

Master of Science in Engineering

Kitchen handle coatings

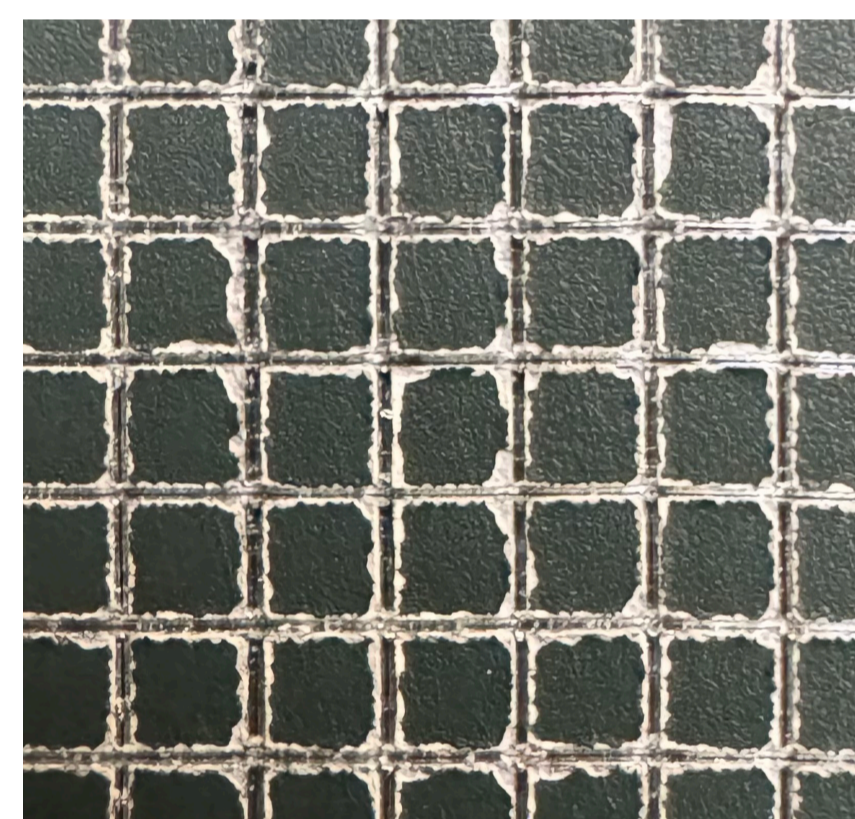
Requirements and testing



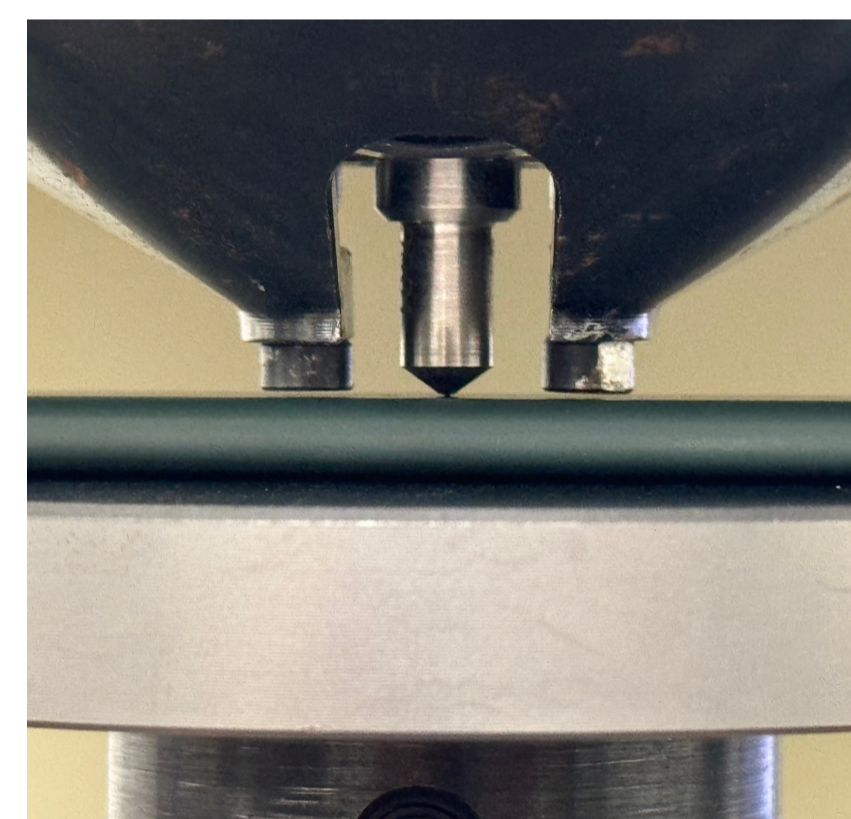
Layer thickness



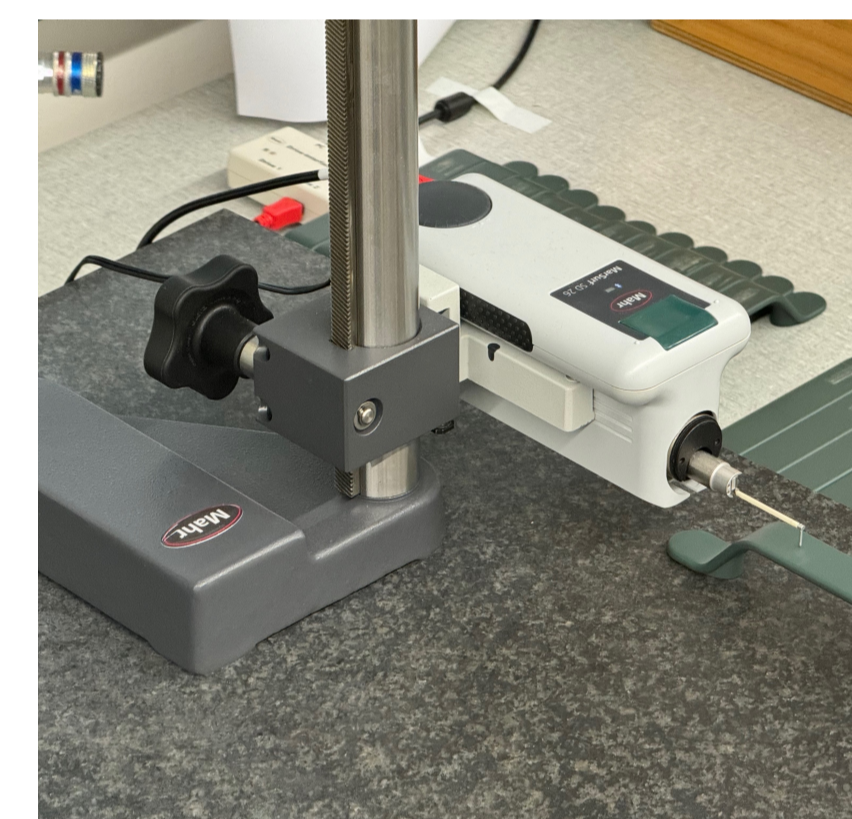
Colour distance



Cross-cut



Hardness



Roughness



Chemical resistance

Background

A kitchen's service life is often expected to be more than 20 years, with only minor maintenance and repair works. Handle coatings are exposed daily to mechanical and chemical wear. Durable handles in various shapes and colours need to be offered with competitive prices.

Suppliers specify few quality characteristics, mostly without tolerances and furniture industry norms focus on panels. Finding handles with tested coating quality and durability is challenging.

Veriset AG requires testing procedures to ensure, only lasting handles are launched in their collections.

Method

In this thesis, handle types, materials, coatings, quality characteristics, failures and norms are explored through literature and interviews.

6 tests were performed on 2 series of popular handles, to check coating quality characteristics and find differences and correlations in the results.

Results

The results demonstrate how interlinked quality characteristics are. Large ranges in coating thickness, colour distance and hardness were observed, which all correlated. Aged coats got harder than the substrate and performed much worse in the cross-cut test. The chemical resistance and surface roughness tests provided no correlations.

Most tests address longevity only indirectly, thus artificial ageing should be additionally considered.

Jonas Berchtold

Supervising lecturer:
Prof. Dr. Carsten Haack

Expert:
Dr. Giovanni Mastrogiacomo

Industry partner:
Rafael Duss

veriset