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# Learner Guide SITHFAB025 Prepare and serve espresso coffee


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# Unit of Competency

## Application

This unit describes the performance outcomes, skills and knowledge required to extract and serve espresso coffee beverages using commercial espresso machines and grinders. It requires the ability to advise customers on coffee beverages, select and grind coffee beans, prepare and assess espresso coffee beverages and to use, maintain and clean espresso machines and grinders. Complex repairs of equipment would be referred to specialist service technicians.

Preparation of coffee beverages using other methods is covered in SITHFAB004 Prepare and serve non-alcoholic beverages.

This unit applies to any hospitality organisation that serves espresso coffee beverages, including cafes, restaurants, bars, clubs, function and event venues.

It applies to espresso machine operators who operate with some level of independence and under limited supervision.

No occupational licensing, certification or specific legislative requirements apply to this unit at the time of publication.

## Unit Sector

Hospitality

## Performance Criteria

| Element<br>*Elements describe the essential outcomes.* | Performance Criteria<br>*Performance criteria describe the performance needed to demonstrate achievement of the element.* |
|---|---|
| **1. Organise coffee workstation** | **1.1** Complete mise en place for coffee service to enable efficient work flow and easy access to ingredients, equipment, and service-ware<br>**1.2** Place ingredients in correct containers and conditions to maintain freshness<br>**1.3** Prepare espresso machine and grinder for service according to manufacturer instructions |
| **2. Select and grind coffee beans** | **2.1** Select coffee beans and grind to appropriate particle size according to relevant factors<br>**2.2** Complete test extractions before service to ensure correct particle size of grind, and assess and adjust according to relevant factors<br>**2.3** Adjust grind regularly throughout the service period according to relevant factors<br>**2.4** Monitor efficiency of grinder for correct dose and grind during use, and resolve or report issues<br>**2.5** Clean grinder as required during or after the service period |
| **3. Advise customers and take espresso coffee orders** | **3.1** Provide information and recommendations about types of coffee beverages and accompaniments<br>**3.2** Identify customer preferences and take orders |
| **4. Extract and monitor quality of espresso** | **4.1** Select and prepare appropriate service-ware<br>**4.2** Select correct filter basket and clean, dry and dose it with required amount of ground coffee<br>**4.3** Tamp ground coffee to make even and level cake<br>**4.4** Flush group head before attaching group handle to extract espresso<br>**4.5** Monitor quality of extraction during service period and make adjustments<br>**4.6** Monitor efficiency of espresso machine during service, and resolve or report issues |

| Element<br>*Elements describe the essential outcomes.* | Performance Criteria<br>*Performance criteria describe the performance needed to demonstrate achievement of the element.* |
|---|---|
| **5. Undertake milk texturing process** | **5.1** Select cold milk and appropriate milk foaming jug to fulfil customer orders<br>**5.2** Purge the steam wand prior to texturing<br>**5.3** Texture milk according to type of milk and coffee beverage<br>**5.4** Visually and aurally monitor and adjust the texture and temperature<br>**5.5** Clean the steam wand on the outside and purge every time after texturing<br>**5.6** Combine foam and milk through swirling, ensuring even consistency<br>**5.7** Pour milk immediately after swirling, according to the coffee beverage |
| **6. Serve espresso coffee beverages** | **6.1** Present coffee beverages attractively and without drips and spills<br>**6.2** Serve coffee beverages promptly at the required temperature and with appropriate accompaniments<br>**6.3** Minimise waste to maximise profitability of beverages produced |
| **7. Clean espresso equipment** | **7.1** Clean espresso machine and equipment thoroughly and safely according to organisational procedures and manufacturer instructions<br>**7.2** Maintain water filtration system according to organisational procedures<br>**7.3** Refer faults and maintenance issues requiring technical specialists to supervisor<br>**7.4** Use energy and water resources efficiently when preparing coffee beverages and cleaning to reduce negative environmental impacts |

## Foundation Skills

*Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.*

Reading skills to:

- Interpret organisational documents or diagrams that relate to:
  - safety data sheets (SDS) and product instructions for cleaning chemicals
  - organisational procedures for operating, cleaning and maintaining equipment
- Read beverage menus and standard recipes for espresso coffee beverages

Writing skills to:

- Use legible handwriting and accurate spelling to write orders and basic notes on customer preferences.

