

LOCTITE®



Henkel Solutions For Flat Panel Displays



Henkel



Henkel is a Total Supplier in State-of-Art

Projecting a Bright Future for Display

Henkel is a worldwide operating specialist in brands and technologies with affiliates in over 75 countries, providing adhesives, sealants, and surface treatment, which operates in markets including transportation, electronics, aerospace, metal, durable goods, consumer goods, maintenance and repair and packaging industries. Strong brands, such as Loctite®, Teroson®, P3®, Hysol® and Liofol®, contribute to the success of the business division.

Now we have built a seamless organization to serve the needs of the FPD industry – from R&D and manufacturing to sales and service. Our goal is to provide quickly, reliably service for all customer needs. The Henkel provides a complete range of products – P3 series of surface treatment and Loctite brand of adhesives and sealants, from discrete components to FPD manufacturing. To better serve the FPD industry, we have constructed a new Photochemical Development Laboratory within our Technology Center that will enable us to respond quickly and constructively to meet the needs of our customers. Henkel – a partner you can rely upon for all processes in FPD manufacturing.



**Product Development
Geared to Customer Needs**
Henkel offers products designed to meet customers needs.



Standing at the Forefront of the Industry

**A Wide Range of
Reliable Technologies**
Henkel stands ready to meet customer needs by making the most of innovative surface treatment technologies developed over long years of experience in this highly specialized industry.

**A Global Network
for Sales Support**
Henkel supports the international strategies of our customers by purchasing and marketing network on a global scale.

**The Latest Equipment
Combined with Fast Technical Support**
Henkel is uniquely equipped to provide rapid product development and technical support based on state-of-the-art analyzers and development systems.

Process Cleaning

Specialty Surface Treatments and Panel Assembly for All Phases of FPD and Electronics Manufacturing

Henkel is a trusted name with a proven track record in the field of surface treatments for epoxy substrates, glass substrates, silicon wafers, semiconductors, electronics, and optical devices. Especially noteworthy is our commitment to the field of flatpanel displays (FPDs), where we are responding to the broadest range of customer needs in all phases of manufacturing processes for LCDs, plasma displays, and organic EL panels, as well as providing mission-critical semiconductor cleaning and surface treatment processes.

In the future, count on us to continue to make positive contributions to the industry as the supplier of choice for FPD and electronics manufacturers worldwide.



Glass cleaner
siliron
Glass receiving and pre-cleaning of deposition

Resist developer
disperse
Resist remover/stripper
poleve
Developer and remover for color filters and array substrates

LCD panel cleaner
allpass
kaltfin
Cleaner for LCD panels after injection of liquid crystal material and final assembly

