SBS냉장고 나선형 얼음 공급장치의 고장모드에 관한 가속수명시험

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Accelerative Life Test on the Failure Mode of Helix Ice Dispenser in Side by Side Refrigerator

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Key Words: Accelerative life test(가속수명시험), Failure analysis(고장분석), helix ice dispenser(얼음공급기), Failure mode(고장모드), use environment(사용환경), B_{10} life(B_{10}수명)

Abstract : The data of failed product in marketplace is very important one which understands the use environment of customer. To improve reliability of the product, the failure analysis of the product should be performed. In this study, we investigate the failure mode of helix ice dispenser in side by side refrigerator. To perform failure reappearance examination of helix ice dispenser, accelerative life test(ALT) was adopted. The result of ALT was identical with failure of the helix in marketplace. The cause of failure in helix ice dispenser was fractured by helix upper made of polycarbonate. The design of helix upper and blade dispenser was modified. The helix dispenser with new design could guarantee 10 years of B_{10} life under worst conditions.

확장금속망을 이용하여 제작된 준카고메 트러스 중간층을 갖는 샌드위치 판재의 기계적 거동

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Mechanical Behavior of Sandwich Panels with Quasi-Kagome Truss Core Fabricated from Expanded Metals

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Key Words: Expanded Metal(확장금속망), Kagome Truss(카고메 트러스), Sandwich Panel(샌드위치 판재), Ultra Light Metal Structure(초경량 금속 구조재)

Abstract : Many studies have been focused on how to manufacture ultra light metal structures and optimized them. In this study, we introduced a new idea to make sandwich panels having quasi-Kagome truss cores. First, metal sheets with a peculiar pattern of slits were expanded to be meshes, and they are climped in to a triangular wave pattern, and then one third of struts were bent to the opposite direction to be quasi-Kagome trusses. Then, finally, two face sheets were bonded on the upper and the lower sides. The bending & compressive strength and stiffness were estimated through elementary mechanics for the sandwich specimens with two kinds of face sheets and results were compared with the FEA model and experiments. Some aspects of manufacturing and mechanical behavior were discussed compared with Kagome truss core structure.