



# Technical Bulletin

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ATS-143  
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## Hand Cleaning

### Pilkington **Energy Advantage**<sup>™</sup> - Low-E and Pilkington **Solar-E**<sup>™</sup>

#### ***Summary***

Pilkington **Energy Advantage**<sup>™</sup> Low-E and Pilkington **Solar-E**<sup>™</sup> each have a very thin, hard, pyrolytic coating on one surface. This durable low emissivity coating gives them improved thermal insulation performance, and in the case of Pilkington **Solar-E**<sup>™</sup>, improved solar control, compared to ordinary clear glass. The glass side can be cleaned exactly as instructed in ATS #144 for plain glass. The low emissivity coated side does have a very fine, hard texture which requires a slightly different cleaning procedure compared to that needed for plain, non-coated, glass. Cleaning details for the coated surface are given below.

#### ***Routine Cleaning***

Hand cleaning a pyrolytic low emissivity coating, to visibly remove accumulated dust or fingerprints, can be accomplished by using a number of different cleaning products which are readily available from domestic supply, grocery and hardware stores.

Do not use razor blades, steel wool or other metallic objects on the coated surface. The hard coating would probably not be damaged but fine metal marks, looking like scratches in sunlight, could easily be left on the coating. Such marks would need special cleaning techniques to remove them – see Page 4 below.

Follow the manufacturers recommended handling procedures for each product listed.

#### ***Recommended Routine Cleaning Products***

- “Sparkle Glass Cleaner”, clear liquid available from grocery stores, produced by A.J. Funk & Co., Elgin, IL. Contains 2-Butoxyethanol.
- “Windex® Advanced Glass & Multi-Surface”, blue liquid, by SC Johnson & Son, Inc., Racine, WI. Contains 2-Hexoxyethanol and Isopropyl Alcohol.

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- "Hi-SHEEN", aerosol spray Glass Cleaner by Sommer & Maca Industries Inc., Cicero, IL. Contains Diacetone Alcohol.
- "Windex® Multi-Surface Vinegar Cleaner", clear liquid by SC Johnson. Contains: 2 Hexoxyethanol, Acetic Acid.
- Mixture of one part clear vinegar with one to ten parts clean water.

Commercially available vinegar-based glass cleaners have generally demonstrated an ability to provide a clean, streak-free coated surface. Pilkington North America, Inc. does not recommend the use of ammonia or alcohol base glass cleaners because these products could leave faint (not permanent) streaks on the coating

*Typical Routine Cleaning Procedure for Pilkington **Energy Advantage™** - Low-E and Pilkington **Solar-E™** Coatings:*

- Flood the low emissivity coated surface with a spray-on cleaning solution or with a cloth saturated with the cleaning solution, to thoroughly wet the surface and remove any grit particles. Be generous with the amount of solution applied.
- Rub the wetted surface with a clean, lint free towel or cloth, to fully dissolve any dirt on the coating.
- Wipe dry with a dry, clean, lint free towel or cloth. It is preferable not to use a squeegee on the low emissivity surface, simply to avoid the possibility of drag marks from the corners of a soft blade abrading against the hard coating.
- To prevent streaking, stop wiping when the glass is almost dry and there is still a uniform, thin film of moisture left on the glass surface. This film will quickly evaporate leaving a clean surface. Note: streaking is simply the re-deposition of smears of non-uniform dirt, and detergent from the cleaning solution if there was too much dirt and too little volume of cleaning or rinsing solution.

***Detailed Cleaning Procedure to Remove Large Amounts of Dirt:***

- If the coated surface is heavily contaminated with dirt, such as during installation on a construction site, use a water spray from a hose or garden spray pressure bottle to flush away insoluble particulate matter without risk of creating fine scratches.
- Flood the low emissivity coated surface with a spray-on cleaning solution or with a cloth saturated with the cleaning solution. Be generous with the amount of solution applied.
- Rub the wetted surface with a clean, lint free towel or cloth, to fully dissolve any dirt on the coating.
- Wipe dry with a dry, clean, lint free towel or cloth. It is preferable not to use a squeegee on the low emissivity surface. To prevent streaking - stop wiping when the glass is almost dry and there is still a uniform thin film of moisture left on the glass surface. This film will quickly evaporate leaving a clean surface. Note: streaking is simply the re-deposition of smears of non-uniform dirt and detergent from the

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cleaning solution if there was too much dirt and too little volume of cleaning solution.