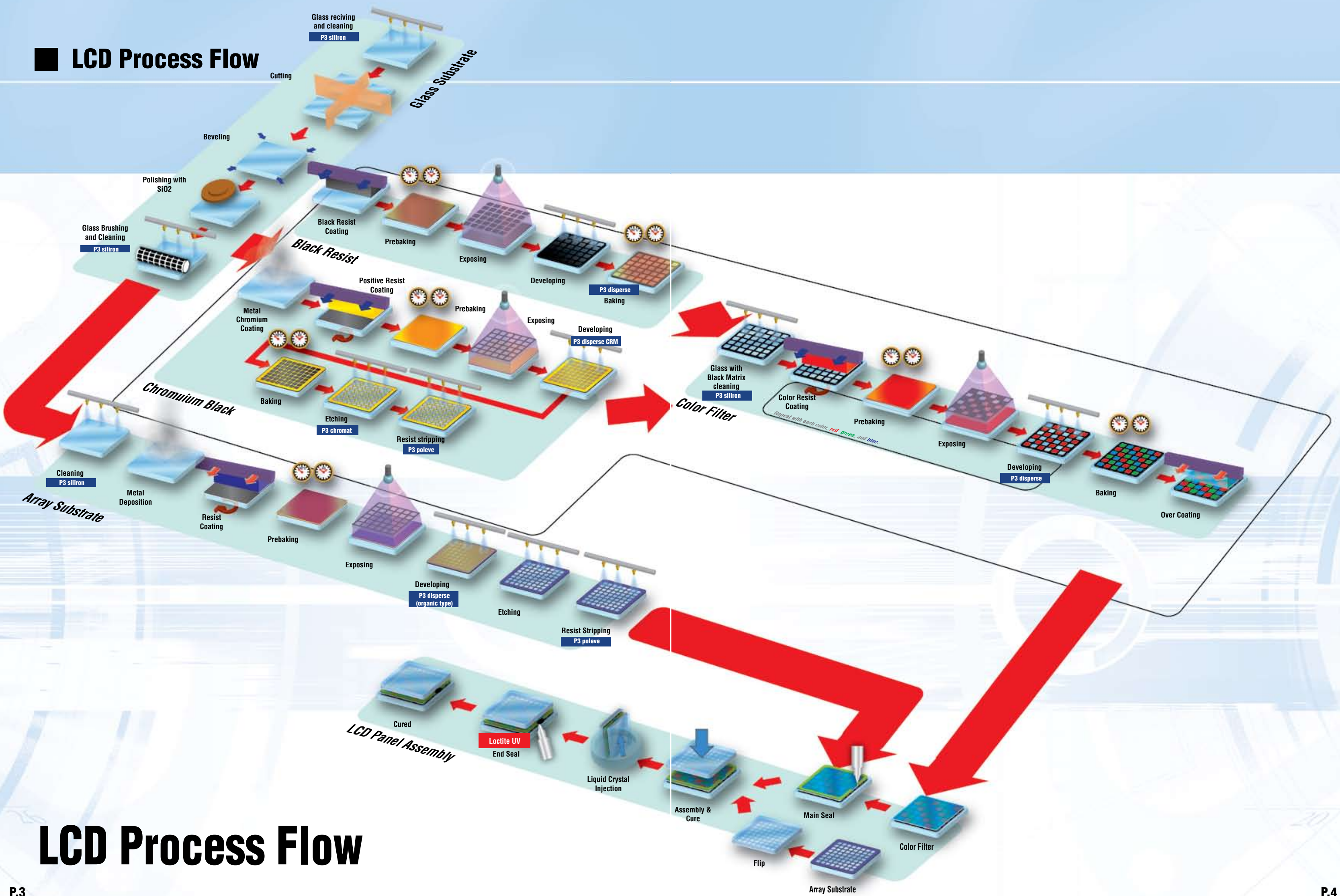
Wafer cleaner
allpass
Silicon ingot and wafer cleaner

Resist developer
disperse
Resist remover/stripper
poleve
Developer and remover for semiconductor photolithography resists

Electronic parts cleaner
raffinit
Substrate cleaner and flux remover

Areas where LCDs are playing an increasingly broad and active role
●Flat-panel TVs ●PCs ●PDAs ●Mobile phones ●Display devices

LCD Process Flow



LCD Process Flow

Panel Applications

Specialty Bonding, Overcoating,
Reinforcement for Assembly

Temporary Bonding ■
Temporary Overcoat ■
End Seal ■

The Loctite brand adhesives and sealants cover one of the most extensive range of chemical-based technologies for a wide variety of general industry sectors. In order to meet the challenges in FDP industry, Henkel aims to develop high-quality and cost-efficient design solutions for the demanding application requirements in panel assembly. We have the diversity and strong expertise to offer one-stop solutions across the value chain of FPD production.

