

## PIGMENTED OR PIGMENT -THAT IS THE QUESTION

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A common trend today in various adverts and product brochures worldwide are that many ink manufacturers publish how brilliant their "Pigmented Inks" are. This has led to the perpetual question being asked what the difference is between "Pigmented Inks" and Pigment Inks – most especially the variance in pricing, with Pigment inks being the most expensive

In order to answer this correctly you need to look at more than one reason. The main reasons for the price differences is answered by the wording itself as a "Pigment Ink" contains pigment dispersion as the only colorant, whereas a so called "Pigmented Ink" contains a certain percentage of pigment dispersion, only.

### The rest of it is black dye!

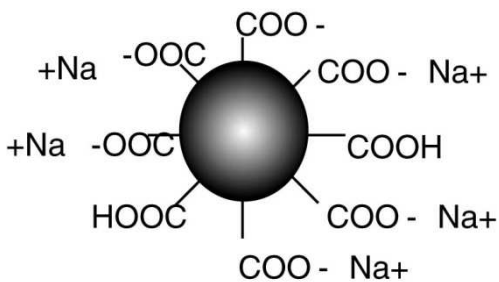
This immediately makes a "pigmented ink" a lot less expensive in production – but also produces a lower quality in the ink's performance. Additionally these types of inks usually do not offer the same print quality, page yield and light stability.

When qualifying to your customers why the quality of your inkjet cartridge is always better than the cheaper Pigmented Ink" solution, we would like to summarize the properties of pigment dispersions as followings:

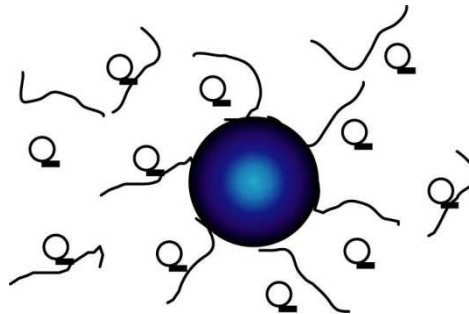
### Advantages of OCP pigment inks in comparison with conventional pigmented inks:

All other commercially available pigment dispersions with the exception of those used by OCP consist largely of polymers and surfactants, which are intended to stabilize the dispersion. The pigments are held by these attached molecules in the dispersion in suspension. In dispersions used by OCP, these molecules are chemically absorbed into the pigment particles and permanently associated with it. Other inks will lose these molecules during the drying of the ink, the pigments used in OCP inks don't.

Pigment used in OCP ink



Other Pigments

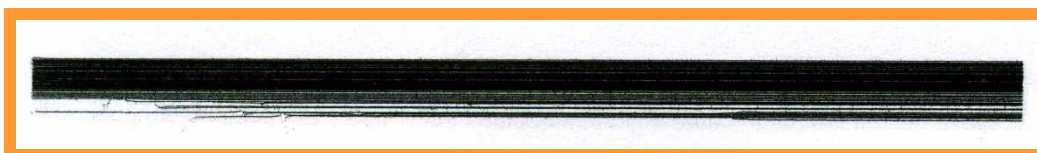


Because of this fundamentally different structure of the dispersion this pigments are re-dispersible.

This means that dried pigments coming in contact with fresh pigment dispersion (or ink) are able to migrate back into the fluid and will be absorbed by this. This property reduces the required cleaning time tremendously and prevents malfunctions caused by dried pigment residues almost completely. Furthermore the runability of the cartridge might be positively influenced.

### Re-dispersibility in comparison

Printout with competitors ink after 8 weeks storage period (cartridge HP 45)



Printout with OCP pigment ink after 8 weeks storage period (cartridge HP 45)



When remanufacturing cartridges which contained OCP pigment inks previously, the amount of necessary cleaning procedures are reduced and therefore the forces the cartridges are exposed to, are also reduced, which can contribute to the extended life time of the cartridges. In addition a higher success rate will be achieved even when using non-virgin empties and the overall cost for empty cartridges in production can be decreased.

### Cleaning effort in comparison

Dried pigments with a polymer- based Ink in R/O water (application time 2 min.)



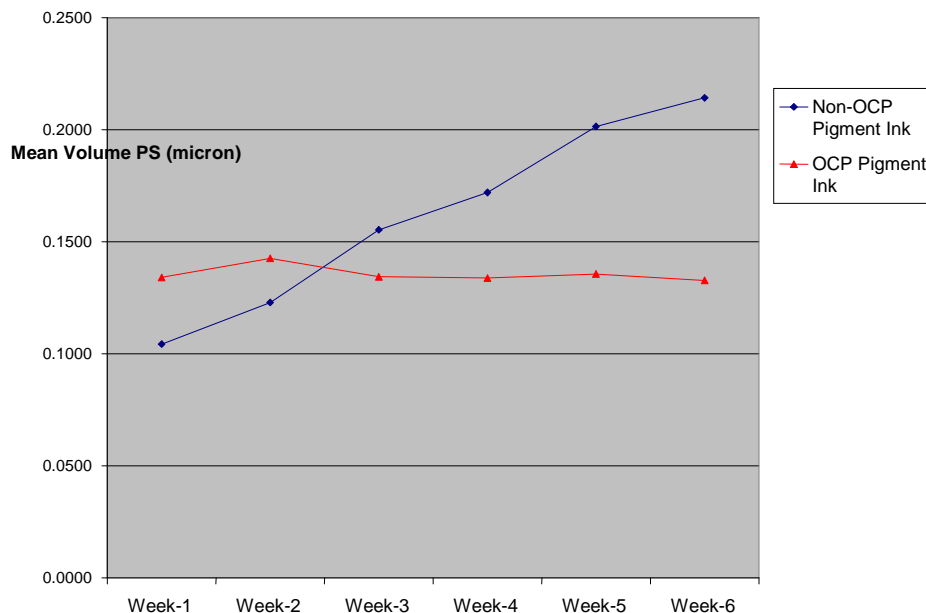
Dried OCP pigment ink in R/O water (application time 2 min.)



