

Automotive Visual Inspection Guidelines For Applied Window Film

Installed automotive film on glass surfaces is not expected to have the same level of visual quality as glass. The following criteria apply to the installed film only and not to any defect inherent in the glass.

Installed film normally has a slightly delayed time for full adhesion to be achieved since installation utilizes a surfactant or slip agent solution in water to float the film onto the glass: the excess water is then squeegeed out, but inevitably some residual water will remain between the film and glass.

This residual water will initially affect the visual clarity and full adhesion to the glass. The time to achieve full adhesion is often referred to as “the adhesive cure time,” but on automotive films it is really the “drying time” of the residual moisture. Adhesion will be increasing from a lower value to the normal expected value during this time. The time it takes for the film to fully cure is related to thickness of the film and the various specialized coatings on the film. Typical cure times may also be extended or shortened according to climatic conditions and vehicle storage.

Certain films with special high-performance coatings may have lengthened cure times. Consult the manufacturer for expected cure times of these films.

Inspection for visual quality can be made before full cure is attained. It should be noted that certain observations during clearing and drying, such as water distortion, and water haze are not to be regarded as defects.

The glass with applied film shall be viewed at right angles to the glass from inside the vehicle, and outside the vehicle from a distance of 3 feet. Viewing shall be carried out in natural daylight.

The installation shall be deemed acceptable if all of the following are unobtrusive (effects during cure should be disregarded): Dirt Particles, Hair and Fibers, Adhesive Gels, Fingerprints, Air Bubbles, Water Haze, Scores and Scratches, Film Distortion, Creases, Edge Lift, Nicks and Tears. Inspection may be made within 1 day of installation. Obtrusiveness of blemishes shall be judged by looking through the film installation in natural daylight.

The top edge may have a maximum edge gap of $1/32 - 1/16$ inch (1-2 mm). This ensures that film edges are not lifted up by contact with the frame gasket when a window is raised and lowered inside its frame. In certain installations where top edge "shaving" has been performed, there may appear to be no gap at all.