

Process Industries Division

THE PROFESSIONAL MECHANICAL ENGINEER IN THE FOOD INDUSTRY - AND HOW TO BECOME ONE.

Institution of
**MECHANICAL
ENGINEERS**

IN ASSOCIATION WITH THE INSTITUTE OF
FOOD SCIENCE AND TECHNOLOGY



Institute of
Food Science & Technology

Improving the world through engineering

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IMechE/IFST Food Engineering Committee

This booklet has been compiled with contributions from the joint Food Engineering Committee of the IMechE and IFST, with narrative by Eur Ing John L Prosser. While the information provided in this document is current and valid at the time of publication continual changes will occur due to government and EU directives. We therefore cannot advise that the listed data in the future is valid. This document should be considered as an introduction to the Food Industry.

Food engineering is constantly evolving with companies striving to improve efficiencies and develop new processes and product lines, often with the use of robotics. Future considerations now also include the impact of climate change and reduction of the carbon footprint.

New sources of energy, energy efficiency and automation are key to reducing costs. All of these activities benefit from the services of a food engineer, specializing in design, development, research, operations or maintenance. So by becoming a food engineer one can fulfil a vital role in society.

The purpose of this booklet is to provide a source of information and to encourage student and graduate engineers to consider a career as a Mechanical Engineer in the Food Industry.

In the early decades of the 20th Century it was relatively easy to differentiate between a mechanical engineer and an engineer of other disciplines such as electrical engineering or civil engineering. Now in the 21st Century engineers must acquire a broad range of skills which include aspects of many disciplines. Mechanical Engineers often diversify and acquire knowledge and experience, constantly learning and adding to their expertise.

This booklet tries to identify the information, training, and skill sets necessary for a mechanical engineer to pursue a career in food, as well as giving guidance on and direction to other sources of information. In addition we have included case studies of engineers who have achieved successful involvement in the food industry.

WHAT IS A FOOD ENGINEER?

The title food engineer can mean different things to different people. The interpretation depends on the context, surroundings, and environment in which the engineer operates.

This booklet examines food engineering in the context of a mechanical engineer as opposed to a food technologist who might be more closely involved in manipulating the composition of food mixes, chemical interactions between constituent elements of food.

A food engineer might be described as someone who uses science and knowledge, to design, construct, operate, or maintain devices, equipment, or systems to provide food for the society we live in. This equipment might be associated with the agricultural industry, or the food manufacturing and processing sector, and could involve operations such as harvesting, processing, packaging, storage, and transportation.

This will embrace principles of applied mathematics, mechanics of machines, thermodynamics, fluid systems, and strength of materials, which are required for the design, manufacture, operation and maintenance of engineering systems and equipment. A food engineer might be a mechanical engineer that works in a food organisation or environment, or who is involved with food processing equipment, devices or services associated with food, and will develop specialist skills relevant to the situation.

Engineers in the food industry can acquire knowledge of refrigeration, gas, electricity, and water supply systems and the particular disposal or alternative use of food waste and waste water.

WHY BECOME A FOOD ENGINEER?

We all need food to survive and we must provide more and more food to serve the growing world population. A food engineer can help to provide conditions, facilities and equipment necessary to prepare food in the increasing quantities required.

To satisfy the ever growing demand mass production systems are required. Plants often specialise in processing specific products and product lines. The sector is currently the largest UK market for robotics as well as the largest UK economic sector. The Industry also has a focus on integrated systems engineering, sensor technology, communication systems, hygienic system design and state of the art product traceability.

At the raw material end of the food chain engineers are involved in operations associated with the rearing of animals, growing and harvesting of crops, or catching of fish or game. (These are usually agricultural engineers.) Systems are then required to process these materials into food which is safe to eat. The food must be kept safe until eaten by the consumer. This often involves refrigeration systems, pasteurisation, and specialist packaging systems.

Food engineers must also be fully aware of the need for food safety at all points of the food processing chain from raw material to finished product. System and machine design must reflect the high food safety standards required.