- If, after the above procedure, and under critical viewing, the glass does not appear clean then a rinse with distilled water should be made after detergent washing - before the cleaning solution has had time to evaporate - to remove the dirt contaminated detergent solution. When properly done this allows the final evaporation of a thin film of pure, clean rinse water which cannot leave any visible deposits.

### ***Spot Cleaning***

Occasional spot cleaning may be required to remove stubborn dirt or foreign materials that have adhered to the low emissivity coated surface. Spot cleaning products containing organic solvents, or a one-time gentle hand application of very fine abrasives, can be used to remove markings from grease, oil, tape adhesive, and crayons or other waxy materials as well as paint and rub-off marks from plastics. Overly aggressive application of abrasives will rub a permanent bright spot into the coating.

### ***Recommended Spot Cleaning Products:***

- "Soft Scrub® with Bleach Cleanser", mild abrasive cleaner, produced by The Clorox Co., Oakland, CA. Contains: Calcium Carbonate and Sodium Hypochlorite.
- "Bar Keepers Friend Liquid®", produced by Servaas Laboratories, Indianapolis, IN. Contains: Oxalic Acid and fine abrasive powder.
- "Goof-Off" from Valspar Corp., Wheeling, IL and Lilly Industries Inc., Grand Rapids, MI 49512. Contains Xylene and Ethyl Benzene.
- Denatured Alcohol, Methyl Ethyl Ketone, Acetone or other organic solvents available from hardware stores.

### ***Spot Cleaning Procedure:***

- Use a cloth saturated with a routine cleaning solution to thoroughly wet the surface and to remove any grit particles.
- Apply a small quantity of one of the cleaners listed above to a clean, wet cloth or towel.
- Rub on areas of coating needing spot cleaning.
- Take particular care to prevent solvents, such as those listed above, from contacting glass sealants, framing and adjacent paintwork.
- Wipe clean using a dry, clean, lint free towel or cloth and immediately follow with the rinsing procedure given above in "Detailed Cleaning Procedure".

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### ***Specialized Cleaning***

If metallic objects have contacted the coated surface, a thin layer of metal removed from the object may be deposited onto the coating which results in a discolored stain or mark that looks like a scratch. Such marks cannot be removed using the normal cleaning procedures given above but do require the specialized techniques below.

### ***Recommended Specialized Cleaning Products for Removal of Metal Marks, etc.:***

- "Lime-A-Way", by Reckitt Benckiser Inc. Contains Sulfamic Acid, Isopropyl Alcohol and Hydroxyacetic Acid.
- Muriatic Acid, (available from hardware stores). 20% Hydrochloric acid solution in water.
- "Acid Magic™", Muriatic Acid Replacement (available from hardware stores), produced by Universal Chemicals & Supplies Inc., Div. of Certol International LLC, 6120 E. 58th. Ave., Commerce City, CO. Tel 800 843 3343. Contains: Hydrochloric Acid.

### ***Specialized Cleaning Procedure:***

- Use a cloth saturated with a routine cleaning solution to thoroughly wet the surface and to remove any grit particles.
- Apply a small quantity of one of the specialized cleaning products listed above to a wet, clean cloth or towel.
- Rub only on the areas of glass needing cleaning. Do not allow splashing onto adjacent glazing frames, etc.
- Wipe clean using a dry, clean, lint free towel or cloth. Follow with the rinsing procedure given above in "Detailed Cleaning Procedure".

For the suitability of cleaners not discussed here, or for further information, please contact the Architectural Technical Services Department of Pilkington North America, Inc. at 419 247 4448.

The information contained in this bulletin is offered for assistance in the application of Pilkington North America Inc. flat glass products, but **IT DOES NOT CONSTITUTE A WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** Actual performance may vary in particular applications.

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