

(4) 模具型腔内部压力主要影响橡胶制品的断面尺寸,严重时模具型腔配合面会产生缝隙,影响橡胶制品外观质量。

因此,在设计橡胶模具型腔尺寸时,需重点考虑橡胶制品胶料的硬度、流动性、线膨胀系数和硫化温度,以及模具材料的屈服强度和线膨胀系数等参数。

参考文献:

- [1] 阎琛. 橡胶密封件模具的实用设计[J]. 石油机械, 1988, 16(12): 6-11.
- [2] 马东江. 骨架式橡胶油封模具的收缩率浅探[J]. 特种橡胶制品, 2008, 29(4): 38-39.
- [3] 胡华南. 橡胶模具的设计及应用[J]. 模具技术, 2006(3): 25-27.
- [4] 赵敏. 一种用于加工圆柱型硫化橡胶试件的易开模具[J]. 橡胶工业, 2016, 63(6): 371.

收稿日期: 2018-08-27

Study on Design Parameters of Rubber Seal Mold

WU Jianjun^{1,2}, WANG Huan^{1,2}, XIANG Yu^{1,2}, QIU Zhaopei^{1,2}

(1. Guangzhou Mechanic Engineering Research Institute, Guangzhou 510535, China; 2. National Engineering Research Center of Rubber and Plastic Sealing, Guangzhou 510535, China)

Abstract: Taking Y-shaped sealing ring as an example, the design parameters of rubber seal mold were studied. The mold wall thickness mainly depended on the yield strength of mold materials, the hardness and fluidity of rubber compounds. The thermal expansion of mold mainly affected the diameter of rubber product, and had no adverse effect on the fitting surface of mold cavity, and the influence of thermal expansion on the cross dimensions of mold could be neglected. The influence of clamping force on the size of rubber products was very small and could be neglected. The cavity pressure of mold mainly affected the cross dimensions of the rubber product, and caused cracks in the fitting surface of the mold cavity in severe cases. The hardness, fluidity, coefficient of linear thermal expansion, vulcanization temperature of rubber compounds, as well as the yield strength and coefficient of linear thermal expansion of mold materials should be taken into account in the design of size of mold cavity.

Key words: rubber sealing product; mold; design parameter; coefficient of linear thermal expansion; displacement nephogram

横滨橡胶开发生物异戊二烯合成技术

日本横滨橡胶公司开发出用生物质高效生产异戊二烯的技术。据称,该突破是横滨橡胶在与日本Riken研究所和瑞翁公司的合作研究中取得的。

异戊二烯是合成橡胶的原料之一,目前是作为石脑油的热解副产品生产的。横滨橡胶、Riken研究所和瑞翁于2013年开始合作研究异戊二烯合成技术,并采用基于计算机的代谢设计技术,开发了一种新的异戊二烯合成工艺。横滨橡胶表示,这项新技术基于一种新的人工合成且高度活跃的酶培育出的具有极好异戊二烯合成能力的细菌。该细菌具有在体内由生物质(通常是糖)生成异戊二烯的能力,将生成的异戊二烯聚合起来,便实现

了聚异戊二烯橡胶的合成。

横滨橡胶在解释这一过程时表示,人们普遍认为异戊二烯是由戊酸(一种由糖形成的中间物质)通过5段反应自然生成的,但通过三方联合研究构建的新人工通道可使此过程减少为2段。

横滨橡胶称,这种高度活跃的酶具有天然酶所无法达到的惊人的异戊二烯生成能力,如果将这种人工途径及酶引入大肠杆菌,即可使细菌具备生成异戊二烯的能力,而这种能力在自然界中是没有的,从而能够高效地合成异戊二烯。

横滨橡胶称此技术也可用于丁二烯合成橡胶以及其他二烯类橡胶。

(安 琪)