

Production of Safe Food

Food Hygiene Essentials

A Clean Regime

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Aspects Of Cleaning

- Food manufacturers are obliged to maintain high hygienic standards – this not only applies to the plant equipment but also the staff in production.



Why – Trade?

- Good wholesome products that keep well and are free from hazards are good for trade - customers will buy again. The reverse is also true, if the product is contaminated – the authorities will get involved and the publicity can be very damaging. The potential effects of poor cleaning and poor standards must be kept in mind at all times.

Why – Trust?

- Customers will never see the factory or see how the products are handled.
- They take a company on its reputation and they trust that company.
- They take for granted that food is produced under the cleanest conditions by well trained staff.

Why – Legal?

- The law is there to protect the consumer in respect to health and quality.
- Failure to meet these legal obligations can prove very costly.
- Prevention is better than cure.

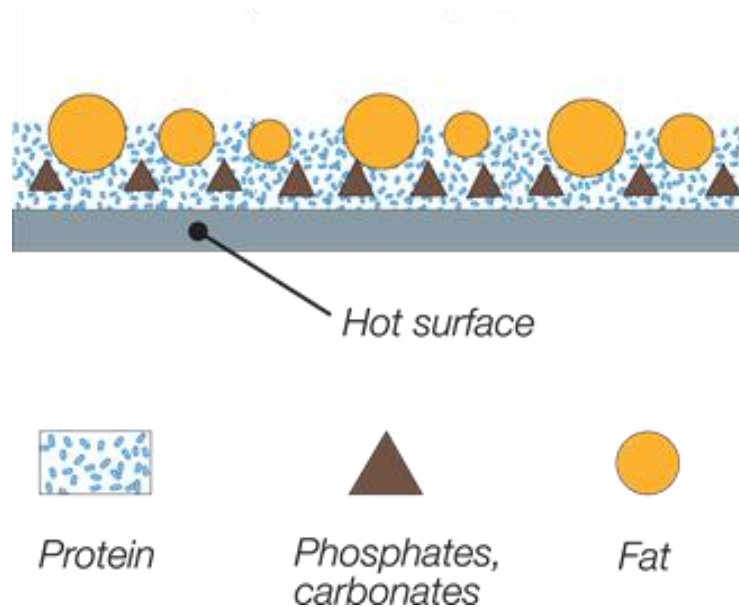


Cleaning Objectives

- Physical Cleaning: Removal of all visible dirt from surfaces.
- Chemical Cleaning: Removal of microscopic residues.
- Bacteriological Cleaning: Attained by disinfection.
- Sterile Cleaning: Destruction of all micro-organisms.

Nature of Soiling

- Organic – Fat, Protein, Starch / Cooked or hard deposits
- Inorganic – Calcium deposits
- Biofilms



Fats, Oils & Greases

- The structure of fatty acids vary from waxy solids to liquids.
- Can be insoluble in water
- On exposure to air oxidise and polymerise creating harder and more closely bonded units on the surface.
- Exposure at high temperatures can cause fats carbonise.
- Fatty deposits are recognisable by their greasy feel and repellent properties.



Proteins

- Have complex large molecules that are normally too large to dissolve in water.
- The specific shape causes change when exposed to high temperatures.
- This done by process called denaturation usually making them harder and more insoluble.
- This property is crucial in the temperature of water for removal of protein deposits.
- Aged protein deposits can be difficult to remove. Many allergens are proteins.



Starches

- **Large molecules can be insoluble especially after exposure of heat.**
- **Usually derived from plants.**
- **When deposited they can vary from soft powdery to quite hard.**