Tomás Norton PhD (Biosystems Engineering)

After graduating from the Biosystems Engineering department of University College Dublin (UCD) with a B.AgrSc. (Ag & Food Eng), I first began to work on the family engineering business before taking up a PhD in biosystems engineering at Teagasc (Ireland's main agri-food research institute). During this time, I worked as part of a group that developed solutions to improve the indoor environmental conditions for intensively farmed livestock. From there I took up a position as lecturer in food engineering in UCD, teaching food processing subjects ranging from unit operations to process control. Alongside my teaching role, I worked with a small research group, studying the freezing and non-thermal preservation of foods using novel technologies, such as high pressure. After UCD, I moved to Dublin Institute of Technology (DIT), where I taught a range of different subjects Mechanical/Civil and Building Services engineering students.

So far, the time that I have spent teaching and researching has allowed me to develop a reasonably wide area of interests and engineering expertise in the agri-food industry. From the challenges of developing mathematical models of ventilation systems in high-care facilities, to the design and optimization of novel freezing food processes, my career as an agri-food engineer has brought me great deal of satisfaction.

Recently I have joined the engineering department of Harper-Adams University College as a lecturer in biosystems engineering. My current aim is make a worthwhile contribution to food engineering in the UK through my research and teaching, in these difficult but nonetheless exciting times. Presently, I am on the road to becoming a full member of IMechE, and very proud and grateful to be a member of the food engineering committee of the IMechE/IFST.

Brijesh Tiwari PhD (Food Engineering)

After completion of my Masters degree in Food Technology at CFTRI (India) in 2003, my first job was in production management at an Indian soya milk manufacturing plant where I was responsible for Hazard Analysis Critical Control Point (HACCP), production planning and scheduling. Subsequently I obtained a research scientist position at the Indian Institute of Crop Processing Technology, where I was centrally involved in food grain processing R&D activities and carried out several industry focused projects.

In 2007 I moved to Ireland to pursue a PhD in Food Engineering at University College Dublin (UCD).

After graduation I was employed as a Lecturer in Food Engineering at UCD and recently moved to my current Food Engineering lecturing position at Manchester Metropolitan University in the UK.

My research accomplishments are in the areas of novel food processing and preservation technologies, grain processing and mathematical modelling of food processes.

During my research career to date I have been an active member of several professional bodies including the American Society of Agricultural and Biological Engineers (ASABE), the Association of Food Scientists & Technologist (AFSTI, India) and the Institute of Food Technologists (IFT). Recently I became a member of the IMechE and I am a proud member of the IMechE Food Engineering Committee. I look forward to contributing to Food Engineering research in the UK.

Eur Ing John I Prosser
CSci FIFST CEng MIMechE CUEW
Director of Abergavenny
Consultancy Ltd

On completion of my college sandwich course in mechanical engineering in 1971, my first venture into the world of full time employment was as a Design and Installation Engineer with the British Aircraft Corporation. Two years later I took the post of Project Leader in a paper converting mill with Wiggins Teape, and this was followed by two years as a Second Engineer at Aberthaw Power Station.

Seeking more responsibility and wider experience I then joined BP Chemicals where for eleven years I plied my trade, acquiring skills and experience in plant maintenance and major project work including contractor control.

As my seniority grew my next move was to take charge of engineering affairs at a Pharmaceutical Plant, followed by appointment as Chief Engineer and Safety Manager at a Grand Metropolitan Cake Factory. Transition from Pharmaceutical to Food Engineering was made easier for me as both have stringent hygiene standards.

Since then further appointments have included Senior Lecturer at University, Senior Engineer in Energy Management, and Operations Manager of a Sauce Factory.

These days I run my own consultancy business. I have been a Vice President of the IFST, a member of the Food Engineering Committee of the IMechE/IFST, and I have been accredited a Trainer for RSPH and Highfield ABC Food Safety courses.

So once you have your basic engineering experience and knowledge it is possible to evolve into many variant engineering careers. I've ended up in the food industry – and I love every minute of it.

