# Application Manual
# *IRUV & IR Cut Coat*

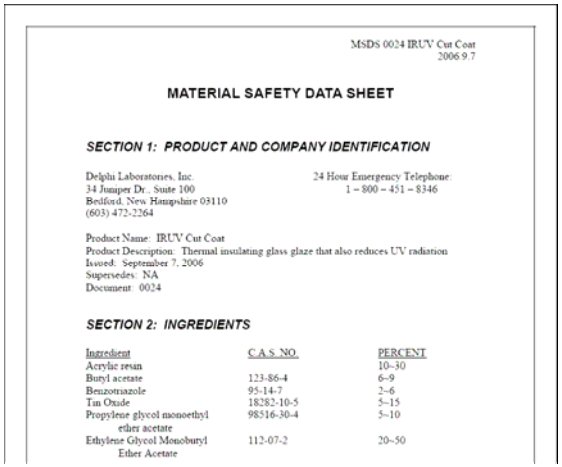
Standard Coating Procedures

# Standard Coating Procedures *(IRUV & IR Cut Coat)*

1. Safety Preparations
2. Confirming Conditions and Photographing Site
3. Applying Masking Tape: (a) materials; (b) procedures
4. Preparing the Window Surface
5. Primer
6. Coating (tools, sponges, mixing and application)
7. Drying and Ventilation
8. Cleaning Up
9. Wrapping Up Application

- Removal Steps

# *1. Safety Preparations*



MSDS 0024 IRUV Cut Coat
2006.9.7

**MATERIAL SAFETY DATA SHEET**

***SECTION 1: PRODUCT AND COMPANY IDENTIFICATION***

Delphi Laboratories, Inc.
34 Juniper Dr., Suite 100
Bedford, New Hampshire 03110
(603) 472-2264

24 Hour Emergency Telephone:
1 – 800 – 451 – 8346

Product Name: IRUV Cut Coat
Product Description: Thermal insulating glass glaze that also reduces UV radiation
Issued: September 7, 2006
Supersedes: NA
Document: 0024

***SECTION 2: INGREDIENTS***

| Ingredient | C.A.S. NO. | PERCENT |
|---|---|---|
| Acrylic resin | | 10–30 |
| Butyl acetate | 123-86-4 | 6–9 |
| Benzotriazole | 95-14-7 | 2–6 |
| Tin Oxide | 18282-10-5 | 5–15 |
| Propylene glycol monoethyl ether acetate | 98516-30-4 | 5–10 |
| Ethylene Glycol Monobutyl Ether Acetate | 112-07-2 | 20–50 |

Ensure that you have a copy of the Material Safety Data Sheet (**MSDS**) for each solution you may be using (IRUV Cut Coat, Hardener, Remover and Neutralizer).

Ensure that you have all appropriate protective and safety gear, including **gloves**, **mask** and eye protective **goggles** as recommended in the MSDS.

Review the lists of materials needed for cleaning the window and applying the coating.

# *2. Confirming Conditions and Photographing Site*


1. Check the temperature and humidity.
   - Outside temperature needs to fall within the range of 5ºC and 35ºC.
   - Relative humidity must be 70% or less.
2. In the event these conditions are not met, application should be rescheduled.
3. If the conditions are met, they should be recorded on the application check sheet.
4. Photographs of the site should be taken. Photographs are helpful records in avoiding misunderstandings with customers.

# 3. *Applying Masking Tape*
## a. *List of Materials*


1. Spray bottle (water)
2. Grease remover
3. Primer (alcohol)
4. Cloths and paper towels
5. Masking tape
6. Masking tape with plastic wrap
7. Buffer
8. Scraper
9. Squeegee
10. Other tools as necessary

# *3. Applying Masking Tape*
# *b. Taping Procedures and Video*

Wipe clean the caulking around the windows with alcohol and then securely apply masking tape and/or masking tape with plastic wrap. This will protect the caulking from water and the liquid coating.

Because even a slight breeze may cause the plastic wrap attached to the masking tape to move, all corners of the plastic wrap should be secured with additional masking tape.

When the tape does not adhere to the surface well, clean that area first with the grease remover to permit better adherence.

