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## **SOLUBILITY AND DURABILITY OF CARDANOL DERIVED PLASTICIZERS FOR SOFT PVC**

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### **Abstract**

This work was aimed to test the suitability of an epoxidized cardanol derived plasticizer for the production of soft PVC characterized by low environmental and toxicological impact soft PVC. Nowadays, the use of natural derived plasticizer in soft PVC industry is emerging as valid alternative towards conventional phthalate plasticizers, in order to reduce the environmental and toxicological impact of soft PVC. In fact, cardanol is a natural and renewable resource, characterized by a wide worldwide availability. In addition, being derived from cashew nut shell liquid, which is a by-product of cashew nut shell industry, it does not contribute to the subtraction of resources from the food chain, in contrast, for example, to epoxidized soybean oil.

To this purpose, soft PVC samples were produced in an industrial plant, using both cardanol derived and phthalate plasticizer. Thermal and mechanical characterization showed that the properties of PVC plasticized by cardanol derivative are comparable to those of soft PVC obtained by phthalate, which is a clear indication of the good plasticizing effectiveness of cardanol derivative, and highlights its potential for the production of soft PVC characterized by reduced environmental and toxicological impact.

*Key words:* cardanol, plasticizer, PVC

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