**Dow Corning® 2634 Coating**

**Spray Application of Clean Surface Coating**

**DESCRIPTION AND BENEFITS**

Touch screen electronic device applications require surfaces that resist fouling and have long-term durability. *Dow Corning* 2634 Coating offers just that by covalently bonding to glass, plastic and metal oxide surfaces. When cured, it creates a thin, transparent film that is easy to clean, reduces staining, increases durability and improves the device display and user experience. When properly applied, this coating will not affect the optical properties of the underlying substrates and display module. *Dow Corning* 2634 Coating in a spray application allows thin layer deposition, improving yield and throughput, especially on larger surface areas such as tablet computers, all-in-one computers, computer monitors and presentation or television monitors. Additionally, the spray application eliminates the batch processing requirement and allows for a continuous process – lowering total cost of ownership without sacrificing performance.

This guide provides the basic steps to achieve optimum performance through the spray application of *Dow Corning* 2634 Coating.

**SPRAY APPLICATION**

**FLOW DIAGRAM**

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**Clean the substrate**

It is important to obtain a dry and oil-free surface by removing any surface contamination before applying the spray coating. Cleaning techniques may vary depending on the substrate being coated. Common touch panel substrates include glass, PET, PMMA and polycarbonate.

- Using a multi-slot, ultrasonic clean system with a base, glass cleaner and deionized water has been shown to remove small particles and other contamination found on the surface.
- Make sure to thoroughly dry the surface before further preparation.

**Prepare the substrate surface**

Each substrate surface reacts differently to cleaning and preparation. To promote a proper chemical bond between the coating and the substrate, we recommend a transient surface treatment.

- Plasma or corona discharge treatment, OR
- Wet chemical treatment using diluted acid or base (i.e. *Preparing the surface to increase the Si-OH on the glass surface*)

- If improper surface preparation occurs, performance may be decreased.
- Applying the spray coating immediately following surface preparation is preferred.

There are a range of common surface preparation techniques that may help you achieve the desired end-product performance, depending on your substrate.

Contact a Dow Corning Electronics industry expert at 1.989.496.7878 for more specific information.
Coat the substrate surface

- *Dow Corning* 2634 Coating should be diluted with a suitable solvent to 0.1% - 0.2% concentration. Some acceptable solvents include:
  - Perfluorohexane (C\textsubscript{6}F\textsubscript{14}), Hydrofluoroether (C\textsubscript{4}F\textsubscript{9}CH\textsubscript{3})
  - *Novec*® HFE-7100 or HFE-7200, *Solvay Solexis*® HT-110, *Fluorinert*® FC-77

- Complete and uniform coverage of the surface is necessary for optimum performance. To help you achieve this performance, we recommend an air assisted atomization pressure of 5 - 10 psi (34 - 69 kPa) and fluid pressure of 3 - 5 psi (20 - 23 kPa). For ultrasonic assisted atomization, use 30 - 45 kHz frequency and liquid flow rates of 3-5 mL per minute and air shaping pressure of 30 - 60 psi (206 - 413 kPa).

- For maximum performance, the properly diluted spray product needs to be chemically bonded to the substrate.

If improper surface coating occurs, performance may be decreased.
**Dow Corning® 2634 Coating Cure Profile at 50% RH on Glass**

**Cure the coating**
A humid environment is preferred for proper cure. If possible, use a humidity-controlled chamber at 50% relative humidity (RH). You can also obtain 50% RH by placing a large pan of deionized water in the temperature chamber during the cure process.

The graph above indicates potential cure times based on variable temperatures.

The following cure conditions are recommended prior to performance testing:
1. Cure >24 hours at room temperature, OR
2. Cure two hours at 50°C

After cure processing may be required in order to achieve the desired end product appearance and performance requirements.

**After cure process**
- If the surface appears oily or hazy, wipe it with a clean cloth.
- If oil or haze remains after wiping, rinse with deionized water or one of the following suggested solvents:
  - Perfluorohexane (C_{6}F_{14}), Hydrofluoroether (C_{4}F_{9}CH_{3})
  - *Novec®* HFE-7100 or HFE-7200, *Solvay Solexis®* HT-110, *Fluorinert®* FC-77

**Curing Process**
Insufficient curing may result in poor coating performance.
LEARN MORE
To speak with a Dow Corning Electronics industry expert about specific spray application details, call 1.989.496.7878.

Dow Corning has sales offices and manufacturing sites as well as science and technology laboratories around the globe. For more information, please visit dowcorning.com/electronics or email electronics@dowcorning.com.

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