Investigation of an Electrostatic Discharge Protective Biodegradable Packaging Foam in the Logistic Chain

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Abstract—Since the beginning of the 20th century, the logistic has undergone a huge technological change and it has resulted many negative effects. The industry, particularly in the packaging industry which is a massive waste producer has forced the use of new materials and it has focused on environmental friendly technologies. During the transportation of finished and semi-finished Electrostatic Discharged (ESD) sensitive products, the product packaging system is very important. This kind of packaging materials must be in addition to both logistic (mechanical and environmental stresses) and a special ESD protection requirements ensured. During the transport of the printed-circuit electronic products the ESD defence is the primary. However it is a huge disadvantage for the use of various shield bags. These bags are really pollutant, because this associated packaging has a lot of inconveniences as waste. In order to rule out these materials from the packaging system, new innovative solutions have to be found. The investigated TPS (thermoplastic starch biodegradable foam) validation is a long process, because this material should unite properties two type of packaging at the same time. Partly this foam has to meet to the cushioning requirements for the mostly used polyolefins. Other hand the material should be anti-static under the logistic stress effects. If it is possible, it can be an alternative of the conventional materials. In this article, we introduce an eco-friendly packaging, which is able to ensure sufficient mechanical, ESD and climatic protection under certain conditions, presented the properties of the TPS foam on the measurement results.

Key words—Biodegradable, Eco-friendly, ESD protection, TPS foam.

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