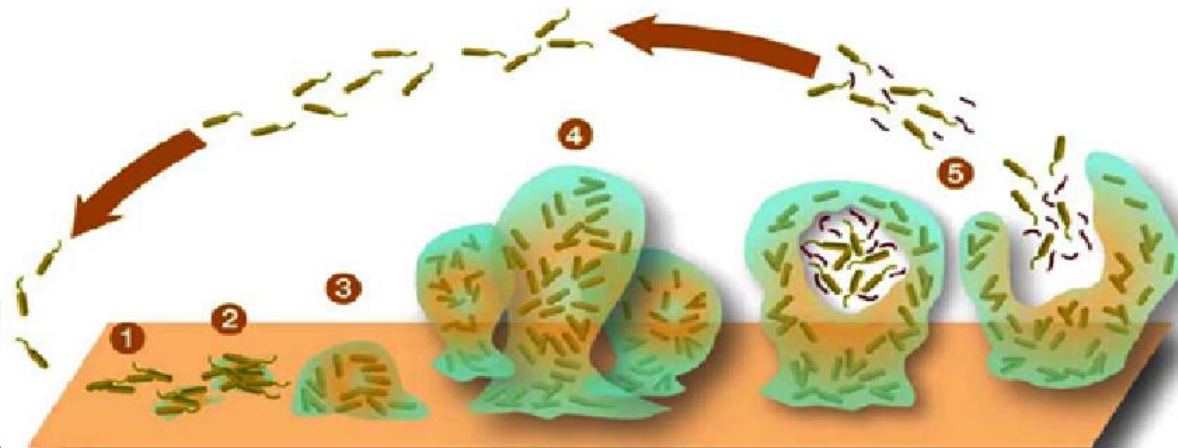
Algae & Fungi

- **Algae:** Found in moist areas especially where high levels of condensation are present
- **Fungi:** Found in moist areas especially near chills and freezers and silicon sealants