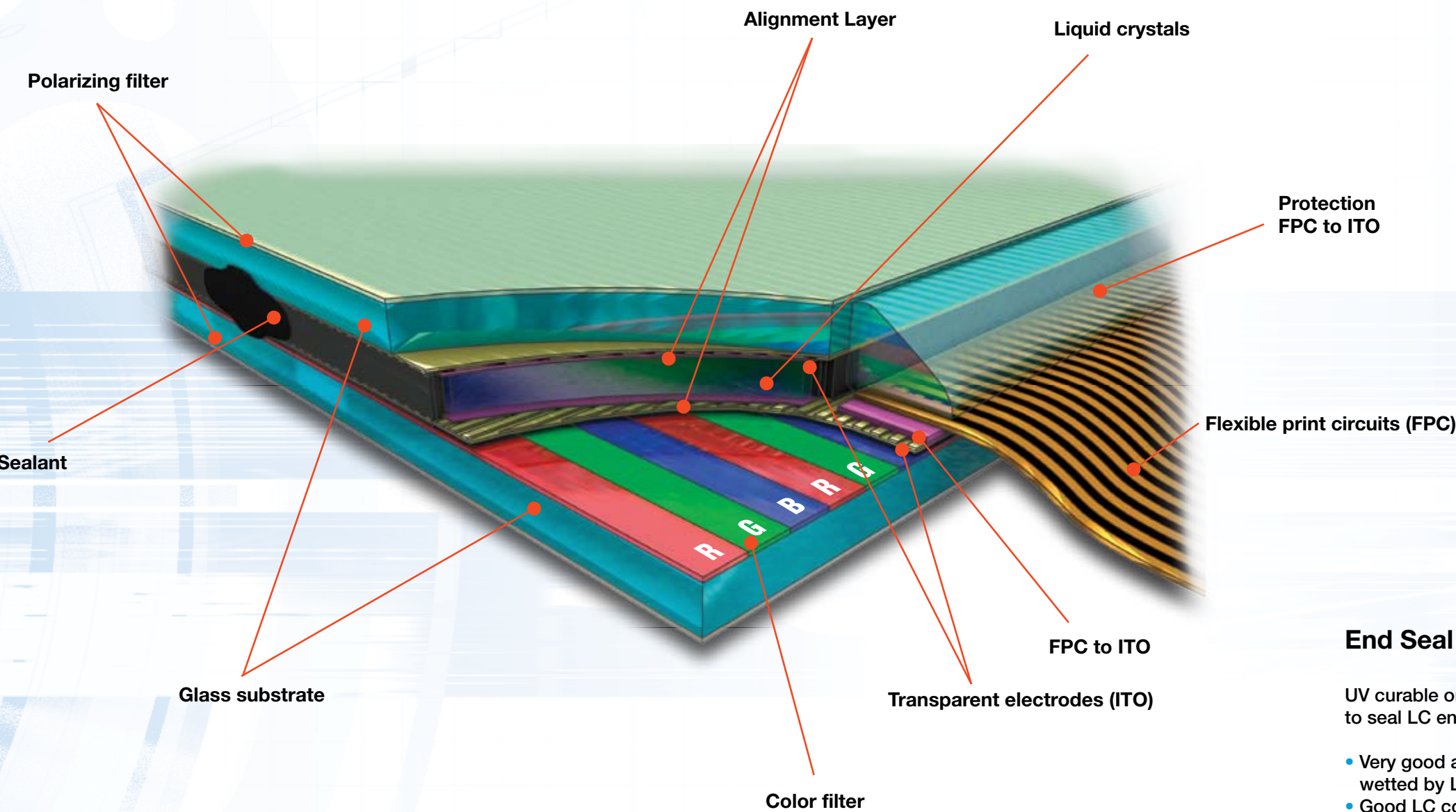


Temporary Bonding

Room temperature or UV curable one-component resin used to position upper and lower glass substrates during the lamination for further processing.

Temporary Overcoat

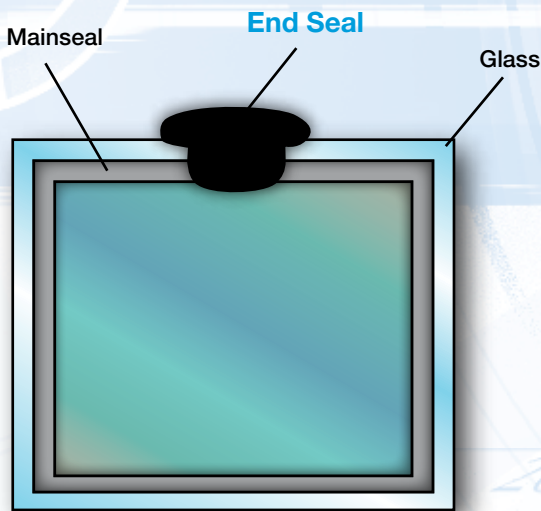
Room temperature or UV curable one-component resin used to protect ITO or IC from cleaning process temporarily. Good protection from water/chemical and easily peeled off after.

