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Gravure printing of highly conductive ink made by Graphene/MWNTs nanohybrids in polyacrylic resins

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Abstract: Gravure printing is a traditional printing method for high-volume applications such as magazines, catalogs or packaging with high printing speeds allowing for large numbers of prints in a short time. Gravure has the ability to print a variety of functional materials and fine lines with resolutions below 30 μm. It can therefore be used for printed electronics. In an effort to prepare conductive inks for gravure printing, a highly hydrophilic nanohybrid made of pristine graphene and hydroxy-functionalized multiwalled carbon nanotubes is homogenously mixed with commercial polyacrylic resins that usually used in gravure printing. Thanks to the strong hydrophilic character of both components the non conductive resin can be highly loaded with the conductive carbon nanohybrid affording analogous conductive water based ink with acceptable characteristics for gravure printing technique.