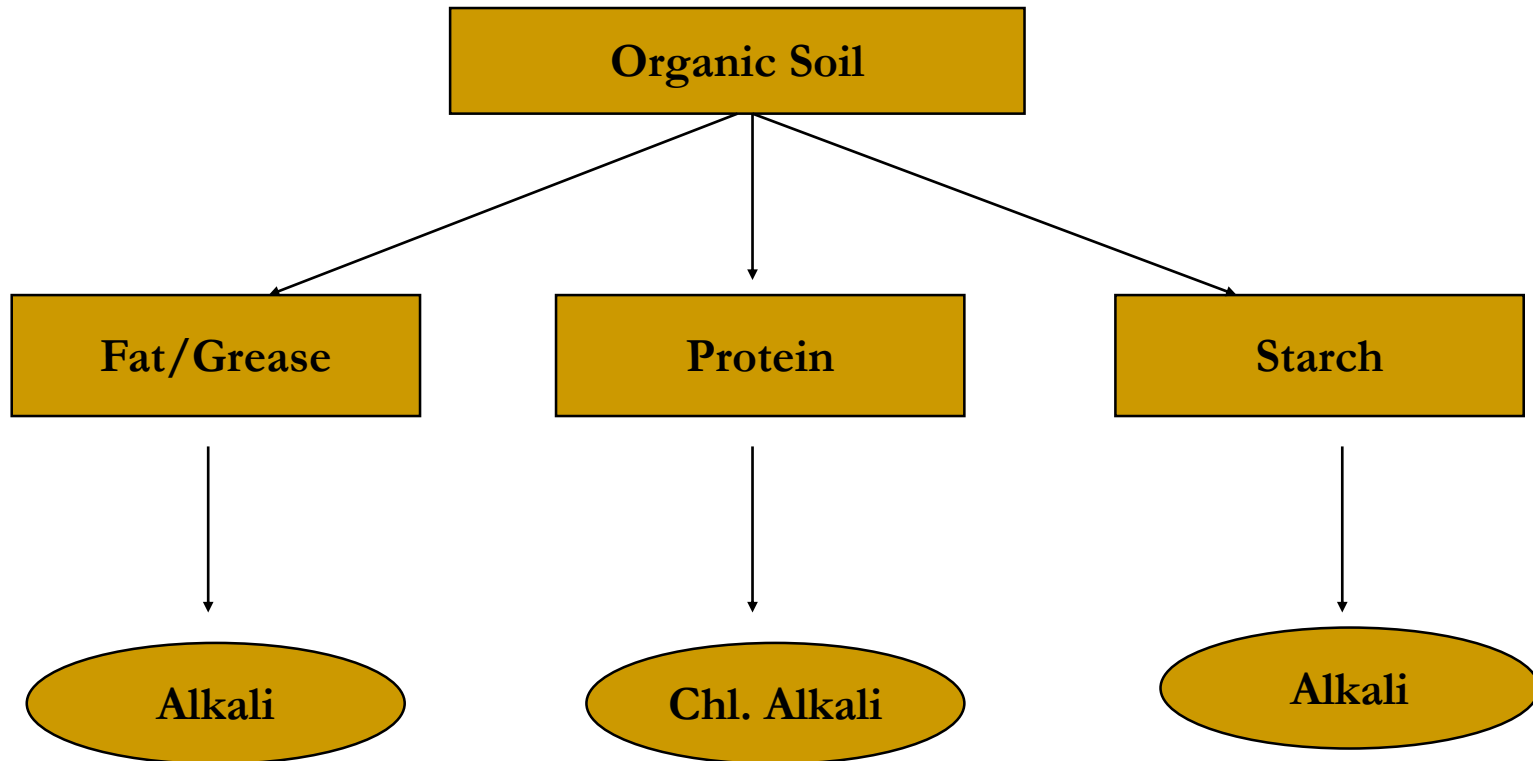


Biofilms

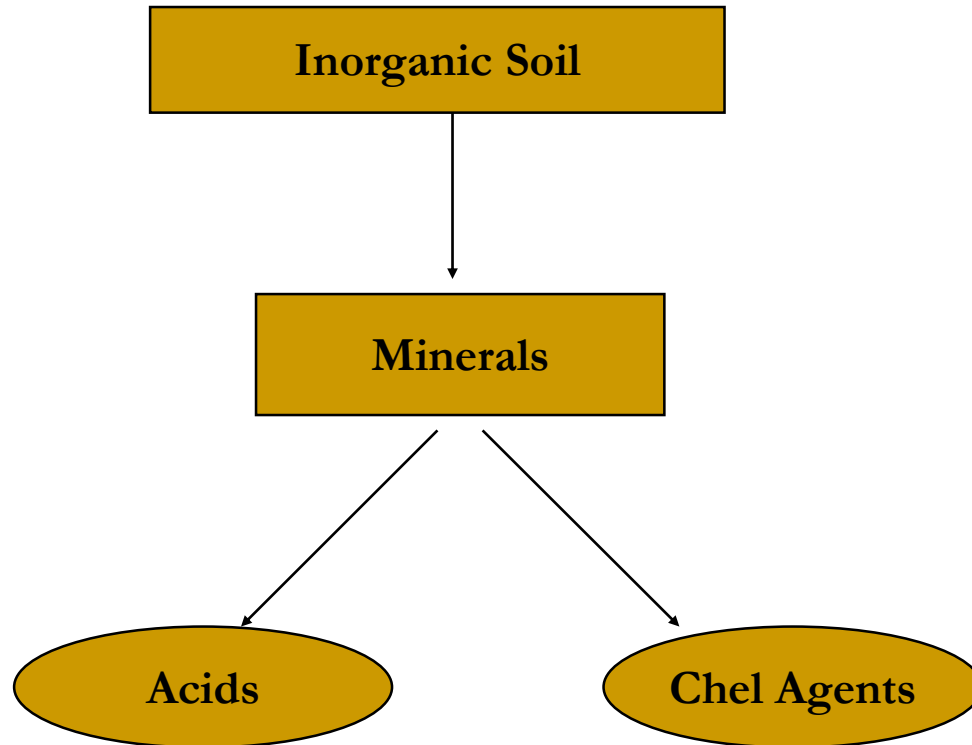
- **Some microorganisms secrete polysaccharides**
- **These have the potential to combine with salts to create biofilms**
- **They are tenacious and difficult to remove**



