

## COATING:

### 1- Permanent Coating:

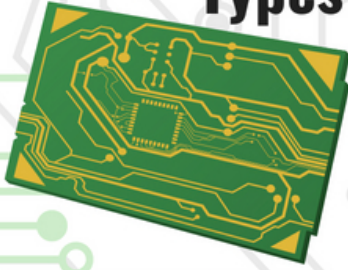
Areas that should not be soldered may be covered with a polymer solder resist (solder mask) coating. The solder resist prevents solder from bridging between conductors and creating short circuits. Solder resist also provides some protection from the environment. Solder resist is typically 20–30 micrometres thick.

Solder mask comes in different media depending upon the demands of the application. The lowest-cost solder mask is epoxy liquid that is silkscreened through the pattern onto the PCB. Other types are the liquid photoimageable solder mask (LPSM) inks and dry film photoimageable solder mask (DFSM). LPSM can be silkscreened or sprayed on the PCB, exposed to the pattern and developed to provide openings in the pattern for parts to be soldered to the copper pads. DFSM is vacuum laminated on the PCB then exposed and developed.

### 2- Conformal Coating:

A newly manufactured printed circuit board will generally perform well, but performance can quickly deteriorate due to external factors in its operating environment. Conformal coatings can be used in a wide range of environments to protect printed circuit boards from moisture, salt spray, chemicals and temperature extremes in order to prevent such things as corrosion, mould growth and electrical failures. The protection provided by conformal coatings allows for higher voltage gradients and closer track spacing, in turn enabling designers to meet the demands of miniaturisation and reliability.

# Types of Conformal Coating



## Acrylic (AR)

- Affordable
- Easily Applied & Removed
- Easy Rework & Repair
- No Curing Shrinkage

## Urethane (UR)

- Great Chemical Resistance
- Good Humidity Resistance
- Resistance to Mechanical War

## Silicone (SR)

- Great in Extreme Temps
- Great Humidity & Corrosion Resistance
- Good Chemical Resistance
- Great PCB Adhesion

## Epoxy (ER)

- Great Abrasion & Moisture Resistance
- Great Chemical Resistance
- Good Humidity Resistance
- Excellent in Harsh Environments

## Parylene (XY)

- Excellent Temperature Resistance
- High Dielectric Strength
- No Curing Time
- Transparent & Colorless

## PROS

## CONS

- Low Chemical & Solvent Resistance
- Low Abrasion Resistance
- Not Good in Harsh Environments
- Not Good For High Temp

- Hard to Remove
- Risk of Peeling
- Takes Long to Cure

- Difficult to Remove
- Localized Repairs Only

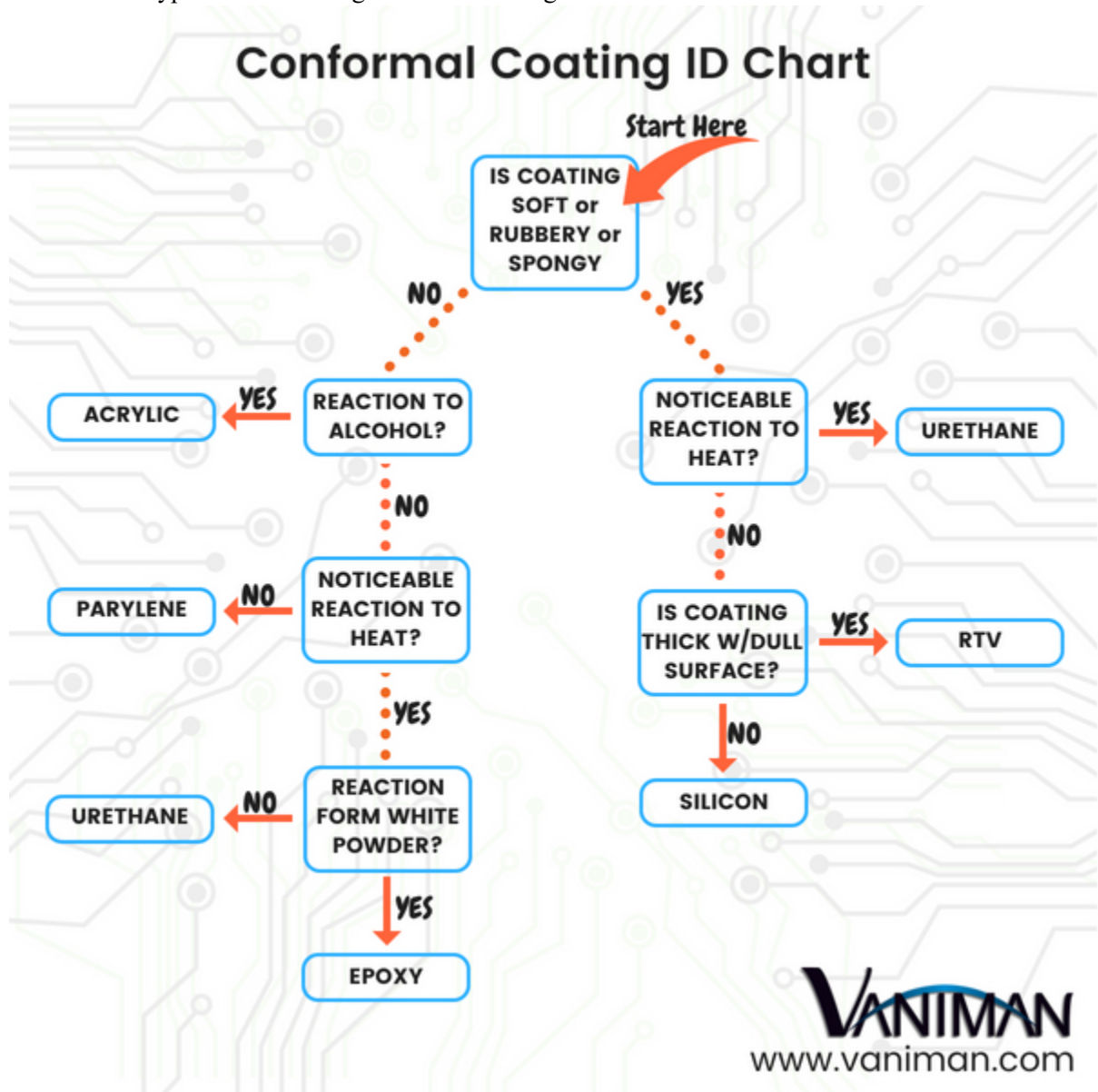
- Difficult to Remove
- Shrinks During Curing Process
- Not Good in Harsh Environments
- Not Good For High Temp

- Requires Air-Abrasion to Remove
- More Expensive to Apply
- Not Good in Harsh Environments
- Not Ideal for Long-Term Outdoor Exposure

ER: epoxy resin

Etc...

To know the type of used coating use the following chart :



To know more about conformal coating watch this video:

<https://www.youtube.com/watch?v=mtsW-aNKddQ>

[https://electrolube.com/knowledge\\_base/what-are-conformal-coatings/#:~:text=A%20conformal%20coating%20is%20a,from%20the%20environment%20and%20corrosion.](https://electrolube.com/knowledge_base/what-are-conformal-coatings/#:~:text=A%20conformal%20coating%20is%20a,from%20the%20environment%20and%20corrosion.)

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