

## Maillard reaction in milk powder

**Key words:** Factor structure, Randomized blocks with two-way full factorial treatment structure, repeated measurements.

### Description

In an experiment with production of milk powder the effect of water activity and temperature on the formation of maillard reaction products was investigated. There were 9 treatment combinations of the two factors and three replicates (blocks) of the experiment giving a total of 27 productions. The factors and levels were: water activity (approx. 0.15, 0.25 and 0.10, coded as 1, 2, 3 in the data set), and temperature (100 C, 110 C, 120 C, 140 C).

The 27 samples were stored and measurements were made after 4, 6 and 8 weeks. The measurements (response variables) were: concentration of maillard reaction products (which may give a bad taste), and sensory evaluation of taste (high = good taste).

Number of observations: 81

Variable	Description
water	Numbered 1,2,3
temp	Values 100,110,120,140
rep	The block factor numbered 1,2,3
storage	Storage time 4,6,8
maillard	Maillard concentration
taste	sensory taste score

### Source

The Royal Veterinary and Agricultural University, Denmark.

### Analysis

Randomized block (fixed two-way treatment with interaction, random block) for each of the six variables. Repeated measures analysis for each set of three time repeated

measurements.