



T Level Technical Qualification in Science

Occupational specialism assessment (OSA)

Food Sciences

Assignment 3 - Distinction

Guide standard exemplification materials

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Assignment 3

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Introduction

The material within this document relates to the Food Sciences occupational specialism sample assessment. These exemplification materials are designed to give providers and students an indication of what would be expected for the lowest level of attainment required to achieve a pass or distinction grade.

The examiner commentary is provided to detail the judgements examiners will undertake when examining the student work. This is not intended to replace the information within the qualification specification and providers must refer to this for the content.

In assignment 3, the student must analyse data, create a risk assessment and identify trends in complaints.

After each live assessment series, authentic student evidence will be published with examiner commentary across the range of achievement.

Task 1: food risk assessment

Complete a risk assessment for the presence of nuts in the supply chain and processing operations for Raven Foods, to determine the risk of making a nut free claim on these 3 new products.

(20 marks)

1 hour 45 minutes

Your risk assessment should include:

- justification of conclusions
- additional information that may improve the risk rating

Student evidence

The issue is the possibility of contamination by nuts in the supply chain. Regulations (EC) No 178/2002 prevents the sale of food which may be injurious to health. If a nut free product can possibly be contaminated by peanuts or tree nuts, it would contravene this law.

The following nut risk assessment was carried out and this identified issues both within the supply chain and the process for Raven foods. By implementing the recommended corrective actions this will enable Raven Foods to move towards making a nut free claim on the 3 new products. At this moment in time there are critical issues which need to be immediately resolved as they are likely to lead to serious food safety issues.

Risk Assessment						
Issue No	Description	Probability	Severity	Value	Risk	Corrective action
1	All customer complaints contain milk powder code DC20-098. The supplier cannot be identified as primary or secondary supplier not recorded	3	3	9	High	Monitoring sheet to be amended to included supplier
3	Incorrect date of production recorded for 20.245	2	1	2	Low	Sheets to be checked by supervisor prior to submission
4	BRC Agents lapsed for Bayley import associates (secondary milk powder supplier).	3	3	9	High	Updated BRGS certification required
5	No nut policy for Bayley import associates or Bethan Cocoa.	3	3	9	High	Nut policy required - all ingredients on hold until supplied. No procurement until further notice
6	No ISO 22000 information for all suppliers except, Brasilla Shipping and Suffolk Sugar Supply.	1	1	2	Low	Check if applicable otherwise mark as N/A
7	DMP don't specify they are a nut free site and only exclude allergens from the production facility.	3	3	9	High	Site should state it is nut free
9	All statements need to declare that the supplier is peanut and tree nut free as nut free product is being manufactured.	2	3	6	Medium	All sites to have nut policy stating that site is nut free and this must cover tree nut and peanut
10	Quality Manual for Dairy Milk Powder states no allergens on site. Product itself is an allergen.	3	3	9	High	Further investigations required. Milk is an allergens so audit required.

Task 2: analysis of customer complaints

3 months after the successful launch of the nut free bars, you are asked to review customer complaints received as part of the postlaunch review.

Analyse the complaints data provided, identifying any trends, and producing a summary of the main reasons for the complaints.

Based on your analysis of the complaint data:

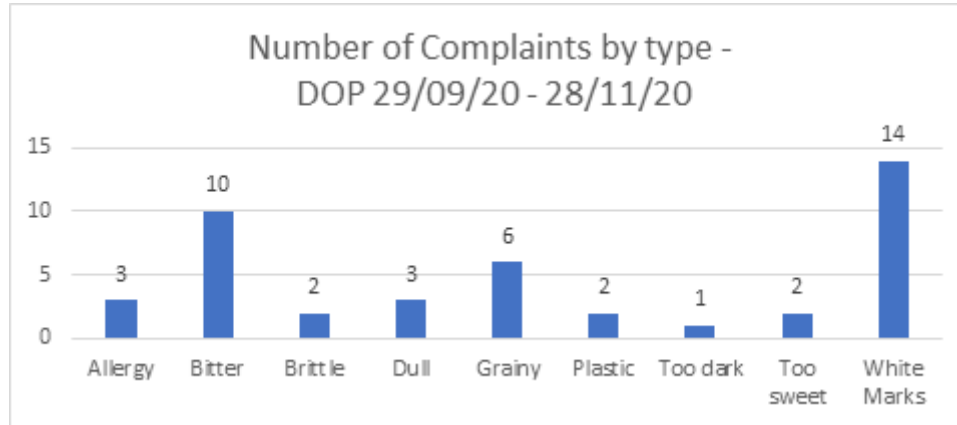
- prioritise the actions required to resolve identified trends
- conduct a root cause analysis to identify the cause of each complaint type
- recommend appropriate preventive actions

(21 marks)

1 hour 45 minutes

Student evidence

The following complaints have been made:



From this it's clear to see that there are 2 food safety issues; allergen (x3) and foreign body (x2) contamination. There are 7 quality issues of which the highest is white marks (x 14), bitter taste (x 10), grainy x 6 and dull x 3.