Oral communication skills to:

- Use active listening and open and closed probe questioning to determine customer preferences and offer suitable products

Numeracy skills to:

- Visually estimate amounts of milk and make adjustments to doses of ground coffee

Problem-solving skills to:

- Identify deficiencies in espresso extraction and make adjustments to ensure a quality product
- Monitor operational efficiency of espresso machine and adjust use during coffee beverage preparation

Planning and organising skills to:

- Sequence the preparation of beverages and their components to efficiently serve customers

Technology skills to:

- Use coffee grinders and espresso machines, and identifying faults and maintenance issues as they arise

## Assessment Requirements

**Performance Evidence**

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- Prepare and present each of the following espresso-based coffee beverages on three different occasions within commercial timeframes:
  - caffe latte
  - cappuccino
  - espresso (short black)
  - flat white
  - long black
  - piccolo latte
  - mocha
  - ristretto
  - short and long macchiato
- Monitor quality indicators for extraction as listed in the knowledge evidence during preparation of the above espresso coffee beverages and make adjustments to restore extraction to required standard
- Present the above espresso coffee beverages and accompaniments with consistency and quality of:
  - appearance
  - aroma
  - body
  - crema on top of the espresso
  - flavour
  - taste
  - strength
  - volume

- Use the correct equipment, ingredients and measures to prepare the above espresso coffee beverages

**Knowledge Evidence**

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- Major types and characteristics of espresso coffee beverages specified in the performance evidence
- Different types of milk, their characteristics and uses for different types of coffee beverages
- Characteristics of different types of beans, blends and roasts
- Mise en place requirements for preparing coffee beverages
- Methods and techniques for preparing and serving espresso coffee beverages:
  - grinding coffee beans
  - measuring dose by sight, electronically, manually and mechanically
  - tamping
  - extracting espresso
  - texturing milk
  - sequencing orders for the preparation of coffee beverages
- Quality indicators for espresso coffee extraction:

- changes in colour of crema
- changes in flow texture
- cake of used ground coffee
- water pressure during extraction

- Available options to meet specific customer preferences relating to:
  - accompaniments
  - blends
  - service-ware
  - strength
  - sweeteners
  - type of:
    - beans
    - milk
- Factors relevant to quality of espresso coffee:
  - ambient humidity
  - consistency of used coffee grounds
  - crema on top of the espresso
  - quality and rate of espresso flow
  - steam pressure during foaming and steaming of milk
  - taste
- Extraction rates for the different espresso coffee beverages specified in the performance evidence
- How and when adjustments are required to the following to ensure quality of espresso coffee:
  - dose
  - grind
  - tamping technique
  - water flow
  - water pressure
- Organisational procedures and industry standards for:
  - service-ware used for espresso coffee beverage presentation
  - accompaniments used to enhance beverages
  - presentation of beverages:
    - latte art
- Appropriate environmental conditions for storing coffee beans, ground coffee, milk and other ingredients to:
  - ensure food safety
  - optimise shelf life
- Essential features and functions of different espresso machines and grinders used to prepare espresso coffee beverages:
  - sizes and types of filter baskets and tampers
  - purging the steam wand
  - flushing the group head
  - cleaning and maintenance methods and procedures
  - symptoms of faults in espresso machines and grinders
  - safe operational practices and dangers of working with steam
- Basic maintenance and cleaning methods for espresso grinders, machines and equipment:
  - back flushing the machine
  - brushing out doser chamber
  - pouring hot water to clean drainage pipes
  - using correct and environmentally sound disposal methods for coffee making waste

- washing drip trays
- washing and drying:
  - bean hopper
  - group handle and filter basket
- wiping down entire machine
- wiping outside of steam wand and nozzle and purging inside with steam