**Click** on the picture above for a **video** of the masking process.

# *4. Preparing the Window Surface (Removing Grease and Stains)*

1. Apply degreaser with damp buffer. While spraying window with water, clean entire window with firm polishing strokes.
   - Edges of window require special attention (more silicon).
   - Older glass with heavy stains or areas that are more hydrophobic requires extra attention.
   - A scraper may be necessary for stubborn stains. Be careful to avoid scratching glass surface.
2. Wash off degreaser with water.
3. Remove water with paper towels or a squeegee. Do not reuse paper towels.
4. Confirm cleanliness of surface by spraying entire surface with water. If there are no gaps where water is repelled, the surface is clean.
5. Remove water completely.

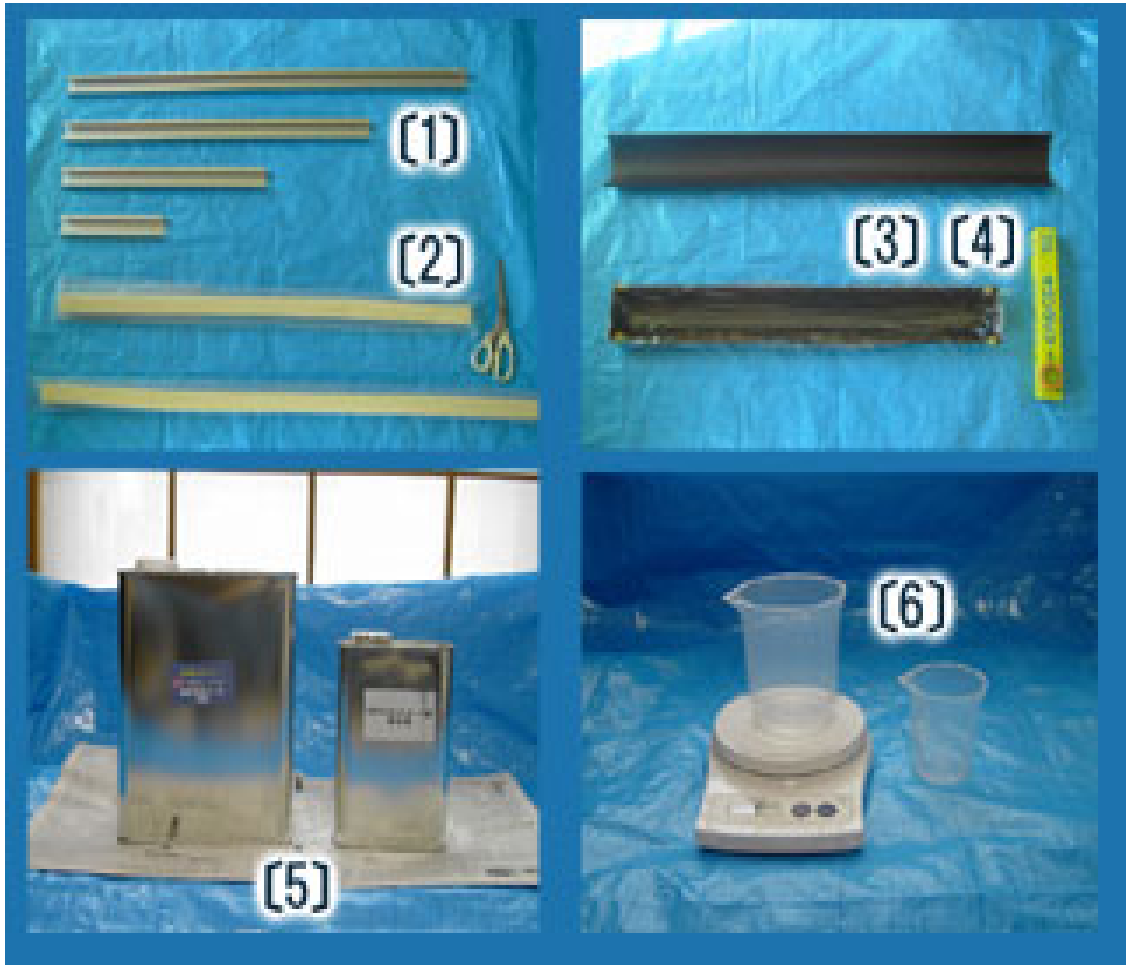
- Broad strokes are necessary to confirm the consistency of the greasy membrane created by the degreaser before removal.
- Please note that cleaning the window constitutes 80% of the work. The importance of cleaning the window cannot be overstated.


