

间距为25 mm时,复合材料易发生界面滑脱和端头断裂失效。

### 3 结论

(1) 帘线/橡胶复合材料在不同帘线层接头搭接形式下的力学行为具有较大非线性,搭接段间距为5 mm时的凹型凸型搭接试样的综合力学性能最优。

(2) 帘线/橡胶复合材料的帘线层接头搭接段间距为5和15 mm时,试样失效形式主要为搭接处断裂,此处的帘线层和橡胶层所受应力最大;当搭接段间距为25 mm时,复合材料易发生界面滑脱和端头断裂失效。

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## Mechanical Property and Failure Modes of Cord/Rubber Composite Multilayer Structure

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**Abstract:** The mechanical property and failure modes of cord/rubber composites with different overlap forms and different distance of overlap section were studied. The results showed that, the mechanical behavior of cord/rubber composite under different overlap forms was nonlinear, and the comprehensive mechanical properties of the concave-convex overlap form were the best when the distance of the overlap section was 5 mm. When the distance of overlap section of cord/rubber composite material was 5 and 15 mm, the main failure mode of samples were the fracture at the overlap joint, where the stress of the cord layer and rubber layer was the largest. When the distance of the overlap section was 25 mm, the interface slippage and end fracture failure would easily occur.

**Key words:** cord; rubber; composite; overlap form; distance of overlap section; mechanical property; failure mode

### 一种全钢巨型工程子午线轮胎胎面胶 配方及制备方法

由福建省海安橡胶有限公司申请的专利(公布号 CN 111748132A, 公布日期 2020-10-09)“一种全钢巨型工程子午线轮胎胎面胶配方及制备方法”, 涉及的全钢巨型工程机械子午线轮胎胎面胶配方为天然橡胶 55~65, 炭黑 20~25, 白炭

黑 5~10, 硅烷偶联剂 1~2, 氧化锌 2~3, 硬脂酸 1~2, 防老剂 2~3, 软化剂 1~2, 防焦剂 0.2~0.5, 硫黄 1~2, 促进剂 0.5~1; 采用两段母炼和一道终炼的方法完成胎面胶制备。

本发明胎面胶适合在煤矿等特定环境中使用。

(本刊编辑部 马 晓)