DIVISIONS AND SECTORS OF THE FOOD INDUSTRY

The following list of divisions and sectors in the food industry is not exhaustive but gives an indication of the variety of specialist areas that can be entered.

Retail – manufacturing - food handling and processing - new product development - research - agricultural engineering – packaging - essential services such as steam, refrigeration, control systems, and energy management - evaporation, dehydration, extrusion, filtration, sanitation, mixing, heat treatment - waste reduction, disposal, recycling, and sustainability - microbiology and preservation

Food Sectors can be further divided into:-
Meat and fish processing - animal feeds
- baked products - dairy products - fruit and vegetables – confectionery - alcohol, brewed products and soft drinks - fresh, chilled and short shelf life products
- frozen products - food ingredients - health and functional foods – coffee
- soups and sauces – flour – sugar - bio-technology goods.

TYPICAL ENGINEERING ROLES

Production Manager

The main activities of a Production Manager usually involve the day to day operation of a manufacturing or processing company. The manager would be responsible for all production activities of the company, or section if part of a larger company. Responsibilities could include supervision and management of production, financial budgets, procurement of materials, storage (often chilled storage), processing, packing and wrapping, labelling, and product despatch. Achieving production targets and operational efficiency are also responsibilities of the manager. Managing new product launches and promotions are a constant challenge. Additional skills to strong

man management are usually acquired in health and safety and food safety and hygiene including HACCP (Hazard Analysis and Critical Control Points).

Food Engineering Consultant

The main activities of a consultant food engineer usually involve the provision of knowledge and expertise to a client, providing additional support and knowledge. A food engineer has gained significant knowledge and expertise in a particular aspect of food engineering through achieving qualifications and experience in the workplace.

A consultant might be engaged to provide additional support management, or expert opinion on a food related topic, or to manage a project for the client. Consultants are usually self employed or operate as part of a Consultancy Practice.

Project Engineer

The activities of a project engineer involve responsibility for managing projects from conception, design, procurement and construction through to final commissioning. Particular skills include compilation and interpretation of drawings, overall scheduling and planning of projects, procurement of necessary materials and contract services, writing of contract specifications, supervision of engineering staff and site contractors. The success of a project is measured against specification, programme and budget.

Plant Engineer

The main activities of a plant engineer are usually maintenance of site plant and equipment and possibly process equipment that handles the food. They are involved with and manage the tariffs for all utilities such as gas, water, power and waste water. For frozen and chilled sites the refrigeration plant will be significant either centralised as a main plant or as distributed smaller plants. Responsibilities will include

large boiler plant which supplies steam and hot water for cooking and heating processes. Effluent plant and environmental issues would be managed by a Plant Engineer.

Engineering Manager

An Engineering Manager will look after all process equipment maintenance and all plant and equipment depending on the size of the factory. The role includes the responsibility for maintenance staff, preventive maintenance systems, spare parts and stores. It is closely tied into production efficiency and has a strong relationship with the production managers and supervisors.

Design and/or Development Engineer

The main activities of a design and development engineer include specifying and sourcing equipment for new food processes and promotions, and often working closely with food technologists and new product development (NPD) departments.

Specialist Packaging Engineer

All food needs to be maintained in a safe condition prior to consumption and traditional packaging methods and designs are constantly being modified to suit market demands.

The advent of nanotechnology seeks to introduce a new range of packaging designs, materials, and characteristics. New materials include natural polymers and edible coatings, and intelligent packaging which could change status when non food safe conditions are detected. Anti-microbial wrappings are also being developed.

Packaging design needs to take account of sustainability and green issues as well as cost of production. A food packaging engineer might become a specialist in the design of such packaging, or in the storage, manufacture, and final use of the packaging. Expertise can be developed

in specialist production machines and volume production etc.

Sales Engineer

The main activities of a sales engineer are usually selling food equipment from specialist machine suppliers. They will often offer tests/trials at their own premises or the food factory site.

