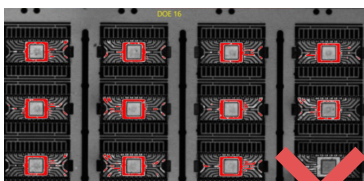
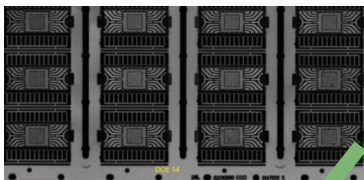


The new NEAP assures excellent adhesion and significant cost savings



Without ppfPrep



With ppfPrep

NEAP for pre-plated lead frames

MKS' Atotech ppfPrep is a unique **Non Etching Adhesion Promoter (NEAP)** for lead frame applications. It provides excellent adhesion while significantly reducing costs. The simple, low-cost solution assures high performance and resolves the ppf IC package delamination issue.

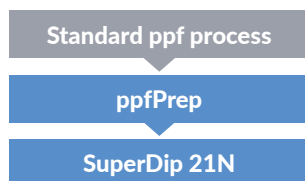
ppfPrep offers advantages in board level reliability (BLR) and does not require any tin plating. It thereby eliminates the wet-process. Furthermore, ppfPrep does not create any changes to the original topography of the ppf surface yet increases the adhesion of the epoxy molding compound to the ppf surface.

0

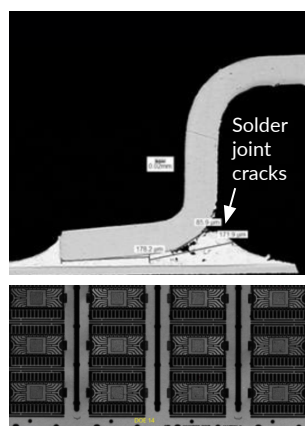
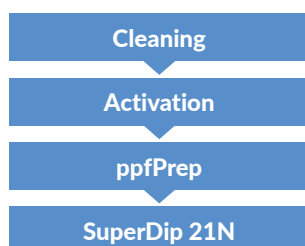
delamination @ MSL1

ppfPrep – NEAP for pre-plated lead frames

Leadframe company



IC assembly company



Pic. 1: Solder joint cracks due to poor adhesion, without ppfPrep
 Pic. 2: CSAM test show no delamination detected

Process flow options

ppfPrep can be used along the standard process at lead frame manufacturing companies with additional tanks at the end of the line. It can also be used at IC assembly houses with a separate line. ppfPrep works best when combined with our Superdip 21N post treatment.

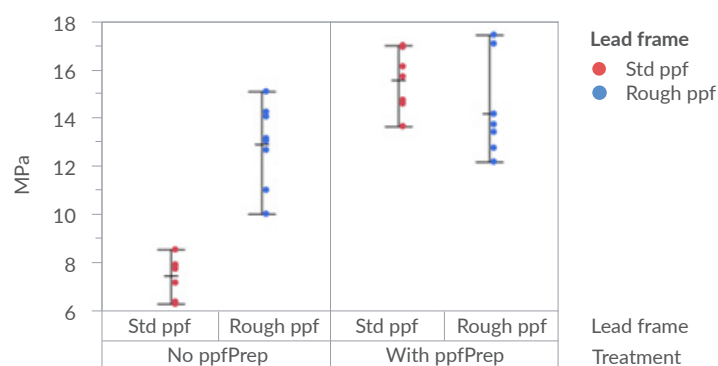
Benefits

- Non-etched process
 - No rough / powdery coating on ppf surface
 - Much better controlled EBO (epoxy bleed out) during die-attach
- Unique adhesion promoter for ppf surface
 - Will help increase adhesion of EMC to the ppf surface
- Excellent reliability performance
 - 0 delamination from MSL 1 tests
- Simple process flow
 - Drop-in for lead frame plating line → additional 2 tanks
 - 4 step process for IC assembly company
- Versatile and lower overall cost

Parameter

Working range

ppfPrep concentration	300 ml/L (250 – 350 ml/L)
Temperature	45 °C (40 – 50 °C)
Treatment time	45 sec (30 – 60 sec)
Current density	12 ASD (10 – 14 ASD)



Pic. 3: Std ppf showed better adhesion than rough ppf after ppfPrep treatment

