



## The impact of conditioning time, steam pressure and speed of cooling on the thermostability of OptiPhos® Plus CT at 85°C

### Trial description

#### 1 Set-up

- **Location:** University of Ghent, Belgium
- **Trial period:** October 2019
- **Pelleting parameters:**
  - Steam produced at 9 bar
  - Conditioning at 85°C
  - 4 x 50 mm die
  - Cooling on flow coolers
- **Sampling from pelletiser:** during the batch production (50 kg), 10 samples are taken from start till the end.
- **Layer feed** (wheat/corn based) supplemented with OptiPhos® Plus CT to yield a final concentration of  $\pm 1000$  FTU/kg of feed



**The cooler**  
(Top view - cold air blown from bottom)

#### 2 Treatments

- **Conditioning**
  - 30 sec. & 1.5 bar saturated steam (steam temperature: 127°C).
  - 30 sec. & 3 bar saturated steam (steam temperature: 140 °C).
  - 200 sec. & 1.5 bar saturated steam (steam temperature: 127°C).
- **Cooling in 2 ways:**
  - Instantly = directly during production (so each subsample is cooled instantly). This is similar as happens in feed mills as pelleted feed is immediately transferred to the cooling device.
  - Slowly = after production is finished, the pooled sample is cooled instantly.

#### 3 Measurements

- Recovery = (Phytase in supplemented pellet – phytase in blanc pellet)/(phytase in supplemented mash – phytase in blanc mash) x 100 %

### Results

- The speed of cooling determines largely the recovery measured. A difference in recovery of 7.9 % (30 sec., 1.5 bar) to 16.7 % (200 sec., 1.5 bar) can be calculated when not cooled instantly.
- Steam pressure nor conditioning time seems to have a major impact on the recovery of OptiPhos® Plus CT at 85°C when cooled instantly (recovery > 93%).

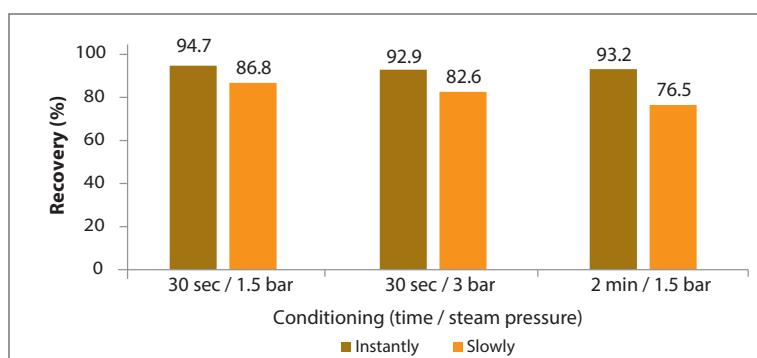


Fig. 1: Effect of conditioning time, steam pressure and cooling (instant or slow) on recovery of OptiPhos® Plus CT at 85°C

### Conclusion

- When feed is instantly (=continuously) cooled, as is the case in a feed mill, OptiPhos® Plus CT had a recovery of > 93 %, even when conditioned at 85°C for 200 sec.