral (semi-tempered glass) are permanently marked according to the legal regulations and can be combined with the above mentioned coatings. As a result of the further processing tempered glass does not in general display the same extreme flatness as normally cooled plate glass. Installation is specified in great detail in order to satisfy the statutory or normative regulations. The surface of ESG is changed in comparison with float glass by the thermal tempering process. A tension profile is created which leads to a higher tensile bond strength. This can lead to an alternative surface characteristic.

The abovementioned refined and externally coated glass panes are high-quality products, which require special care and attention during cleaning.

4. Further recommendations

The use of portable polishing machines to remove surface damage leads to significant erosion of the glass mass. This can also cause visual distortions, which can be recognized as "lens flares". The use of polishing machines is not permitted especially in the case of the above refined and externally coated glass panes. In the case of ESG the "polishing out" of surface damage leads to a loss of strength. As a result, there is no longer any guarantee of the safety of the component.

Glass surfaces can be unevenly wet-able. This can be traced back for example to the marks from stickers, rollers, fingers and residual sealant, but also to environmental influences. This phenomenon is only visible if the pane is moist – that is also when it is being cleaned.

All above details are subject to technical changes. *Pulp Studio, Inc.*