- Content of safety data sheets (SDS) for cleaning agents and chemicals, or workplace documents or diagrams that interpret the content of SDS

**Assessment Conditions**

Skills must be demonstrated in an operational food and beverage outlet. This can be:

- An industry workplace; or
- A simulated industry environment set up for the purposes of assessment

Assessment must ensure access to:

- Fixtures and large equipment:
  - workstation with industry current commercial grade espresso machine and coffee grinders
  - bins or knock boxes for used coffee grounds
  - storage bins
- Small equipment:
  - blind or blank filter basket
  - cleaning brushes
  - colour coded cleaning cloths
  - flat edge implement for levelling off dosed filter basket
  - measuring equipment:
    - stopwatch or timer
    - thermometer
  - milk foaming jugs
  - napkins
  - powder shakers
  - service trays
  - spoons and stirrers
  - straws
  - service-ware for different types of coffee beverages:
    - cups: espresso and standard
    - saucers
    - mugs
    - glasses
    - take-away coffee cups and lids
    - take-away cardboard trays
  - tamp mats
  - tampers
- Stock:
  - commercial range of coffee beans, ground coffee and other ingredients and accompaniments
- Organisational specifications:

- equipment manufacturer instructions
- cleaning and maintenance procedures for espresso coffee machines and grinders
- commercial beverage menus
- organisational procedures and industry standards for presenting espresso coffee beverages
- price lists
- standard recipes for coffee beverages currently used by the hospitality industry
- SDS for cleaning chemicals or plain English workplace documents or diagrams that interpret the content of SDS

- Industry-realistic ratio of staff to customers; these can be:
  - customers in an industry workplace during the assessment process; or
  - individuals who participate in role plays or simulated activities, set up for the purpose of assessment, in a simulated industry environment operated within a training organisation

Assessors must satisfy the Standards for Registered Training Organisations' requirements for assessors; and:

- Have worked in industry for at least three years where they have applied the skills and knowledge of this unit of competency

**Links**

Companion Volume Implementation Guide: - http://www.serviceskills.com.au/resources

## 1. Organise coffee workstation

**1.1.** Complete mise en place for coffee service to enable efficient work flow and easy access to ingredients, equipment, and service-ware

**1.2.** Place ingredients in correct containers and conditions to maintain freshness

**1.3.** Prepare espresso machine and grinder for service according to manufacturer instructions

## 1.1 – Complete mise en place for coffee service to enable efficient work flow and easy access to ingredients, equipment, and service-ware

**Preparing for service**

When starting for the day a business selling food and drink will need to ensure it has made thorough preparations before it opens for service.

**Preparations may include:**

- Checking equipment and machinery are clean and ready for use
- Cleaning counter-tops and service area, including emptying/cleaning bins
- Checking that service-ware is clean and available for use
- Stacking service-ware and disposable cups, lids and holders, ready for service
- Switching on lights, music and opening curtains/blinds
- Re-stocking napkins, utensils, stirrers, sugars in customer and counter-top areas
- Obtaining fresh ingredients for service and checking stock levels.

Once an establishment opens to the general public, there will be minimal time and resources to maintain the service area throughout the working day. While premises are free from customers, it allows staff to attend to preparations with minimal distraction and ensures that tasks can be promptly carried out. It also allows management to sort and discuss staff work schedules and rotas, and to engage in general staff communications.

**Mise en place**

'Mise en place' means 'putting into place' all requirements for service. This is the planning, organising and preparation of equipment and ingredients for professional service.

Mise en place requirements for preparing coffee beverages include gathering together all items that are needed for providing coffee beverages to customers. It also includes checking that items are clean and serviceable, and that ingredients are located and stored appropriately for the oncoming working day.