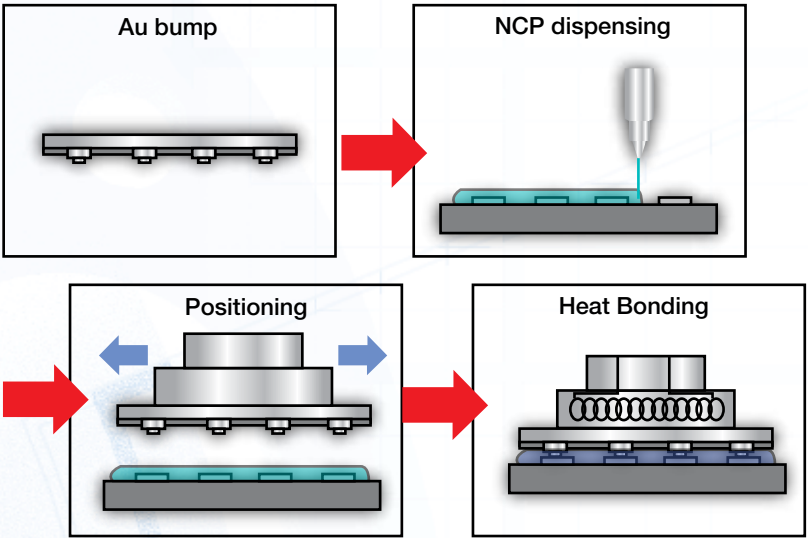


End Seal

UV curable one-component acrylic resin used to seal LC ends.

- Very good adhesion to glass substrate which is wetted by LC
- Good LC compatibility
- Good chemical/cleaner resistant
- Good thermal reliability performance
- Room temperature storage with stable quality

