作路易斯酸。

(2)催化体系配制的优化工艺为:先加二异丁基氢化铝再加氯化二异丁基铝,聚合反应时丁二烯与催化剂体系3个组分陈化液一起加入。

(3)催化体系优化配合为:100 g丁二烯中$n(NdV_3)$为(1.36～1.58)×10^{-4} mol,$n(NdV_3)/n$(铝剂)/n(氯剂)为1/22/(1.71～2)。

(4)催化体系适合的陈化时间为4～64 h。

(5)采用优化催化体系聚合的产品收率大于98%,制备的NdBR顺式-1,4-结构质量分数大于0.98,生胶门尼粘度[ML(1+4)100 ℃]为45±5,胶料加工性能和物理性能与朗盛NdBR胶料相当,优于BR9000胶料。

参考文献:

[1] Friebe L, Nuyken O, Obrecht W. Neodymium-Based Ziegler/Natta Catalyst and Their Application in Diene Polymerization[J]. Advances in Polymer Science, 2006, 204(11): 1-154.

[2] 梁守智,钟延壎,张丹秋,等. 橡胶工业手册第四分册[M]. 北京:化学工业出版社,1993:462-478.

[3] 中国科学院长春应用化学研究所第四研究室. 稀土催化合成橡胶文集[M]. 北京:科学出版社,1980:45-56.

[4] 林曙光,张志强,胡雁鸣,等. 新型钕系BR的性能研究[J]. 橡胶工业,2005,52(10):605-607.

收稿日期:2016-04-16

Effect of Catalytic System on the Polymerization Reaction and Properties of Rare Earth Butadiene Rubber

NING Zhaohui, CHEN Yijiao

(Sinopec Baling Company, Synthetic Rubber Division, Yueyang 414014, China)

Abstract: The influence of catalytic system on the polymerization reaction and properties of rare earth (neodymium) butadiene rubber (NdBR) was studied. The optimized catalyst system consisted of neodymium neodecanoate (NdV_3) as the primary catalyst, diisobutyl aluminum hydride (aluminum agent) as a reducing agent and diisobutylaluminum chloride (chlorine agent) as a Lewis acid. In the preferred process to produce the mixed catalyst, aluminum agent was added into NdV_3, and then the chlorine agent was added. During the polymerization, butadiene was added together with the mixed catalyst which was allowed to age for 4～64 hours. In the optimized recipe of polymerization, (1.36～1.58)×10^{-4} mol of NdV_3 was applied for 100 grams of monomer butadiene, and the molar ratio of NdV_3, aluminum agent and chlorine agent was 1/22/(1.71～2). With the optimized polymerization catalyst system, the product yield was greater than 98%, cis-1,4-structure content of the produced NdBR was more than 0.98, Mooney viscosity [ML(1+4)100 ℃] was 45±5, the processing and physical properties of the NdBR was similar to LANXESS NdBR and better than BR9000.

Key words: rare earth butadiene rubber; nickel butadiene rubber; catalytic system; neodymium neodecanoate; butadiene; polymerization

住友公司扩增巴西轮胎产能

中图分类号:TQ336.1;F27 **文献标志码**:D

日本住友橡胶工业公司宣布,计划投资3.12亿美元扩建其在巴西现有的里奥格兰德庄园(Fazenda Rio Grande)轮胎工厂。这家轮胎厂已投产3年,主要生产乘用车轮胎和轻型卡车轮胎,轮胎日产能为1.5万条,此次投资的目的是新增公共汽车和卡车轮胎生产线。该项目预计于2019年3月投产,初期轮胎日产能为500条。

另外,住友公司将从2017年开始再投资1.75亿美元,以扩大该厂的乘用车轮胎和轻型卡车轮胎产能。

(郭 笛)