Engineering Director

The main activities of an Engineering Director usually involve:

- A key role in the company direction
- Controlling all major capital investment
- Responsibility for assets
- Responsibility for site services and energy efficiency
- Managing major projects
- Managing engineering teams
- Ensuring legal compliance
- Setting Key Performance Indicators
- Ensuring 'best practice'
- Ensuring the company is aware of the latest tools, techniques and technologies

To become a professional Food Engineer you need the building blocks. It all starts at school when you acquire the basic skill sets and knowledge, pursuing subjects which might include mathematics, physics, chemistry, science, information and communication technology and computer skills.

On the inside back cover of this brochure is a useful diagram showing the different routes into engineering and the levels of registration available to those with varying academic backgrounds. Below are some typical courses an aspiring food engineer might pursue

The Harper Adams Agricultural College and Academy of Food Engineering

Located near Newport in Shropshire this campus offers state of the art facilities and courses for undergraduate, post graduate, and Life Long Learning in rural and land based sectors of agriculture
www.harper-adams.ac.uk

Nottingham University

The Division of Food Sciences is located in the School of Biosciences at the Sutton Bonington Campus. It is an internationally renowned centre for both fundamental, and industrial, Food and Brewing Science teaching and research.
www.nottingham.ac.uk/biosciences

Leeds University

The School of Food Science and Nutrition runs a range of courses in food science and nutrition. It also links with industry and external experts through the Food Chain Centre for Industrial Collaboration. www.food.leeds.ac.uk

Brunel University

Located to the north-west of London, Brunel is a world-leading Institution on Food Refrigeration and Associated areas of food engineering.
www.brunel.ac.uk

Herriot Watt University, Edinburgh

The School of Life Science has undergraduate and postgraduate courses in Food science, and Brewing and Distilling. The International Centre for Brewing and Distilling (ICBD) is a unique teaching and research facility based on a partnership between industry and academics. It is the only organisation in the UK to offer both undergraduate and postgraduate degrees in Brewing and Distilling.
www.sls.hw.ac.uk

Manchester Metropolitan University

The Food Research Centre offers a range of short courses and conducts research on a wide range of food production topics.
www.foodresearchcentre.co.uk/section/4/Food_Research

Reading University

A range of undergraduate, postgraduate and Flexible Study options associated with food science and engineering are available. Tel: + 44 (0)118 987 5123. Courses include Bioengineering, and Earth Sciences and Engineering.
www.reading.ac.uk

The University of Ulster

The University of Ulster offers a four year BSc Hons Food and Nutrition course.
<http://prospectus.ulster.ac.uk/>

Queens University - Belfast

This one year full time MSc/Diploma Process Engineering programme offers an outstanding opportunity for both science and engineering graduates to acquire advanced process engineering knowledge and skills for future career development. This programme also incorporates optional specialisation courses to enable a graduate to become an expert in a self selected professional area of either environmental, polymer, or food engineering

The Institute of Agri-Food and Land Use - The Queen's University of Belfast

This college runs a series of food related courses including Food Quality, Safety, and Nutrition. Contact details are:

www.qub.ac.uk/schools/InstituteofAgri-FoodLandUse/ProspectiveStudents/UndergraduateStudies/FoodQualitySafetyNutrition/

Imperial College London

Mechanical Engineering courses and Food Engineering Research

The Mechanical Engineering course is four years in duration, and leads to MEng degrees which have been accredited by the Institution of Mechanical Engineers. They can be taken with or without sponsorship and students can select from a wide range of subjects in their final years.

www3.imperial.ac.uk

University College Cork (UCC) – BE Degree

The Department of Process & Chemical Engineering at UCC offers a BE degree programme with specialisation options for the Pharmaceutical Industry, Food Industry or Supply Chain Engineering & Management.

The College of Agriculture Food & Rural Enterprise (CAFRE)

CAFRE has 3 campuses based at Enniskillen, Antrim (Greenmount Campus) and Cookstown (Loughry Campus). Loughry is the UK National Skills Academy's Champion for Food Manufacturing training in NI. It offers a range of full-time and part-time courses in food, (including food technology, food nutrition and health) and food supply management and marketing.

www.cafre.ac.uk/index/information-for/prospective-students/courses/

STANDARDS

The Engineering Council oversees the standards of the engineering profession in the UK and details about the organisation and affiliated Institutions can be viewed at www.engc.org.uk/. Students are encouraged to pursue courses accredited by the Institution of Mechanical Engineers or any other engineering institution to facilitate their journey towards the status of a professional engineer.

