Adhesion Promoter for Leadframe

L1, Post Treatment Process
Molding Adhesion is an important aspect on leadframe packages. As stated in the “First Law of Plastic Packaging” by Aphern et al.

“Perfect adhesion at any interface minimize failure”

With the Possehl developed “L-1” Special treatment process on Ag Plated copper leadframe, the adhesion between the leadframe and Molding compound can be increased by several times as compared With the untreated frames.

Surface Treatment is applied on Cu-based packages. It is carried out by acid-dipping to restructure the texture of the surface. The restructuring impact on the frame creates more interfacial contact areas which in turn, multiply the mechanical interlocking effect on the molding compound!
Photo Mask QFN with L1 - Treatment

Molded packages with “L1” treated frames achieved the LEVEL 1 standard in moisture sensitivity test without any de-lamination.
Leadframe manufacturing work flow

L1 Main Process Flow

- Degreasing
- De-scaling 1
- De-scaling 2
- L1 Coating
- Acid Dip
Advantages of L1 Treatment

- L1 coating is UNIFORM
- Apply Low Temperature operation
- Short process time
  (compared to black oxide process)
- No issue for bonding and other IC assembly processes.
L1 Surface Treatment

*A proprietary process developed by Possehl Laminates to improve molding adhesion*
L1 Surface Treatment

Roughness

AFM Image Before and After L1-treatment
**L1, Post Treatment Process**

- Treats only copper surface
- Qualified for mass production on A194 Cu L/F.
- C7025 copper leadframe – Under qualification
- Applies on both “Reel-to-Reel” & “strip form” L/F
- L1 is a proprietary surface treatment process offers by Possehl Electronics
- Proven to achieve MSL L1 with optimum Ag plating design.
L1 post treatment process is qualified our key Customers and are in mass production.

- Unisem(M)
- ASE(KH)
- ASE(M)
- Globetronics
- TSPIC/ATMEL

L1 is applying on QFN/VQFN/LLP and others IC leadframe to improve package robustness.