**Click** on the picture above for a **video** of the grease removal process.

# *5. Primer*

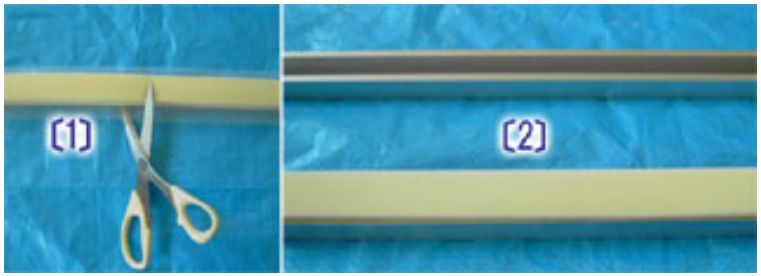

1. Remove the masking tape and wipe up any remaining water.
- Reapply masking tape to the window. This step is necessary because moisture and degreasing solution remain on tape.
2. Apply primer by wiping entire glass with cloth moistened with primer.
- Do not use towel or coth that breaks apart.
- Ensure primer has fully vaporized.

# *6. Application of Coating*
## *a. Preparation of Tools*

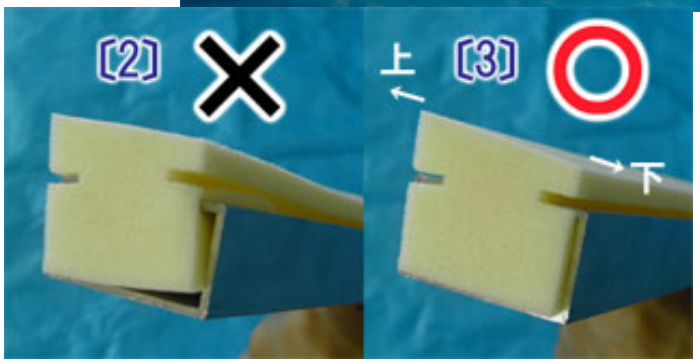



1. Aluminum handle for sponge
2. Custom-made sponge
3. Gutter (receptacle)
4. Plastic wrap
5. IRUV Cut Coat and Hardener
6. Measuring Cup
7. Other items as necessary

# *6. Application of Coating*
# *b. Cutting and Inserting the Sponges*



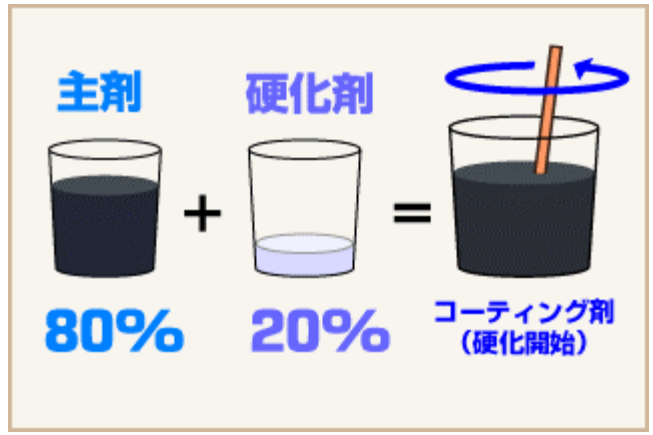





1. Cut sponge cleanly while still in plastic.
2. Cut sponge 5mm longer on each side than holder.
3. Insert sponge into holder.
   Avoid directly touching surface of sponge that will touch glass. Use alcohol to clean surface.
4. Confirm correct insertion of sponge. In Photos 1 & 2 at left, sponge is not in correctly.
5. Photo 3 shows correctly inserted sponge. Thicker side of sponge will be toward to the top of the window.