Processes for food manufacturing must conform to the many EU directives and in all cases the UK law. Access to the ever changing information is therefore essential for a professional food engineer. The following is a list of various sources of such information:

IMechE Library (As a general comment, most potential students will not be able to visit the IMechE library at Westminster)

The IMechE Library based at headquarters in Birdcage Walk Westminster London holds a wealth of information, books, periodicals etc on all aspects of engineering. Particular food related items can be accessed as shown below.

The following is a list of key shelf numbers for the processing engineering subject area. If you are looking for a particular book please check the library catalogue:

Food refrigeration (664.0285), Food engineering (664), Food processing (664.02)

Food waste (664.08), Refrigeration (621.56)

Some Useful Books

ASHRAE handbook: Refrigeration (2006) 697 ASH(Oversize)

Dincer, I, Heat transfer in food cooling applications (1997) 664.0285 DIN

Dincer, I, Refrigeration systems and applications (2003) 621.56 DIN

Huang, Y, Whittaker, A & Lacey, RE, Automation for food quality (2001) 664 HUA

Lelieveld, H, Hygiene in food processing (2003) 664 LEL

Maroulis, Zacharias B & Saravacos, GD, Food process design (2003) 664.02 MAR

Perry, P, Winning with food safety: a guide for business (2006) 664 PER (Oversize)

Roberts, TC, Food plant engineering systems (2002) 664.02 ROB

Saravacos GD & Kostaropoulos A, Handbook of food processing equipment

(2002) 664.02 SAR

Sharma, SK, Mulvaney, SJ & Rizvi, SSH, Food process engineering (2000) 664 SHA
Smith, PG, Introduction to food process engineering (2003) 664 SMI

Valentas, K J, Handbook of food engineering practice (1997) 664 VAL
Waldron, K, Handbook of waste management and co-product recovery in food processing, Vol 1 (2007) 664.08 WAL

Wang, LK, Waste treatment in the food processing industry (2005) 664.08 WAN (Oversize books are shelved on the bottom two shelves)

A range of E-books are also available via the Knovel service in the Virtual Library

Useful Journals

Current issues of key journals are held on the journal display rack. The back copies of these journals are also available if you ask at the library reception.

ASHRAE insights 2004-

ASHRAE journal 1959-

Health and safety at work 1 year

Plant and works engineering 2004-

Proceedings of the IMechE part E:

Journal of process mechanical engineering 1989-

Proceedings of the Institute of Refrigeration 1943-

Process engineering 1972-

The ROSPA occupational safety and health journal 5 years

Works management 5 years

E-journals

The following electronic journals are available on the EBSCO Business Source database in the Virtual Library.

Dairy Foods, Food & Drink Technology
 Food & Pack, Food Engineering, Food Engineering International
 Food Logistics, Food Management
 Food Manufacture, Plant engineering
 Food Science & Technology International
 Food Service Technology
 Foodservice Equipment & Supplies
 Frozen Food Age, Prepared Foods
 Journal of Agricultural & Food Industrial Organization
 Journal of Food Distribution Research
 Journal of Food Process Engineering
 Journal of Food Processing & Preservation
 Process engineering, Process control & quality
 Process cooling & equipment
 Journal of Agricultural Engineering Research
 Journal of Food Engineering
 International Journal of Food Science and Technology
 Food Manufacturing Efficiency