Cleaning Agents

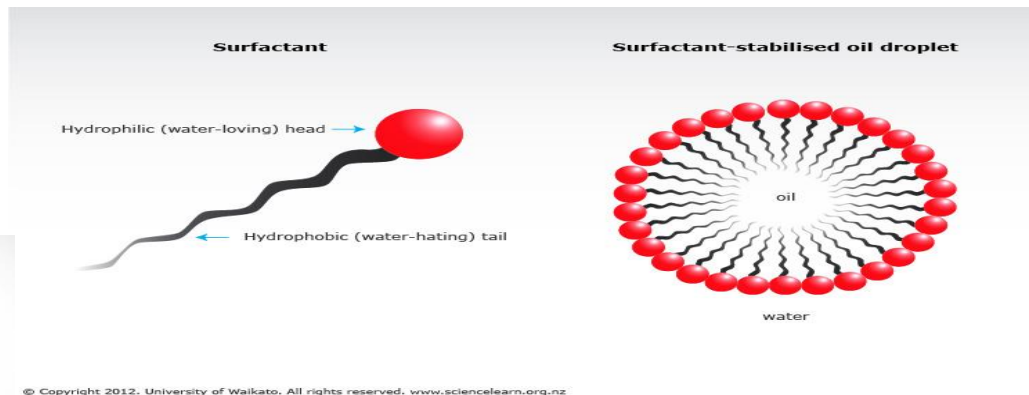


Cleaning Agents



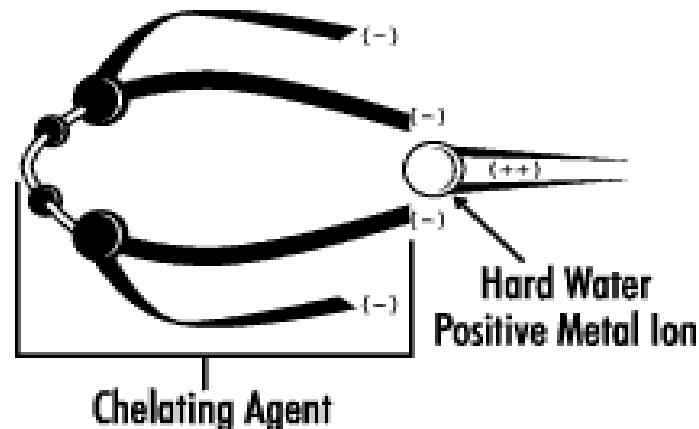
Cleaning Chemicals- Surfactants

- **Improve wetting power by reducing surface tension**
- **Penetrates soil**
- **Prevents re-deposits**



Cleaning Chemicals- Chelating Agents

- **Removes inorganic elements**
- **Prevents hard scale deposits**
- **Added to Alkali detergents in small quantities**



Cleaning Chemicals- Alkali Detergents

- **pH from 8-14**
- **Combination of chemicals including surfactants, Chelating agents and chlorine**
- **Blends are more effective but also more expensive**



Cleaning Chemicals- Acid Detergents

- pH from 0 to 6
- May have surfactants added
- Effective at removing scale
- Should be allowed to come into contact with chlorinated detergents



Washing Factors - TACT

Time

Too little:	not enough surface interaction
Too much:	temperature cools, detergent deposits
Just right:	surface wets, soils are removed and washed away

Action(mechanical force)

Loosens soil and disrupts biofilms

Washing Factors - TACT

Chemical Concentration

Too little:	not enough cleaning power
Too much:	may leave residues, reduce efficiency, cost increase
Just right:	does the job required

Temperature

Use the correct temperature according to SOP's
Water should be at least 50C/120F at the cold end
Too hot: proteins denature and may deposit, dangerous!!

Cleaning Steps

Pre-Rinse

Removes loose soil prior to cleaning
Use warm water 50C/120F

Wash – TACT

Removes organic and inorganic material
Follow SOP's

Post Rinse

Removes cleaning chemicals
Rinse water may be acidified

Sanitise

Reduces number of microorganisms
Only clean surfaces can be sanitised

Cleaning

- **Clean as you go**
- **Follow daily/weekly cleaning schedule for non-food contact surfaces**
- **Keep records of cleaning**
- **Follow all manufacturers instructions when handling chemicals**
- **Change cleaning water when dirty or cold**

Cleaning Schedule

- Tabulate stating;
 - ❑ **Item, equipment or area to be cleaned**
 - ❑ **Method including chemical, make-up, temperature, contact time**
 - ❑ **Frequency**
 - ❑ **(Who is responsible)**
 - ❑ **How verified**
 - ❑ **Corrective Action**

Verification Cleaning Adequacy

- **Visual Inspection of premises, equipment, utensils**
- **Swabbing of food contact surfaces**
- **Swabbing of food handlers**
- **Microbiological testing of final product**

Thank You