3226 Principles of dough fermentation and process control

SQA Unit Code		H3HK 04
Level 3	SCQF Level 6	SCQF Credit value 6

Unit Summary
This unit is about understanding dough fermentation and how this is important in controlling the processing of doughs, in both non-automated and automated bakery production environments. Fermented dough typically include bread, roll and stick dough, plain and fruited bun dough, doughnuts, base dough for Danish and Croissant.

You need to understand the role of yeast and the principles of the fermentation process in dough. You need to know the basic structure of dough and how processing affects gas production and retention rates. You also need to know, how the control of fermentation during processing of dough determines the shape and quality of the eventual product

In order to be assessed as competent you must demonstrate to your assessor that you can consistently perform to the requirements set out below. Your performance evidence must include at least one observation by your assessor.

Evidence of knowledge and understanding should be collected during observation of performance in the workplace. Where it cannot be collected by observing performance, other assessment methods should be used.

You need to know and understand:

1. the cell structure and properties of yeast as a living organism
2. the feeding, growth and multiplication of yeast cells
3. the principles of fermentation in dough; the role and action of enzymes, carbon dioxide gas and alcohol production
4. the factors affecting fermentation rate; temperature, sugar, salt, pH, nitrogen, fats, spices, mould and rope inhibitors
5. what happens if dough fermentation is allowed to progress without processing controls
6. how the rate of dough fermentation is controlled in dough by temperature and humidity controlled processing environments
7. the structure of dough, its capacity to form gas cells and trap gas bubbles and changes that occur during moulding, shaping, resting, retarding and proving that are critical to successful dough fermentation and development
8. the function of key ingredients in dough making which can influence dough fermentation rates

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9. the gas production and retention properties of long process dough processing methods; bulk fermentation process (BFP), sponge and dough process 10. the gas production and retention properties of short process dough processing methods; mechanical dough development in the Chorleywood Bread Process (CBP), activated dough development (ADD), no-time dough process 11. how to maintain dough condition and deal with fermentation time constraints 12. how to recognise dough fermentation problems which do not comply with specification 13. how to resolve dough fermentation problems during processing 14. what happens to the products of fermentation during baking
Evidence of performance may employ examples of the following assessment: • observation • written and oral questioning; • evidence from company systems (e.g. Food Safety Management System) • reviewing the outcomes of work • checking any records of documents completed • checking accounts of work that the candidate or others have written