Some useful websites

Improve - the food and drink sector skill council www.improveltd.co.uk
 British Soft Drinks Association www.britishsoftdrinks.com
 Chilled Food Association www.chilledfood.org
 Department for Environment, Food and Rural Affairs www.defra.gov.uk
 Federation of Bakers www.bakersfederation.org.uk
 Food and Drink Federation www.fdf.org.uk
 Food Manufacture www.foodmanufacture.co.uk
 Food Processing Knowledge Transfer Network (KTN)
 Information website sponsored by the DBERR and the DEFRA (free registration required to access some resources) www.fparaday.com
 Food Processing Machinery Europe (FPME) - www.fpme.com
 Food Processing Suppliers Association www.foodprocessingmachinery.com
 Food Standards Agency www.food.gov.uk
 Health and Safety Executive www.hse.gov.uk
 Industry Council for Packaging and the Environment www.incpen.org
 Institute of Food Science and Technology www.ifst.org
 Institute of Refrigeration www.iior.org.uk
 National Packaging Council www.natpack.org.uk
 Packaging and Industrial Films Association (PIFA) www.pifa.co.uk
 Packaging Federation www.packagingfedn.co.uk
 Packaging Machinery Manufacturers Institute www.pmmi.org
 Processing & Packaging Machinery Association www.ppma.co.uk

Training and Development for professional registration

Training and professional development builds upon academic skills and can enable developing engineers to work to, and achieve registration as a Chartered Engineer (CEng) or Incorporated Engineer (IEng). It must be challenging and is based upon the level of educational achievement reached.

Mentoring

It is always useful to work with a mentor towards CEng/IEng. If you are working for a company with an accredited Monitored Professional Development Scheme (MPDS), an MPDS mentor will be allocated to you by your company. If you are not on an official scheme, you may work with any engineer who has experience of professional registration and ECUK Spec.

The IMechE, in association with other Institutions, developed the web site PD-HOW2 which can be viewed at www.pd-how2.org/. The website gives guidance on how to record your competences and evidence.

Training and Professional Development for your career

The Institution of Mechanical Engineers now offers training and professional development short courses from a range of expert providers, enabling outstanding professional development opportunities for all engineers, technical professionals and scientists at all stages of their careers. View web page www.imeche.org/training for more information.

Improve Ltd

Improve Ltd is the Sector Skills Council for Food and Drink Manufacturing in the UK.

Tel: 0845 644 0448

www.improve-skills.co.uk

Experts suggest the following categories are becoming more dominant in the food industry:

- Health & Wellness Products
- Natural & Organic Products
- Functional Foods
- Product Reformulation
- Indulgence Foods
- The Aging Population
- Sensory flavours from around the globe
- Kosher & Halal products
- Convenience foods and Portion control
- Demand for processed foods in developing countries including China and India.

A list of major food and drink companies may be seen at Appendix 1

Food Engineers have to be aware of all legislation that might affect their activity or operation. In the food industry there are general acts, laws and regulations relating to the integrity and safety of food, and there are specific regulations relating to certain aspects many of which are listed below:

Aquaculture- Bivalves molluscs
Contamination of Foodstuff
Fish and Fishery Products
Flavourings
Food Additives
Food Fortification
www.fsai.ie/legislation/food/legislation_foodgeneral.asp
Food Hygiene
Food Products: Animal origin
Food Products: Animal origin - Eggs
Food Products: Non-animal origin
Food Standards
Food Supplements
Foods for Particular Nutritional Uses (Parnuts)
Fruit and Vegetables
Game
General Principles of Food Law
General Product Safety
Genetically Modified Organisms (GMO)
Horse Meat
Imports and exports
International Carriage of Perishable Foodstuffs
Labelling, Presentation and Advertising of Foodstuffs
Manufacturing and Processing Methods
Materials and Articles Intended to Come into Contact with Foodstuffs
Meat - Fresh Meat
Meat - Meat Products
Meat - Minced Meat, Meat Preparations and Mechanically Separated Meat
Meat - Poultry meat
Milk and milk products
Novel Foods and Ingredients
Official Control of Foodstuffs
Organic foodstuffs
Pesticides residues in foodstuffs
Veterinary Medicines, Animal Remedies, Control of Illegal Substances and Poisons
Water

The Food Safety Act 1990 (as amended)

provides the framework for all food legislation in Great Britain – similar legislation applies in Northern Ireland. Guidance Notes for food businesses on the Food Safety Act 1990 are available.

