

## Research on Constant Temperature Mixing Process of Tandem Mixer

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**Abstract:** The processing property of constant temperature mixing and constant rotor speed mixing of IM550E/IM1000ET heavy duty tandem mixer was comparatively investigated. The results showed that, compared with the constant rotor speed mixing process, under the condition of basically the same mixing time, the energy consumption of the constant temperature mixing process was lower by 56%, the energy consumption of decreasing per unit Mooney viscosity of the masterbatch was lower by 33%, the Mooney viscosity of the finished batch increased by 11%, the dispersion of carbon black decreased, the physical properties such as the modulus, tensile strength and elongation at break of the compound decreased slightly before aging, but increased after aging, the adhesion property with steel cord was enhanced, and the hysteresis loss and heat build-up were equivalent.

**Key words:** tandem mixer; intermeshing rotor; constant temperature mixing; energy consumption; physical property; adhesion property; dynamic mechanical property

### 过渡平缓的工程轮胎胎面挤出胶条结构 及其二次压合方法

由广饶县计量测试检定所(广饶县产品质量检验所、广饶县橡胶轮胎产品与材料质量检验中心)和泰凯英(青岛)专用轮胎技术研究开发有限公司申请的专利(公布号 CN 114714651A, 公布日期 2022-07-08)“过渡平缓的工程轮胎胎面挤出胶条结构及其二次压合方法”,涉及一种过渡平缓的工程机械轮胎胎面挤出胶条结构及其二次压合方法。它包括轮胎的胎筒以及对胎筒挤出胶条逐圈缠绕的缠绕机,自缠绕机挤出的胶条截面口型呈等腰梯形,宽度为65~75 mm、厚度为5~6 mm,且梯形的最小角度为15°~22°;胶条逐圈缠绕于胎筒形成缠绕胎面,缠绕胎面的端点与胎筒形成过渡深度小于5 mm的过渡平缓段。通过调整缠绕胎面挤出胶条的口型为等腰梯形,然后在缠绕胎面端点覆盖部位增加部件表面打磨操作,实现缠绕后胎面端点与相邻部件平缓过渡,并对缠绕胎面端点增加胎侧胶片贴合及两次压合步骤。

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### 一种供料系统、供料方法及轮胎成型机

由软控股份有限公司和青岛软控机电工程有限公司申请的专利(公布号 CN 114103207A, 公布日期 2022-03-01)“一种供料系统、供料方法及轮胎成型机”,公开了一种供料系统、供料方法及轮胎成型机,其中供料系统包括机架、带束层鼓和对称设置于机架两侧用于输送第1带束层的第1前输送模板和第1后输送模板、以及用于输送第2带束层的第2前输送模板和第2后输送模板,第1前输送模板和第2前输送模板均设置于带束层鼓的下端,其中第1前输送模板和第2前输送模板的后端分别转动连接于机架上,第1前输送模板和第2前输送模板的前端还设置有用以提升或降低第1前输送模板和第2前输送模板的提升装置。本发明不仅避免了两个前输送模板共用1个贴合工位导致的挤撞现象,而且避免了滑动切合时导致的打滑风险,从而有效提升了带束层输送模板就位的精度,极大地提升了贴合质量和贴合效率。

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