**Mise en place requirements for preparing coffee beverages include the following items:**

- Blind or blank filter basket
- Cleaning brushes
- Colour coded cleaning cloths
- Flat edge implement for levelling off dosed filter basket
- Measuring equipment such as a stopwatch or timer, and a thermometer
- Milk foaming jugs
- Napkins

- Powder shakers
- Service-ware, including cups, saucers, mugs and glasses
- Service trays
- Spoons and stirrers
- Stock, such as:
    - coffee beans
    - ground coffee
    - syrups/flavourings
    - different types of milk
    - chocolate and cinnamon for sprinkling onto beverages
- Straws
- Tamp mats
- Tampers.

## Efficient work flow

Your preparations will enable you to work efficiently through the day; gathering and preparing resources will help you to work fluidly and logically, serving customers in order and in a timely manner. This also ensures that the area is prepared to work health and safety requirements.

## Work health and safety

Work health and safety (WHS) or occupational health and safety (OHS) laws provide guidance to all workplaces on safe working environments, systems and practices. It allows for hazard assessments and controls to take place to ensure staff and customer safety. Your employer will need to maintain WHS as part of their legal responsibilities.

**WHS will include:**

- Incident/accident reporting and first aid
- Emergency protocols and procedures, including evacuation of the premises
- Provision of information, instruction, training and supervision to staff for carrying out work tasks.

**Hazards can be classified as the following:**

| **Hazards in the work environment may include:** | |
|---|---|
| **Chemical hazards**, such as:<br>➢ Liquids<br>➢ Fumes/gases<br>➢ Corrosive chemicals | **Workplace/physical hazards**, such as:<br>➢ Fire<br>➢ Electrical<br>➢ Slip, trip and fall hazards |
| **Biological hazards**, such as:<br>➢ Working with plants/vegetation<br>➢ Illness/infection<br>➢ Contamination of substances | **Ergonomic hazards**, such as:<br>➢ Equipment/machinery<br>➢ Poor lighting<br>➢ Frequent lifting/manual handling |

In your working environment, you will need to be aware of the aspects of work health and safety that may impact upon you. This will help you plan and organise the work area in a way that is ergonomically safe and which enables a free-flow of movement along the service counter area to prevent customer build-up and blocking of access points.

## 1.2 – Place ingredients in correct containers and conditions to maintain freshness

**Ingredients will need to be stored correctly to ensure they remain fresh and maintain their stated shelf-life.**

### Food safety standards

At work, you may be involved with the handling and storing of ingredients and products that are used in making hot beverages (and food snacks) for selling to customers. Food safety standards exist for all catering and food businesses and apply to both food and drink establishments. Your organisation will need to follow these standards to ensure safe practices are incorporated into working procedures. These standards will cover topics such as hygiene requirements, labelling of products and ingredients, storage, handling and the selling of food/beverages. This includes personal hygiene, e.g. washing hands and covering/tying long hair back, cleaning and sanitising work surfaces and storage areas, and clear labelling so customers are clear on ingredients and sell-by/use-by dates.

**Food handling includes:**

- Receiving ingredients from suppliers
- Storing food/beverage products
- Displaying ingredients/products for consumption
- Processing and preparing for selling/consumption
- Packaging of food/beverages
- Food/beverage disposal.

Always be clear on your organisation's expectations of you when handling and storing ingredients and food products. If in any doubt, check this with your manager/supervisor so you are fully informed on meeting food safety standards. More information can be found at the Food Safety Standards website: http://www.foodstandards.gov.au/industry/safetystandards/pages/default.aspx (access date: 27.06.2016).

### Storing coffee

There are two types of coffee beans, Arabica, which tend to be grown at high altitudes, and Robusta, which tend to be grown at lower levels. When coffee beans are mixed, they produce different blends for making coffee beverages which range in tastes and strengths.

Whether storing coffee beans or ground coffee, there are certain environmental conditions that need to be considered. This is to ensure that the life-span of the coffee is maximised and that the quality stays at the expected level.

**The main concerns for storing coffee beans and ground coffee are:**

- Temperature
- Humidity
- Exposure to air
- Exposure to light.

**Coffee beans**

Coffee beans should be stored in opaque, air-tight containers, away from bright light and at a cool temperature. The temperature can be at room temperature, if this is reasonably cool and stable. You should never store coffee beans in hot areas, such as near hot equipment or in direct sunlight where containers may heat up; this will compromise the quality and taste of the coffee.

