

# Recovery for Skim Rubber Using Bi-directional Flow Ultrafiltration with PVDF Hollow Fiber

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**Abstract:** In this study, the influence of transmembrane pressure difference, operating temperature and crossflow velocity on the skim rubber recovery as well as efficiency of ammonia removal were investigated, using a bi-directional flow (BDF) ultrafiltration equipment with polyvinylidene fluoride (PVDF) hollow fiber as the membrane material. Then, the quality of the recovered skim rubber was analyzed. The results showed that, the recovery of skim rubber increased with the increase of transmembrane pressure difference, and decreased with the increase of operating temperature or crossflow velocity. The efficiency of ammonia removal decreased with the increase of transmembrane pressure difference and increased with the increase of temperature. It was not affected significantly by crossflow velocity. As the transmembrane pressure difference increased, the targeted processing time was shortened at first and then extended. With the increase of operating temperature or crossflow velocity, the target processing time was reduced. The quality of the skim rubber via the BDF process reached the first grade standard by the Ministry of Agriculture.

**Key words:** hollow fiber membrane; bi-directional flow process; concentration; skim rubber

## 优科豪马扩大 Geolandar 系列

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美国《现代轮胎经销商》(www.moderntire-dealer.com)2015 年 3 月 5 日报道:

优科豪马轮胎公司 Geolandar 系列新增一款配备 104 607 km(65 000 英里)胎面磨损保修的全天候交叉花纹轮胎,如图 1 所示。优科豪马表示,其新的交叉花纹轮胎 Geolandar G055 的优势包括全天候性能和延长胎面寿命。



图 1 优科豪马 Geolandar G055 轮胎

新型 Geolandar G055 轮胎目前只在美国和加拿大出售,初步只有速度等级为 H 和 V 的

406~508 mm(16~20 英寸)的 19 个规格供应。

“交叉花纹轮胎市场是一个快速成长的市场,Geolandar G055 轮胎是为在各种天气条件下行驶的车辆特别设计的。”优科豪马轮胎公司高级营销总监 Fred Koplin 说。

Koplin 称,Geolandar G055 轮胎拥有全天候性能并能延长胎面寿命,这归功于优科豪马先进的橘子油技术。

该公司称,Geolandar G055 轮胎还具有以下几个方面的特点。

\* 湿地和寒冷状况下优越的牵引性能是通过过渡花纹沟和切口刀槽花纹创造啮合花纹刃口而实现的,同时还可保持胎面花纹块刚性,提高里程和操控性。

\* 周向曲折花纹沟通过将水从胎面排出,防止湿滑,从而提供自信的湿地操控性,并且在胎面磨损的情况下仍具有高牵引性花纹刃口。

\* 低路面噪声是依靠整体胎肩和全宽锦纶冠带层实现的,并可提高稳定性和耐不规则磨损性能。

(孙斯文摘译 吴秀兰校)