A further advantage of this chemical structure is that indicated by the permanent connection between the molecules of the pigment particles - a much higher stability of the dispersion is achieved from this. Therefore, the dispersion has a much better compatibility with other components of an ink; this enables the inkjet remanufacturer using pigment ink being able to give a longer warranty period for their cartridges.

### Stability in comparison

The higher stability of the dispersions used by OCP is illustrated by the following graph. This measured, how the size of the pigments in the ink changed over the period of 6 weeks



### Properties of “Pigmented Inks” – that is inks containing dye

- Optical density worse than OEM
- Blackness worse than OEM.
- Drying time worse than OEM.
- Smear and water resistance worse than OEM
- „Intercolour Bleeding“ worse than OEM

Benefit: cheaper than inks containing only pigments

### Properties of “Pigment inks” – that is inks with pigment only

Standard inks with all benefits of the high-quality dispersions.

Optical density equal to OEM

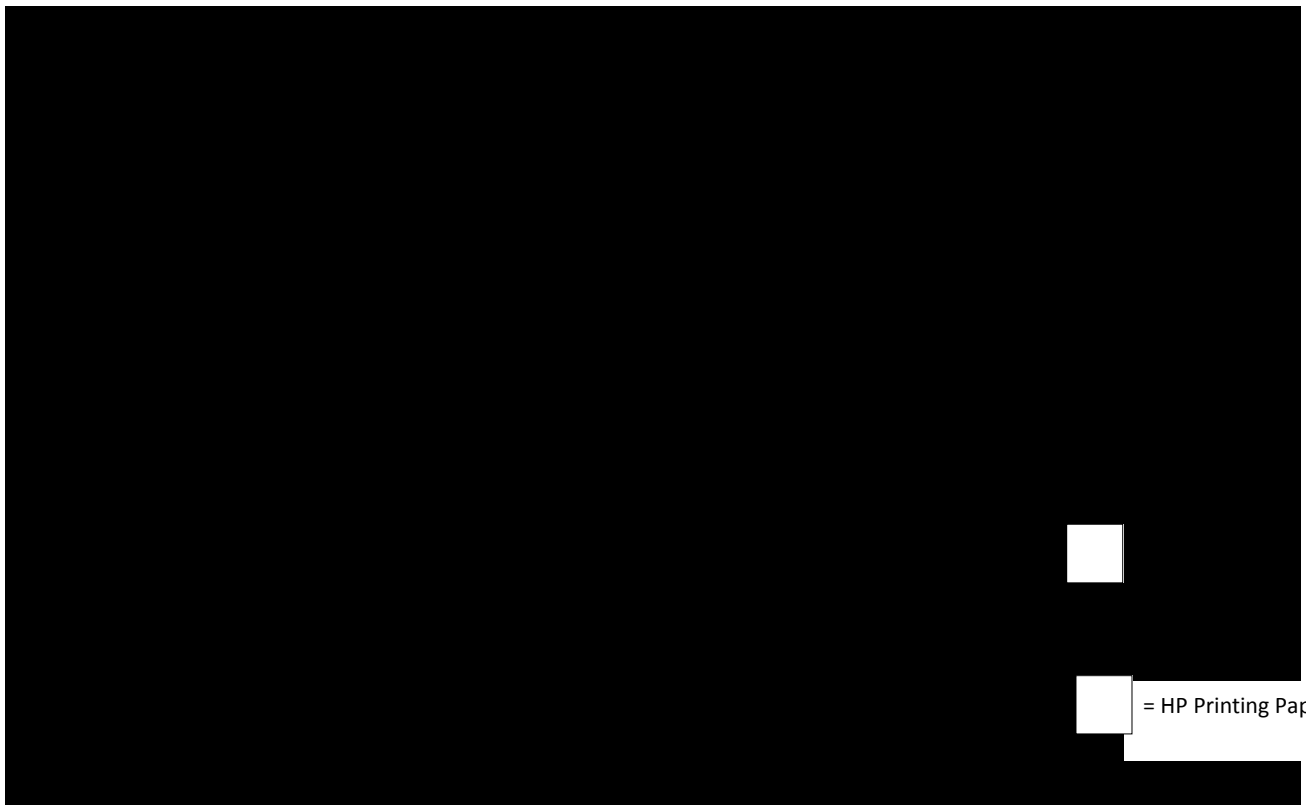
Blackness equal to OEM.

Drying time equal to OEM.

Smear and water resistance equal to OEM

„Intercolour Bleeding“ equal to OEM

### Optical density in comparison



These comparisons should give a clear indication to the remanufacturer that the cost effective savings against the cost of production time spent on cleaning procedures, together with the expense of re-working failed cartridges, will more than contra the extra cost of using a good quality pigment ink. The value added element is using and reusing inkjet empties that have previously had pigment ink in them.

So “Pigmented or Pigment” - there is no question - the answer is conclusively PIGMENT