

材料化学工程与纳米技术

## 空气涡轮制冷机在粉碎EVA技术中的应用

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摘要

低温粉碎是塑料,特别是低软化温度塑料超细粉碎的发展趋势。本文在深入研究了乙烯-醋酸乙烯共聚物(EVA)材料特性和粉碎机理的基础上,将空气涡轮制冷低温粉碎技术应用于EVA低温细碎中,有效地提高了EVA颗粒的超细粉碎效率;同时指出了该粉碎流程的关键技术及影响粉碎效果的主要因素,开辟了一条规模化、高质量、低能耗回收可再生塑料的新途径。此外,从能量守恒的角度出发,以工程应用为目标,对粉碎过程中的核心环节——冷冻和粉碎,初步进行了理论方面的计算分析。这些分析的结果有益于设备的完善及改进。

关键词

[空气涡轮制冷机](#) [低温粉碎](#) [塑料](#) [乙烯-醋酸乙烯共聚物](#)

分类号

## Application of air turbine refrigerator to grinding EVA

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### Abstract

Cryogenic grinding has been the development trend for ultrafine grinding of plastics, especially for plastics with low softening temperature. A kind of typical thermoplastic elastomer—ethylene vinyl acetate (EVA) was chosen as the study subject. Based on thorough studies of material properties and grinding mechanism of EVA, the authors used the air turbine cryogenic grinding system and accomplished experiments to grind EVA into fine powders, effectively enhancing the fine grinding efficiency of particles at low costs. And the key issues of the grinding process and effects were discussed in detail. A new way of recycling renewable plastics on a large scale with high quality and low energy consumption was created. An engineering approach to analyzing the core processes of refrigeration and grinding was introduced with the law of energy conservation to guide the improvement of equipment performance during experiments.

### Key words

[air turbine refrigerator](#) [cryogenic grinding](#) [plastics](#) [EVA](#)

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