

New test methods to evaluate the potential performance of cosmetic products

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1. Abstract

Researchers and engineers often need to design simple tests procedures for detecting differences between two or more products. The questions are how many samples and how long should the test be conducted in order to detect a certain amount of difference between two populations, with a given confidence level. There are no simple answers. An approach based on Difference Detection Matrix, DDM, is proposed to detect differences on reference groups. Products under study are care fluids. The study is intended to evaluate their effectiveness after a single application. Analyzes of proportion average improvement, relative change and proportion of success made it possible, to evaluate the number of units, (replicates & repeats) that will be necessary to detect differences between two products. For many of these reference products there is also a lot of information/data from other development projects. This knowledge base cover range of variables, scenarios and data density. It can be mined to determine useful patterns and simulation models, so we can vary parameters much more widely, test many hypotheses, change doses, at a lower cost, so help to reduce overall time for future development projects. DDM graphically indicates the number of units or amount of test time or other metrics required to detect a statistical difference, between two populations, with a given confidence level. For simple cases, you can use this tool to evaluate different test plans, in order to choose the one that will be most efficient to compare the two products.

Key words: performance, development projects, Difference Detection Matrix, proportion average improvement, relative change, proportion of success