ABSTRACT

The scope of this project was to develop a dish drying rack design that improves upon existing models. Through consumer research and benchmark testing, issues such as insufficient dish capacity, dishware compatibility, and ease of use were identified. To address these issues, our design, the Dish-Dryzer, incorporates a collapsible storage level and other features to further accommodate consumer needs. A proof-of-concept model, along with testing and FEA analysis, confirmed the feasibility of this design while demonstrating improved performance.

DESIGN OVERVIEW

1.) Upper Rack – An extendable second level provides for increased dish storage. When collapsed, it is capable of storing cups or large utensils.

2.) Foldable Dish Spacers – The adjustable spacers allow for a variety of different sized dishware to be securely held in the bottom level, and can also be folded down to accommodate large items.

3.) Removable Utensil Holders - By making the utensil holders removable, it allows the consumer to transport the whole utensil holder in order to efficiently unload the utensils.

4.) Drainage System – The extended tube from the drainage tray allows to user to route water to the sink from a distance.

TESTING & RESULTS

Based on the 1st order and FEA analysis, the arm will have a stress concentration at the supporting ledge where the two arms interconnect.

The testing results also show that the Dish-DRYzer holds dishes in an organized manner such that dishes and bowls do not make contact. Having space between dishware minimizes the chance of an accident when loading or unloading.

CONCLUSION

In comparison to the benchmark, testing has shown that the Dish-DRYzer has a higher dish capacity and increased versatility. These enhancements, along with detachable utensil containers and a revised drainage system, alleviate many problems with current dish rack designs.

Acknowledgments
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References