

Applications NOTES



N°23 November 2002

FORMULA FOR ESTIMATING THE OPTIMUM DAMAGED STARCH LEVEL.

Fixing an optimum damaged starch level according to the flour protein content. (*)

BASIC FORMULA

$$\text{Optimum Damaged Starch (Farrand)} = \text{Protein}^2 / 6$$

Source; Wheat : Chemistry and technology; Pomeranz, Y, AACC, 1988 p.334

Beware that:

- The protein rate is given on a 12% H₂O basis; (See Application Note N°24 for conversion formulas)
- Convert Farrand units in UCD's with the following basis formula : Farrand = 4,31 UCD - 56,9.

CONVERSION

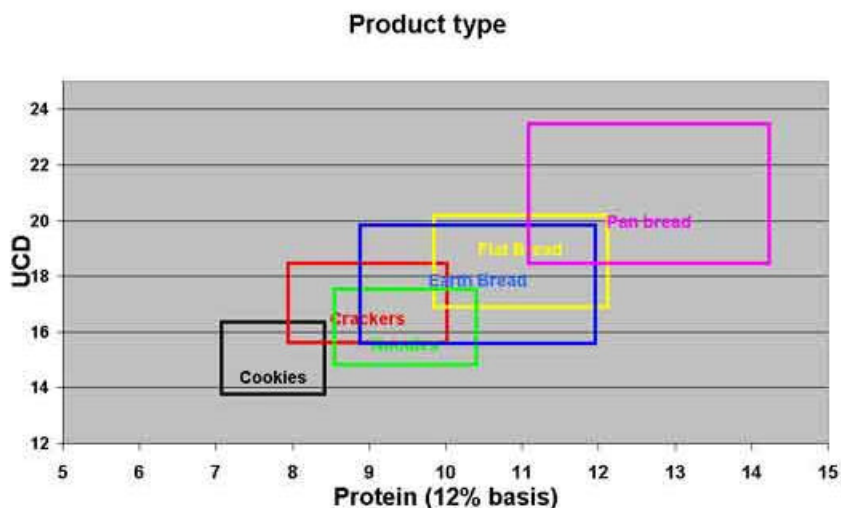
$$\text{Optimum Damaged Starch (UCD)} = \left[\frac{(\text{Protein})^2}{25.86} \right] + 13.2$$

The optimum damage level is 18 UCD for 11% protein and 19 UCD for 12% protein.

This formula gives an estimation independent of the bread-making type and has to be adapted according to production process. (see table here under)

GRAPHIC

ESTIMATION OF OPTIMUM LEVEL OF DAMAGED STARCH ACCORDING TO THE FLOUR PROTEIN RATE & THE END OF VALUE



* This formula is valid for flour with a "normal" amylasic activity.



[Quality control for grains and flour]

20 avenue Marcellin-Berthelot - Z.I. du Val de Seine 92396 Villeneuve-la-Garenne - France
Tel : 33 1 41 47 50 88 Fax : 33 1 47 92 28 27
www.chopin-sa.com