Materials selection for food processing professional appliances

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AIM OF THE RESEARCH

The research aim is the implementation of a flexible materials selection process, applied to professional food processing products, able to couple qualitative and quantitative properties of materials. The new materials selection approach evaluates five macro-categories of material properties: technical properties, manufacturing and economic requirements, sensorial and intangible properties of materials.

MATERIALS AND METHODS

The research focuses on the integration of durability and sensorial properties in the materials selection method applied to professional appliances.

ISSUE 1 - Durability properties of materials
- Nominal information by softwares, databases and handbooks allow quick preventive selection.
- Professional food processing appliances characterized by the interaction among used material and different chemicals.
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- Materials selection for food processing professional appliances, aimed to improve the user experience with the product.

ISSUE 2 - Sensorial properties of materials
- Case study-based research.
- Professional products communicate through materials sensorial properties: high quality, robustness, strength, reliability, and easy cleanability.
- Tools to compare and quantify sensorial preferences of users between different materials (e.g., polymers, metals).
- Re-adaptation of "Napping® Test" [7] to translate sensorial properties in a numerical system (e.g., numerical ranking, material sensory profile).
- Descriptors related to visual and tactile sensorial properties [5] [6].
- Evaluation of the change in perception after materials aging [8].

RESULTS AND DISCUSSION

CONCLUSIONS
- Development of a holistic approach to materials selection.
- New approach especially designed for food processing professional appliances.
- Comparison of qualitative and quantitative properties of materials, with a focus on durability and sensorial properties.
- New approach tested on specific case studies and further insights for the development of new products.
- New opportunities for the company to show its competences on the market through products ready to demonstrate.
- High product’s performances and reliability.
- Environmental requirements.
- Market trends.
- Compliance with user-product interaction needs.

REFERENCES

8th International Materials Education Symposium
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