# *6. Application of Coating*
# *c. Mixing the Coating Solution*

- 1. Prepare the coating solution by mixing IRUV Cut Coat (or IR Cut Coat) with the hardener in a ratio of 4 to 1. The coating solution will be comprised 80% of the primary solution and 20% of the hardener.
- 2. Calculations for the amount of solution
  - 20cc per square meter of surface to be coated.
  - 10cc per 10cm of sponge being used. Thus, an 80cm length of sponge will require 80cm of coating solution to prepare the sponge in addition to the 20cc per square meter required in the preceding section.
  - Increase the above volume by 10% for error or waste.
  - Of the above number, mix 80% of the primary solution and 20% of the hardener.
  - After combining the two liquids, stir for at least 30 seconds. Because the solution will begin to harden, promptly move to application.




Primary Solution | Hardener | Mixed Solution

# 6. Application of Coating
# d. Application Steps

1. **Pour solution in gutter lined with plastic wrap.** Pour in two or three steps (1/3 to 1/2 at a time). The key is for the sponge to soak up the solution evenly without air pockets. Do not oversoak the sponge. Generally, you should not put more than 20cc per 10cm of sponge on at one time.
2. **Holding the sponge about 20cm below the top of the window, apply the sponge to the glass surface (with the thicker portion of the sponge on top) and move the sponge evenly to the top of the window and then down to the bottom of the window in a single smooth motion.** Caution: failure to apply even pressure to the sponge throughout will result in drips or gaps in application. Practice until you are able to confirm even application by looking at the surface from multiple angles.
   a. At the bottom of the window, withdraw the bottom of the sponge first while keeping the point of the sponge in contact with the window until the very bottom of the window.
   b. To avoid gaps in application on the lower portions of a window, go over the entire window a **second time** with the sponge.
   c. For very tall windows, you may want to prepare a 10cm wide sponge that is easier to work with and may be dipped quickly during application.
4. When going over an area with the sponge a second time, work quickly because the first layer is already beginning to harden.
5. The coating will level for **5~10 minutes** during which time unevenness (if not too pronounced) should disappear.
6. Change the sponge when the sponge itself starts to pull apart and create imperfections or when the coating solution begins to harden in the sponge.
7. If gaps or drips appear that are not corrected by passing over the area a second or third time with the sponge before leveling is complete, then the **coating should be immediately removed** and application should begin with the window preparation step (Step 4 described in Slide 7 above).

# *7. Drying and Ventilation*

- Drying
  1. Until the surface hardens to the touch (so that fingerprints will show), inspect the surface for gaps, imperfections and dust.
  2. If inspection reveals unacceptable imperfections, the coating should be promptly removed. Small organisms or tiny pieces of dust should be removed with tweezers. Whether or not the coating has hardened to the touch can be tested on coating that has covered part of the protective masking tape.
  3. Periods for hardening:

     | | |
     |---|---|
     | Hardens to the touch: | 30 minutes |
     | Dries (2-3 H): | 24 hours |
     | Complete hardening (4-5): | 30 days |
     | Elimination of Odor: | 2-3 hours after hardening to touch |

  5. Other tools to have on hand for cleaning the surface: tweezers, a piece of felt or microfiber cloth, glass scraper and grease remover.

- Ventilation and Deodorization
  - Inhalation of vapors from the coating solution should be avoided by proper ventilation. Fans and air conditioning may be used to remove the odor of the vapors. Caution should be used to not stir up airborne dust that might attach to the coated surface before it dries. Once the coating has dried to the touch, doors or windows may be opened to remove the odor from the vapors of the coating solution. Be careful of letting in outdoor precipitation and high humidity.
  - Ozone filters may be useful in removing strong odors.

# *8. Cleaning Up (Removing Tape and Gathering Trash)*

1. Confirm in an inconspicuous part of the glass that the coating has dried to the touch. If dried, the masking tape may be removed.

2. Collect all used masking tape and other trash.

3. Make sure all containers of chemicals are closed and prepare for return to office.

# *10. Wrapping Up Application*

1. After cleaning up, take photographs of coated surfaces.
2. Complete the Application Record (including date, start and end times, physical conditions, amount of liquid used and other pertinent information).
3. Obtain the client's signature on the Application Record.
4. Explain to the client the proper care of the treated windows.