(P1) **CFD simulation of air cooling of Cornish pasties as food production**

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Computational Fluid Dynamics (CFD) is an effective tool for predicting the behaviour of fluid flow thereby allowing the design of equipment for optimal performance. In the food industry, heating and cooling are key processes where CFD can play an important role in improving quality, productivity and reducing energy costs. A frequent process in the industry involves the cooling of the product after baking for storage and transportation; the product has to be cooled efficiently to a specified temperature (often to fulfil regulatory requirements) whilst preserving its quality. This study analyses the main factors that affect the cooling process using two different systems; an air blast system frequently used in spiral refrigerators and a more directed impingement system. It was found that the air blast systems consume more energy and are unfavoured for maintaining a good quality of product. In contrast to that, the impingement systems allow an efficient distribution of the energy and preserve higher quality of food through rapid cooling.