The complaints can be prioritised as follows:

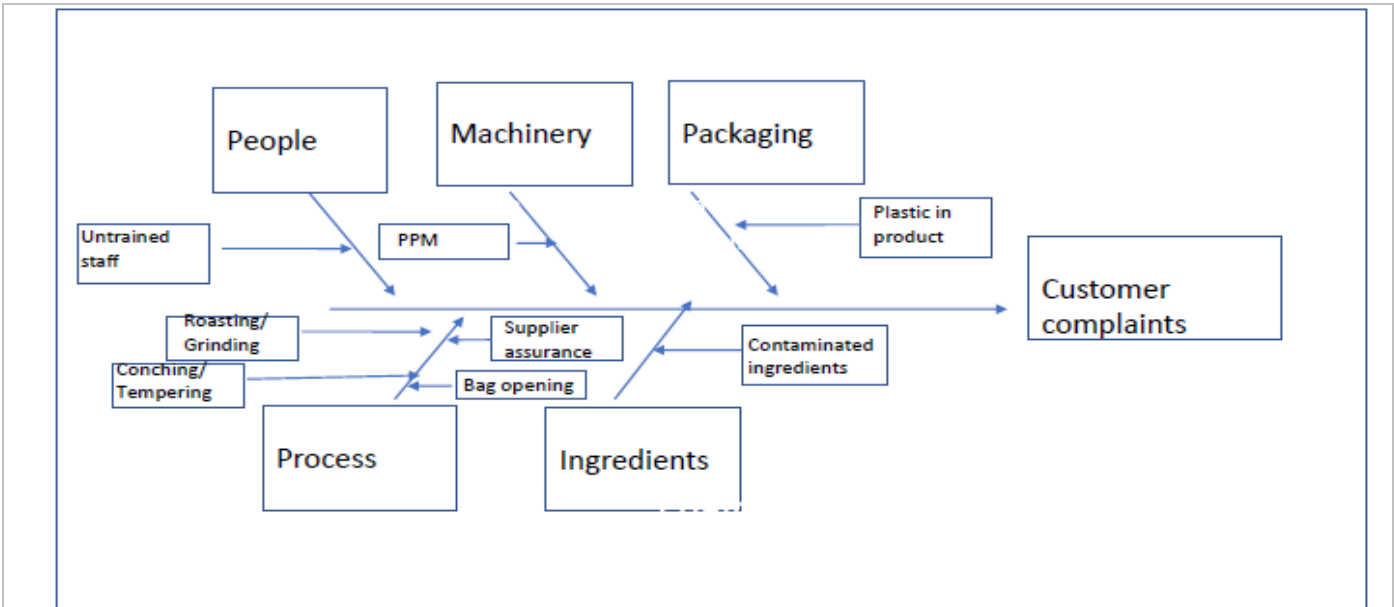
Food safety -

1. Allergen x 3 (2 x milk and 1 x dark) - must be priority 1 due to possible fatality
2. Foreign body (plastic) x 2 (1 x dark and 1 x white) - priority 2 due to choking hazard

Food quality -

3. White marks x 14 (8 x dark and 6 x milk) - priority 3 as likely to look unappealing to consumer
4. Bitter x 10 (7 x dark, 1 x milk, 1 x white) - priority 4 bitter after taste likely to be unpalatable
5. Grainy x 6 (milk)- priority 5 – likely to be unpalatable
6. Dull x 3 (white) - priority 6 - likely to have little impact organoleptically

The following fishbone diagram complete with 5 WHYs has been completed to help identify possible areas which may have resulted to the complaints



1. All 3 allergen complaints used cocoa nibs sourced from Bayley batch BN332 and it is highly probable that this is the source:

Why? – was Bayley used?

Why? – are they an approved supplier?

Why? – do they have a nut policy?

Why? – are they externally certificated?

Why? – could we not use our internal supply?

2. Two products containing plastic in product. There is no immediate identifiable cause and further investigation will be required:

Why? – has the supplier changed packaging?

Why? – do we recognise this packaging?

Why? – do we have a procedure for opening bags?

Why? – how are raw materials emptied into the mix?

Why? – are operatives trained?

3. White marks on product. This was found on all products using Nature’s Butter NB217. White marks can be a result of fat bloom due to poor storage or tempering processes:

Why? – was the tempering process followed and is it monitored and recorded?

Why? – was the product stored correctly?

Why? – is the operative trained?

Why? – do we have an approved distributor?

Why? – is Nature’s Butter an approved supplier?

4. Bitter taste on product. Cocoa nib should be roasted at 120°C for 20 minutes for milk and white chocolate and dark chocolate at 145°C for 15 minutes. Roasting for a prolonged period will cause a bitter taste in the chocolate. The thermocouple should be calibrated monthly:

Why? – was the procedure followed correctly and are there signed monitoring sheets?

Why? – is the operative trained?

Why? – was the thermocouple calibrated?

Why? – who calibrates the thermocouple?

Why? – is this recorded?