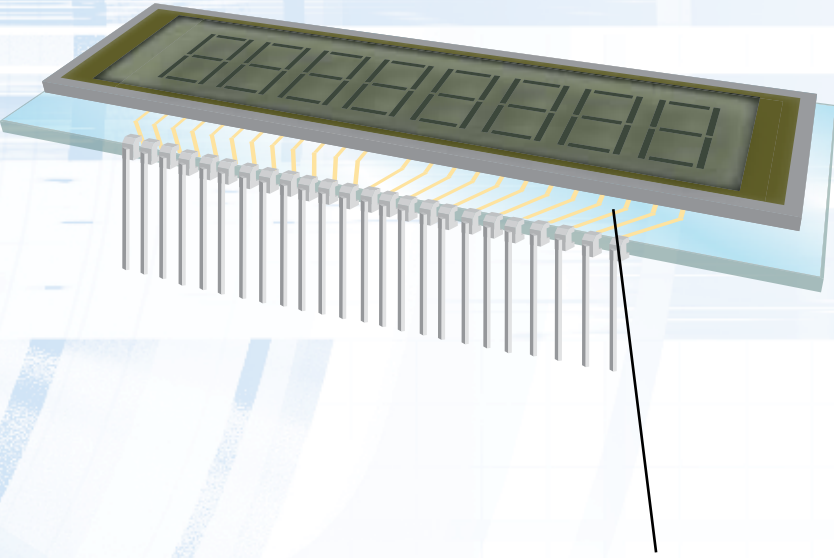




COG Bonding

2 bonding methods provided,

- ACP
- NCP

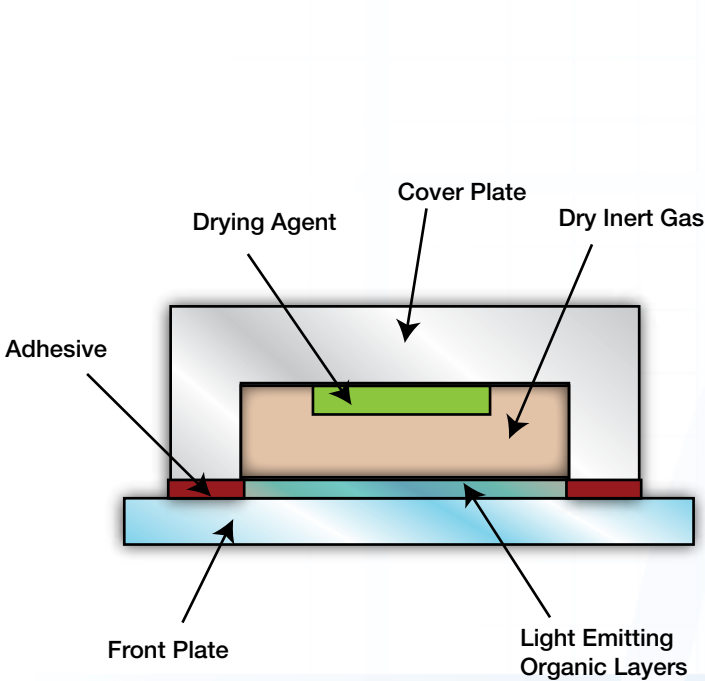


Pin Terminal Bonding

Pin Terminal Bonding

UV curable one-component acrylic resin used to bond terminals

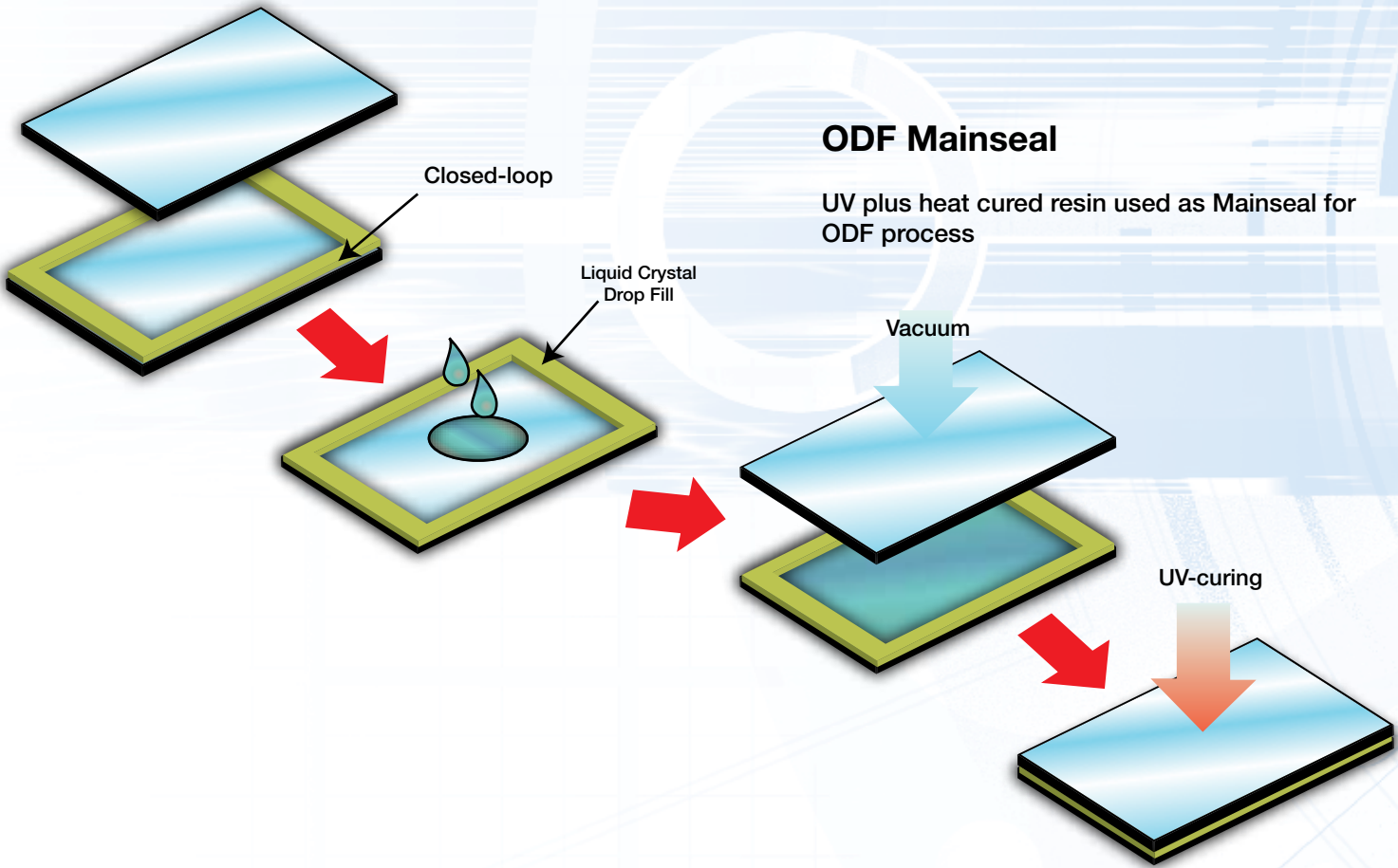
- Fast curing
- Good curing depth to accommodate the pins
- Withstands thermal aging and thermal shock
- Good adhesion and flexibility
- Good mechanical strength



