

PrometheanParticles



Formulating solutions with nanomaterials

Is copper the new silver?

Historically, silver has always been the material of choice for conductive inks in printed electronics as it is the most conductive element and has negligible oxidation issues.

However, it is known that the highest cost component in most printed electronics applications is the conductive material.

So, if you could find a more cost-effective material which does not have oxidation issues, that would surely have a positive financial impact and would allow larger volume applications?

This is exactly what Promethean Particles understood several years ago and why they have worked extensively on optimizing its nano-copper dispersion.

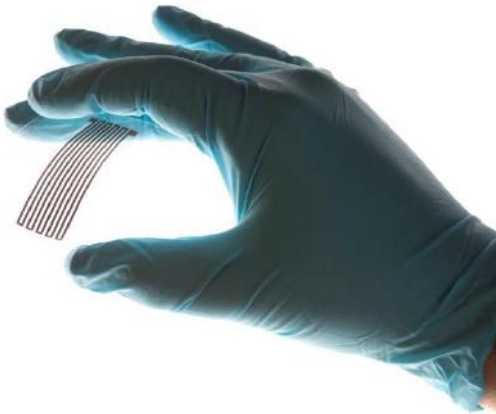
Promethean Particles' nano-copper dispersion has been successfully formulated for inkjet and screen applications. Recently it has also been shown to be compatible with flexographic and gravure print processes.



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With copper based materials, sintering is key. Again, Promethean Particles examined different methods and technologies to find a sintering method which would complement copper based inks the most. Photonic curing (e.g. Xenon flash lamp) offers the ability to sinter the material instantly without excessive heating of the substrate, allowing flexible substrates to be used. Optimized for roll to roll application, this method allows efficient, high throughput processing when compared to thermal sintering. Laser sintering has also shown great results, and allows for a digital solution to sintering. Though thermal curing is still an option, it requires a vacuum or an inert atmosphere, which builds in extra cost.

Promethean Particles offers copper functional pigment concentrates for conductive printed inks, allowing for different printed components such as fully printed PCBs, RFID tags, antennae etc. Promethean Particles believes copper is the perfect material for large volume product applications, and the change from silver is coming soon.

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