5. Grainy texture of product. This may be a result of the grinding or conching process.

Why? – grinding or conching process incorrectly followed?

Why? – operators not following process consistently

Why? – operators incorrectly trained or untrained

Why? – not trained against procedure

Why? – no written procedure available

6. Dull chocolate. Incorrect tempering process followed.

Why? – grinding or conching process incorrectly followed?

Why? – operators not following process consistently

Why? – operators incorrectly trained or untrained

Why? – not trained against procedure

Why? – no written procedure available

Corrective actions:

1. all product containing Bayley’s Nibs BN322 which is held on site needs to be placed in quarantine and further laboratory testing for allergen needs to be carried out on samples
2. retailers should be advised to remove all product from shelves until results confirm which batches are affected
3. recall all batches 20-357, 20-368 and 21-009
4. do not use Bayley’s nibs and only use internal supply until an alternative supplier is found and fully approved
5. immediate review of all supplier and Raven nut policies to ensure all state sites should be nut free for both tree nut and peanuts
6. match plastic to existing packaging and establish reason for contamination – check batches 20-313 and 20-318 for incidences of further contamination – check samples for any other incidence and if further samples found, issue advisory notice and recall both batches
7. carry out organoleptic testing on samples of all batches containing quality issues to establish possible cause
8. all batches which contain Nature’s Butter NB217 should be placed on hold and not despatched until further

samples are taken and checked for further incidences

9. review of roasting, grinding, tempering, bag opening and supplier assurance process to ensure processes are correct – ensure all processes are up to date and monitoring records are being correctly completed where required
10. check current supplier raw material specifications for packaging and cocoa butter and check any changes with supplier
11. ensure all personnel are trained against the relevant process, all processes are being carried out correctly and training records held for all personnel

Examiner commentary

The student has presented a comprehensive and credible evaluation of the situation, which demonstrates a strong understanding of the food industry and shows a robust working knowledge of how to respond to and resolve problems in the food industry to improve both food safety and quality.

The student has used a wide range of resources both academic and practical to carry out a thorough risk assessment and identify trends including highlighting the applicable regulations that impact on the sale of food injurious to health.

The student has carried out an in-depth study of food safety and food quality risks and complaint trends, which is appropriately displayed and has led to the student being able propose appropriate corrective actions in both tasks that would be expected within a real-life working environment.

The student has been able to reach logical conclusions through the use of relevant concepts and techniques used in a food science or development role and this is clearly evident through the production of the nut risk assessment, the Ishikawa diagram and the 5 whys, which has enabled the student to analyse the data, reach well founded judgements and prioritise actions that will have an impact on food safety whilst driving improvements in food quality in an operational facility.

Overall grade descriptors

The performance outcomes form the basis of the overall grading descriptors for pass and distinction grades.

These grading descriptors have been developed to reflect the appropriate level of demand for students of other level 3 qualifications, the threshold competence requirements of the role and have been validated with employers within the sector to describe achievement appropriate to the role.

Occupational specialism overall grade descriptors:

Grade	Demonstration of attainment
Pass	The evidence is logical but displays minimal knowledge in response to the demands of the brief.
	The student makes some use of relevant knowledge and understanding of how it informs practices of the sector and demonstrates a limited understanding of perspectives or approaches associated with food science and food product development processes.
	The student makes adequate use of facts/theories/approaches/concepts/data and attempts to demonstrate breadth and depth of knowledge and understanding.
	The student is able to identify some information from appropriate sources and makes use of appropriate information/appraise relevancy of information and can combine information to make decisions and recommendations.
	The student makes minimal judgements/takes appropriate action/seek clarification with guidance and is able to make limited progress towards solving non-routine problems in real life situations.
	The student attempts to demonstrate skills and knowledge of the relevant concepts and techniques reflected in a food science and/or food product development role and generally applies this across different contexts.
	The student shows adequate understanding of problems that have not been seen before, using limited knowledge to find solutions to problems and make justification for strategies for solving problems, explaining their reasoning.
Distinction	The evidence is precise, logical and provides a detailed and informative response to the demands of the brief.
	The student makes extensive use of relevant knowledge and has extensive understanding of the practices of the sector and demonstrates an understanding of the different perspectives/approaches associated with food science and food development processes.
	The student makes decisive use of facts/theories/approaches/concepts/data, demonstrating extensive breadth and depth of knowledge and understanding and selects highly appropriate skills/techniques/methods.
	The student is able to comprehensively identify information from a range of suitable sources and makes exceptional use of appropriate information/appraises relevancy of information and can combine information to make coherent decisions.

	<p>The student makes well founded judgements/takes appropriate action/seek clarification and guidance and is able to use that to reflect on real life situations in a food science and/or food development role.</p>
	<p>The student demonstrates extensive knowledge of relevant concepts and techniques reflected in a food science and/or food development role and precisely applies this across a variety of contexts and tackles unstructured problems that have not been seen before, using their knowledge to analyse and find suitable solutions to the problems.</p>

Document information

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Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published final version.		June 2021
v1.1	NCFE rebrand		September 2021