# Hydrocolloids Conference – Berlin

## Presentation/Poster

**Title:** Technology strategies to control starch retrogradation

**Abstract:**

The term "retrogradation" is widely used in the starch field and refers to the sequence of phenomena that occur after a starch is cooked in water, cooled, and then held over time. Starch retrogradation can be divided into short-term retrogradation, which is mainly attributed to the irreversible and rapid reassociation of amylose, and long-term retrogradation, which is mainly attributed to the aggregation and recrystallization of amylopectin and leads to time-dependent changes in the foods texture. Starch retrogradation usually decreases the quality of food products, affects the nutritional properties, and shortens the shelf-life.

In this research, we review the key physics (e.g. phase separation, helix formation and helix aggregation) involved in waxy starch instability; apply the starch-water state diagram to illustrate the life of starch granule from cooking through cooling to storage; and predict the influence of food ingredients on starch stability. Salt, sugar and nonstarch hydrocolloids are used as examples.

By understanding the key physics of starch instability and applying starch-water state diagrams, food formulator can deploy proper stability strategies that fulfill the stability requirement under designed food storage condition and shelf life.