

Aerobic stability test according to HONIG

Principle of the method:

The determination of temperature rise is a measurement of aerobic deterioration as mineralisation processes are exothermic. In large silages heat accumulates due to the insulation effect of the forage. If small samples are used, additional insulation is necessary to reduce heat exchange with the atmosphere. With standardised measuring conditions, the temperature conversion to DM-losses is possible.

Materials:

Container: 0.85 l metal cans with 10 mm holes in bottom and lid

Sample size: about 100 g FM (depending on original DM content)

Insulation: 60 mm polyurethane foam from all sides

Temperature: ambient 20 °C; sample measured every 6 hours for 7 days

Automatic recording with a temperature sensor (KTY 10) and computer.

When the temperature raises persistently 3 °C above ambient the sample is considered as aerobically instable and has started to deteriorate.

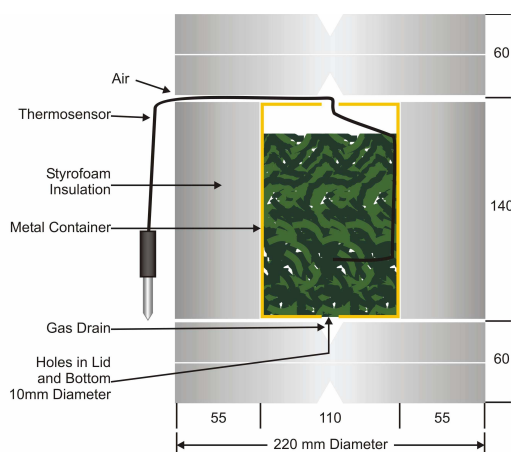


Figure 1: Schematic set-up for measuring aerobic stability



Figure 2: Metal can and temperature sensors



Figure 3: Insulated silage in climate chamber



Figure 4: Automatic recording

HONIG, 1990; PAHLOW *et al.*, 2004

Reference List

PAHLOW, G., HONIG, H. and MARTENS, S.D. (2004): Simple laboratory scale techniques for monitoring and controlling the lactic acid fermentation and shelf life of feeds and foods. In: GÁLVEZ, A., GUYOT, J.-P., MARTÍNEZ-CANAMERO, M., LUCAS, R., ABRIOUEL, H., OMAR, N.B. (eds) Food safety under extreme conditions ... a conference on small-scale production units of traditional fermented foods. Book of Abstracts. Jaén: 144