

Study on Hollow Glass Beads/Waste NBR Powder/ABS Composites

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Abstract: The acrylonitrile-butadiene-styrene copolymer (ABS) was modified with waste NBR powder (WNBR) and silane coupling agent modified hollow glass beads (HGB), and the effects of addition level of WNBR and modified HGB on the structure and physical properties of composites were investigated. The results showed that, for WNBR/ABS composite, when the addition level of WNBR was low, the compatibility between WNBR and ABS was poor, and interaction between WNBR and ABS was weak. When the addition level of WNBR was 20 phr, the compatibility between WNBR and ABS was better, and the cross section was flat and smooth. WNBR could be used to increase the impact strength of WNBR/ABS composite, but the tensile strength and flexural strength were decreased. For modified HGB/WNBR/ABS composite, modified HGB was finely dispersed with no agglomeration, and uniformly distributed. Modified HGB could be used to increase the tensile strength, flexural strength and impact strength of modified HGB/WNBR/ABS composite when the addition level was less than 5 phr. The comprehensive physical properties of the composite were optimized when the addition level of modified HGB was 5 phr.

Key words: waste NBR powder; hollow glass beads; acrylonitrile-butadiene-styrene copolymer; composite; silane coupling agent; modification

福橡 15 万 t 合成橡胶项目全面建成

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福建省福橡化工有限责任公司(简称福橡化工)年产 10 万 t 的丁苯橡胶(SBR)装置已于 2011 年 12 月成功产出白色长方形 SBR。这意味福建省首个合成橡胶(SR)项目顺利进入全面投产阶段,从而终结了福建省不产 SR 的历史。

福橡化工由福建石油化工集团有限责任公司(简称福建石化集团)与中国石化福建炼油化工有限公司(简称福建炼化)分别出资 51% 和 49% 建设。该公司 SR 项目总投资 12.44 亿元,投产后年产值将超过 30 亿元。项目包括年产量为 10 万 t 的 SBR 和年产量为 5 万 t 的顺丁橡胶(BR)等主体装置及配套公用工程,生产原料主要为福建炼化的合资企业福建联合石油化工有限公司(简称福建联合石化)提供的年产 12 万 t 的丁二烯等。2011 年 7 月 31 日,年产 5 万 t 的 BR 装置一次性投料试车成功。

福建省内长期以来没有企业能够生产作为三

大合成材料之一的 SR。下游企业主要从外省购买或通过进口渠道解决 SR 来源问题。福橡化工 SR 项目的成功建设,填补了福建省轮胎、制鞋、塑胶制品等相关产业的原料空白。该项目可为福建省及华南地区的下游产业提供原料,大大节约相关企业的运营成本。

福建石化集团为省属国企,福建炼化则为中国石化和福建石化集团各出资 50% 组建的合资公司。因此,在项目建设过程中,福橡化工充分发挥中央企业和地方企业强强联合的优势,利用了中国石化人才、资源和地方公用工程配套上的优势,通过福建省泉州市泉港区的公用管廊引进福建联合石化的丁二烯,公用工程则利用湄洲湾氯碱工业有限公司现有设备,实现了建设的低成本、生产的低碳和安全。为促成项目早日投产,泉港区仅用 60 天就全面完成福建联合石化至福橡化工的管廊化工安全隔离带征迁工作,为投产准备必要条件。

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