Food engineers need to be aware of European Legislation and Directives such as:

The General Food Law Regulation (EC) 178/2002 is EC legislation on general food safety. Guidance Notes on General Food Law Regulation (EC) 178/2002 are available.

The General Food Regulations 2004 (as amended)

provides for the enforcement of certain provisions of Regulation (EC) 178/2002 (including imposing penalties) and amends the Food Safety Act 1990 to bring it in line with Regulation (EC) 178/2002. Similar legislation applies in Northern Ireland.

Regulation (EC) No 854/2004

Specific rules for official controls on products of animal origin

Regulation (EC) No 852/2004

General rules on hygiene

Legislation Websites

www.fsai.ie

www.codexalimentarius.net

www.cfsan.fda.gov

www.efsa.europa.eu

www.food.gov.uk

The Food Standards Agency issues Guidance Notes to support Food Safety legislation. A list of some Guidance Notes available is included below. The list does not cover all guidance notes but is intended to give a flavour of information available:

Bread and Flour Regulations 1998:
Guidance notes

Contaminants in Food (England)
Regulations Guidance note

EU Official Feed and Food Controls
regulation: Guidance for enforcement
authorities

Feeding Stuffs Regulations 2005
Guidance Notes

Food Additives Legislation Guidance
Notes

Food Contact Materials and Articles
Legislation Guidance Notes

Food Safety Act 1990: a Guide for Food
Businesses

Food Standards Agency Guidance
Notes on Articles 14, 16, 18 and 19 of
the General Food Law Regulation (EC)
178/2002

Food Supplements Regulations 2003:
Guidance notes

GM food and feed, and traceability and
labelling of GMOs: Guidance notes on
the regulations

Guidance notes on materials and
articles in contact with food

Guidance on expenses arising from
'additional official controls'

Guidance on nutrition and health claims
made on foods

Guidance on the Plastic Materials and
Articles in Contact with Food (England)
Regulations 2009

Guidance on the new food hygiene
legislation

Food Safety Standards

ISO 22000:2005 'Food Safety
Management Systems – requirements
for organizations throughout the food
chain'.

BRC Global Standard for Food Safety
Scheme

Safe and Local Supplier Approval
(SALSA)

APPENDIX 1: MAJOR FOOD COMPANIES

Allied Domecq Spirits & Wine
Arla Foods UK
Associated British Foods
Atlantic Industries
Bernard Matthews Holdings
Boparan Holdings
C&C Group
Cadbury Schweppes Plc
Campbells UK
Carlsberg UK
Coca Cola
Constellation Europe
Coors Brewers
Dairy Crest
Dairygold Co-op
Dale Farm
Daniel Thwaites
Dawn Meats Group
Deans Food Group
Farmers Boy
Fuller Smith & Turner
Fyffes
Gerber Foods Holdings
Glanbia
Greene King
GW Padley Poultry
Heineken
Hicks Muse Tate & Furst
HJ Heinz UK
HP Foods
Icelandic Group UK
Irish Distillers Group
Kellogg UK
Kepak
Kerry Group
Key Country Foods
Kraft Foods
Lakeland Dairies
Mars UK
MBO – Capvest
McCain Foods GB
McLelland Group
Milk Link Processing
Milk Link, Glanbia
Moy Park
Muller Dairy UK
Nestle
Northern Foods
PepsiCo Holdings
Perkins Foods
Premier Foods
Pura Foods

Quaker Oats
Real Good Food
Richmond Foods
Robert Wiseman Dairies
Scottish & Newcastle Plc
Sun Valley Foods
Tate & Lyle
Tetley GB
The Cheese Company Holdings
Thorntons
Tulip - Incorporates Flagship Foods,
Oscar Mayer
Unilever (Food)
United Biscuits
United Dairy Farmers Group
W Morrison Supermarkets plc
Walkers
Warburtons
Weetabix
William Grant & Sons
Wolverhampton & Dudley Breweries
Wrigley Company
WT Foods Holdings
Yeo Valley Group
Young's Bluecrest



