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Preparation and Properties of Low Smoke-Flame Retardant Polyurethane Elastomer

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Abstract: In this study, polyurethane elastomer (PU) was prepared by using orthogonal experimental design to optimize the ratio of pre-polymer components, the addition levels of flame retardant, smoke-suppression agent and charring agent. The physical properties and combustion performance of the PU elastomer were investigated. The results showed that, the tensile strength of the optimized PU elastomer reached 3.99 MPa, and the elongation at break was 800%. It possessed good charring effect and remarkable heat insulating effect. The limiting oxygen index reached 37.4%, the ablation rate was 0.35 mm • s^{-1}, and in the combustion test, the elastomer showed very little smoke or even no smoke.

Key words: polyurethane elastomer; synthesis; low smoke; physical property; combustion performance; orthogonal experimental design

具有三元乙丙橡胶层的汽车地毯的生产方法

中图分类号:TQ333.4;TQ336.4　　**文献标志码**:D

由无锡吉兴汽车声学部件科技有限公司申请的专利(公开号　CN 104015646A,公开日期 2014-09-03)“具有三元乙丙橡胶层的汽车地毯的生产方法”,提供了一种具有三元乙丙橡胶(EPDM)层的汽车地毯的生产方法。将复合地毯面毯铺放在成型机的面毯送料台上并固定好(地毯原料有 3 层,上层为提绒面毯,中层为 EPDM,下层为无纺布);将固定好的复合地毯面毯送入烘箱中加热;将烘热的复合地毯面毯送入成型模具中制得地毯半成品;将地毯半成品放置在水刀切割治具上,切除地毯半成品的边缘余料;取下切割后的地毯半成品,去除孔位余料并吹干表面水渍制得地毯成品。该发明采用了面毯与 EPDM 结合的方法,使原材料成本减低,同时可以使地毯总成的吸音、隔音和环保等性能指标达到要求。

(本刊编辑部　赵　敏)