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A purification/regeneration process of spent plating bath
base on functionalized magnetic nanoparticles



PORTABLE PURIFICATION PILOT LINE

The portable purification Pilot Line system was developed and installed by Cnano in its premises, in close collaboration with Kampakas S.A. (Greece) and IDENER (Spain). The Pilot Line utilizes functionalized MNPs developed by Captive Systems (Italy) in order to capture the excess nickel ions and other

unwanted substances from a spent Ni-P/SiC electroplating bath. The amount of the MNPs added depends on the amount of the nickel that needs to be removed and it is in accordance with a given removal ratio. Due to the use of magnetic traps the MNPs are safely removed without affecting the SiC nanoparticles.

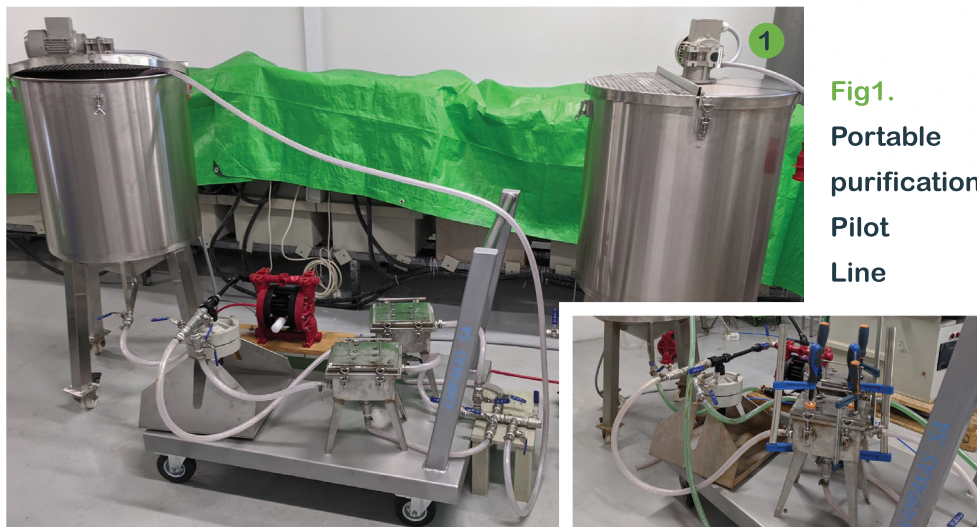


Fig1.
Portable
purification
Pilot
Line

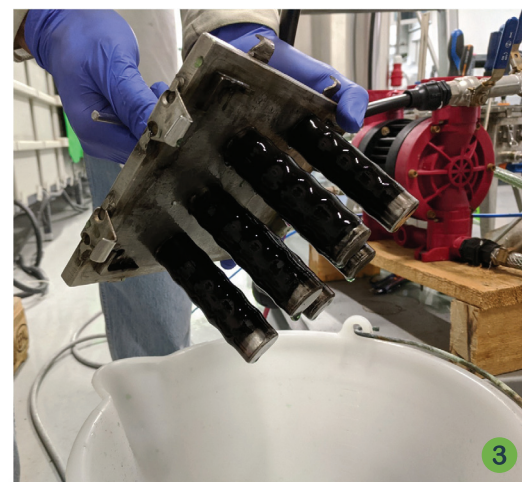
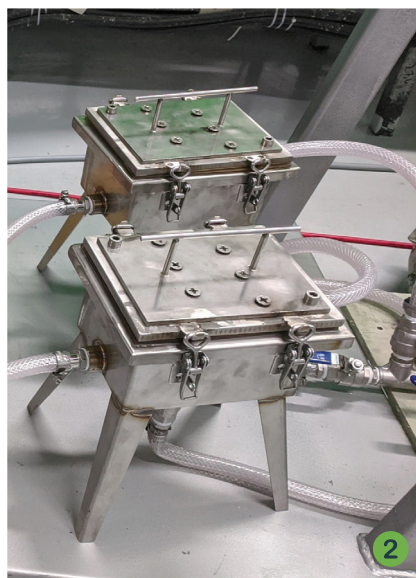


Fig2. Customized magnetic traps

Fig3. Captured MNPs

ACHIEVEMENTS

- ✓ Stable and unsolvable functionalized MNPs at pH=2.5
- ✓ 82,5% yield of Ni removal from the spent bath
- ✓ Easy to transfer, install and operate line
- ✓ Savings up to 80% of the costs for spent baths wastes removal
- ✓ Extent up to 4 times of the lifetime of the baths