



- 1 FEATURES**
- 2 PROCESS**
- 3 PROPERTIES**
- 4 TROUBLE SHOOTING**
- 5 CAUTION FOR SAFETY**
- 6 REVISION SHEET**

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TAIYO INK MFG. CO., (KOREA) LTD / R&D Institute

Head office & factory : 1058-8, SINGIL-DONG, DANWON-GU, ANSAN-CITY, KYNGKI-DO, KOREA.

Business department : TEL +82 - 31 - 491 - 9250(301-305) FAX +82 - 31- 491 - 7671

R&D institute : TEL +82 - 31 - 491 - 9250 (401-413) FAX +82 - 31- 492 - 2710

UV Curable Etching Resist

AS-500 DK2

1. FEATURES

AS-500 DK2 is UV curable etching resist with excellent in sequential printing for general consumer use, since it's excellent printability and flowing. It's got excellent productivity by uniform coating, Especially, short curing time by U.V. radiation is the most suitable for mass production. And Fine patterning, Etchant resistance is an excellent product.

1) Specification

Main Agent	AS-500 DK2
Color	Blue
Viscosity	230 Ps(Cone-Plate type , 5rpm, 25)
Specific Gravity	1.50
Cure Condition	800 ~ 1,200mJ/cm ² (On the ink surface)
Shelf- Life	6 month after manufacturing (Stored in cool & dark place at 10~20)

* The above-mentioned viscosity can be changed according to using conditions. It is a recommended standard.

2) Lot number Sign

Lot No.	2003	10	15	2	01
Explanation	Year	Month	Day	Divide	Number

2. PROCESS

Properly Control and maintain the recommendation listed in below. When it is not like that, this is responsible for quality and reliability deterioration.

1) Process Flow Chart and Parameter

- (1) Mixing : Use the Turn Table Mixer. 60rpm, 20~30min
- (2) Pre-treatment : Acid Treatment(Sulfuric acid 5 vol%)
Polishing with Brush Roller . (Buff scrubbing; #600 + #1000),
Water spray cleaning,
Drying ; Heat or Hot air blower
- (3) Screen Printing : #305 ~ #325 Mesh-count / inch (SUS screen or Polyester screen)
- (4) Curing : 800 ~1,200mJ/cm² (High Pressure Mercury Vapor Lamp or Metal Halide Lamp, 3 Lamps)

2) Attention On Process

- (1) Keep the operation room cleaned. The product must be protected for dust.
- (2) The contaminations of board cause the quality and reliability deterioration.
- (3) Operating in the clean room of the ambient temperature at 20~25 / 50~ 60%RH.
- (4) Avoid direct exposure to UV and sunlight. Desirable to use ink in yellow lamps.
- (5) Open up the package when it becomes the ambient temperature. Stir well before use.
- (6) Desirable to use ink without dilution. When necessary, Inquire of ours. Because dilution may deteriorate the properties. In this case, solvent must not be applicable.
- (7) Appropriate coating thickness on copper circuit after cure is 10~15 μm . Coating more than the said value may cause lower adhesion, chemical resistance and pencil hardness.
- (8) As curing condition is variable depending on the type of lamps and the intensity of radiation, set it suitable to your process after testing. Curing condition out of the specified tolerance range may deteriorate the properties of resist coating.
- (9) For cleaning screen mesh, ester and/or ether solvent are applicable. And reuse after drying.
- (10) The curing condition will follow in the light intensity and the possibility which there will be a difference it is, after confirming to use the light intensity which is appropriate.

3. PROPERTIES

1) Curing condition Test

(1) Curing condition

Conditions / Result	Etchant resistance		Remark
	High Pressure Mercury Vapor Lamp	Metal Halide Lamp	
400mJ/cm ²	OK	OK	
800mJ/cm ²	OK	OK	
1200mJ/cm ²	OK	OK	

(2) Type of Lamps

Type of U.V. Rays	Power	Number of lamps	Conveyor Speed
High Pressure Mercury Vapor Lamp	800mJ/cm ²	3 Lamps	4-6 m/min
	1200mJ/cm ²	3 Lamps	3-5 m/min
Matal Halide Lamp	800mJ/cm ²	3 Lamps	5-7 m/min
	1200mJ/cm ²	3 Lamps	4-6 m/min

2) Coating Properties

(1) General Properties

Item	Test method	Test standard	Test Result
Pencil Hardness	above 2H on the copper	The copper must not be seen	Pass (2H)
Adhesion	Cross Cut 10×10 Tape Test	Must remain 100/100	Pass
Appearance /color	Visual Inspection	Identical with past Lot.	Pass
Etchant Resistance	CuCl ₂ 200g/ , HCl 150g/ , 50 , 2min	No ink peeling	Pass
Stripability	2wt% NaOH, 25 , 15sec	No ink residue	Pass

* Note : The above- mentioned test data is based on our process condition, not to guarantee a test result in your process. The test data is also subject to change without notice.

4. TROUBLE SHOOTING

No.	Problems	Action	Note
1	Spreading of the ink	<ul style="list-style-type: none"> - Screen Tension - Squeegee Hardness - Viscosity of Ink - Screen's emulsion - Room Temperature 	
2	Pin-hole of ink	<ul style="list-style-type: none"> - Viscosity of Ink - Temperature of board - Pretreatment & Rinsing condition - Screen's emulsion 	
3	Poor adhesion	<ul style="list-style-type: none"> - Coating thickness of Ink - Pretreatment & Rinsing condition - Short curing - Storage and Handling condition 	
4	Poor pencil hardness	<ul style="list-style-type: none"> - Coating thickness o Ink - Pretreatment & Rinsing condition - Short curing - Storage and Handling condition 	
5	Poor etchant resistance	<ul style="list-style-type: none"> - Coating thickness - UV curing condition - Etching condition 	
6	Poor stripping	<ul style="list-style-type: none"> - Coating thickness - UV curing condition - Stripping condition 	

* Inquire to business department or R&D institute of TAIYO INK MFG. CO., (KOREA) LTD.

5. CAUTION FOR SAFETY

- Before use, read caution for safety and use exactly..
- The Caution for safety is to prevent danger or damage beforehand in using the product.
- Make the workers to know the caution for safety in catalog.



WARNING

- * Use a suitable conveyance tool at transfer of heavy thing. When convey by oneself, take right posture. Excessive force may cause injury and lumbago.
- * When use, put protection mask, goggle and protection gloves etc. Injury can happen by inhalation and contact in a long or short time.
- * Install local exhauster in operation room. While using, the case which long time or excess amount will inhale the fume it is nauseous, vomit, dizzy and the internal organs damage etc. will be able to occur.
- * After using, annul the empty receptacle without another application.
- * Dispose of the waste according to related law. It can cause serious environmental pollution that incinerate or abandon the waste in land and water.

CAUTION AT USE

- * Avoid direct sunlight, heat source and fire.
- * Necessarily, keep the optimum temperature(10 ~ 20). Use the inks 1day after leaving alone at recommendation temperature to intercept the inflow of water and make the state stable.
- * Do not use the product when the shelf-life is expired.
- * When the ink is leaved alone long hours, don't use.

Misapplication different from above contents results in quality deterioration

6. REVISION SHEET

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