

## NEW ANTICOUNTERFEITING SYSTEM FOR ADHESIVES

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### Abstract

In the footwear and related industries sector, the illegal market of trademark design (counterfeit), as well as those products that are produced without paying the corresponding copyright fee (piracy), coming from third countries represents a worldwide problem with a significant economic impact. In addition, in some cases, this can affect consumers' health and safety, because these products do not fulfill the current legislation in terms of safety and hygiene requirements, labeling, etc. This is a problem that affects not only the manufacturers of finished products, but also the suppliers of raw materials and components, which emphasizes the necessity of an effective solution in order to fight against forgery of trademarks, fraud and parallel trading.

In this sense, marking or tracing methods are used for "labelling" products, especially in order to closely monitor the potential effects on the market and the life cycle. At present, advanced marking methods are not widely used, mainly because they are supported by emerging technologies and information available regarding those methods is very scarce [1-10]. Many of them have stepped forward from the laboratory to an operative environment and then, to the business network. Meanwhile, there are others that only work at a laboratory scale. Most of the marking systems already available on the market or which are being developed are added as additives to inks or polymeric coatings, which in turn can be used for marking components or finished products. The apparent miscibility of these systems with polymeric materials makes their use feasible for marking adhesives.

Therefore, the main objective of this work has been to research on markers that are applicable to the adhesives used in the footwear industry. In particular, it is focused on the use of coloured codified microparticles, in order to analyze their feasibility to be used for adhesives authentication.

In this research, commercially available coloured microparticles with different properties (electromagnetic, fluorescents, etc.) were used. These samples were analyzed by means of different experimental techniques. The coloured microparticles were incorporated as additives to polyurethane and polychloroprene adhesives. The dispersion capacity of the selected microparticles was analyzed according to their properties, as well as their distribution in the core of the adhesive matrix.

The obtained results indicate that the addition of microparticles to adhesives as additives provide a feasible method for the marking and authentication of adhesives used in the footwear industry, thus providing high added value to these products

### References

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