OLED Mainseal

UV plus heat cured resin used as Mainseal for OLED

- Good moisture resistant
- Low water permeability
- Good reliability performance

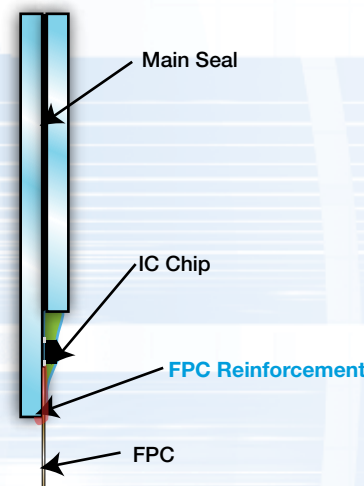
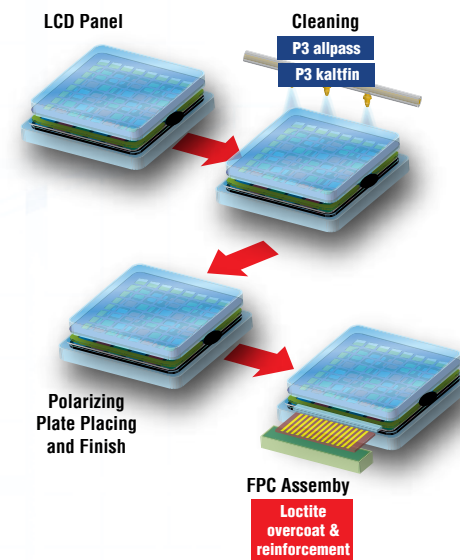


- FPC Reinforcement
- ITO/COG Overcoat
- LCD Cleaning Processes



The P3 siliron series is a family of glass cleaners with wide-ranging applicability, from large format glass substrates to optical devices and lens components. Water-based and low-foaming, they are eco-friendly with low COD and BOD values.

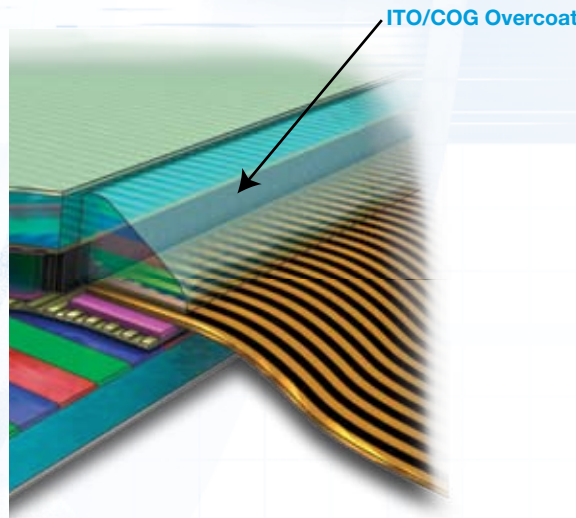
- P3 Kaltin series - Hydrocarbon-based solvent cleaners
- P3 allpass series - aqueous or semi-aqueous cleaners



FPC Reinforcement

Loctite brand UV curable acrylic resin used to reinforce the bonding area of FPC and panel.

- Curable in seconds
- Very good strength
- Good flexibility withstand bending test



ITO/COG Overcoat

Loctite brand UV or Room temperature curable one-component resin used to protect ITO and COG.

- Fast curing
- Good moisture resistant
- Very good strength
- Easily rework / peeled off
- Flexible
- No VOC issue



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