Although coffee beans displayed in clear containers look enticing and may be a feature in counter or window displays, coffee beans that are to be ground and consumed by customers should not be stored this way as the light will also affect coffee quality.

It is also important that coffee beans stay dry and are not exposed to moisture; this is one reason why opinion is divided on storing coffee beans and ground coffee in refrigerators, or freezing coffee beans as a method of storage. When obtaining coffee from cold storage, the rapid change of temperature can cause condensation, which if coffee is exposed to, will degrade coffee quality. This method may be used if this movement is limited and coffee is carefully handled and consumed within short time periods.

Exposure to air will also cause coffee to lose its freshness and taste. Therefore containers should be air-tight and coffee should be stored in appropriate batches for timely use. This ensures that coffee is not kept for long periods and that customers experience consistent, fresh-tasting coffee.

Coffee beans that are roasted will stay fresh for approximately seven to ten days (they are at their maximum within 24 to 72 hours after the roasting process).

**Ground coffee**

As with coffee beans, over-exposure to air should be avoided for ground coffee. Exposure air will affect moisture levels in the coffee, i.e. absorbing moisture out of the air and loss of moisture into the air. Keeping ground coffee in equilibrium as much as possible before it is used will be the main factor for retaining its freshness and quality. When not being used, ground coffee should be stored out of bright light in air-tight containers; vacuum sealing batches will ensure complete freshness.

If storing ground coffee for a period of time, this should be vacuum-packed and stored in a cool dark place, or can be frozen if handled with care. Vacuum-sealed coffee that is not frozen can be kept for a period of five months, when frozen it may last up to two years. When not vacuum-sealed, coffee will only last one month in storage (unfrozen); it is not recommended to freeze ground coffee that has not been vacuum-sealed.

Ideally, if your place of work uses coffee beans and grinds these in batches for use, your ground coffee will not be stored for lengthy periods of time. This will prevent issues of storage and coffee going stale or deteriorating in quality. It is important to remember that ground coffee should be stored during service in air-tight containers in a cool, dark storage area (for a period of no longer than two to three weeks in air-tight containers).

**Note:** if coffee beans are frozen, this should be allowed to come to room temperature before using.

**Vacuum-sealed and valve-sealed coffee**

Vacuum-sealed coffee is normally used to hold ready-to-use coffee (such as fresh ground coffee) in an air-tight container. Valve-sealed coffee allows gases to escape from packaging, without letting other gases in and is useful for storing fresh-roasted coffee beans. Both methods will enable safe storage for one to two weeks to ensure coffee quality remains at its best.

**Storing milk and other ingredients**

Milk products will need to be stored in refrigerators when not in use. They should be date-checked and tested before using, i.e. smell, appearance etc., and stock should be rotated so that older-dated stock is used first.

**Types of milk for coffee beverages include:**

- Full cream/whole milk
- Light/low fat milk
- Skimmed milk
- Soy milk.

Other ingredients that may be used will include coffee syrups and flavourings; these should be stored appropriately within the service/counter area, in clean bottles/containers. To ensure that sugars and syrups do not crystallise or congeal at bottle tops, regularly wipe these clean with a clean hot damp cloth to capture any drips.

Chocolate and cinnamon powder will also be used to flavour and top drinks, make sure these are kept in canisters that are regularly cleaned. Chocolate for hot chocolate drinks should be kept in air-tight containers in a cool dry place, to retain freshness

Cinnamon and chocolate for sprinkling should be stored in appropriate canisters that enable easy and efficient use at the service area.

**Arrangement of containers**

Coffee, and the ingredients that you need to use, should be arranged logically and clearly labelled/marked to indicate the contents. Items should be placed close to the equipment and areas where they will be used; this will avoid issues with locating items and potential spills or breakages within the counter area.

## 1.3 – Prepare espresso machine and grinder for service according to manufacturer instructions

**Using the espresso machine**

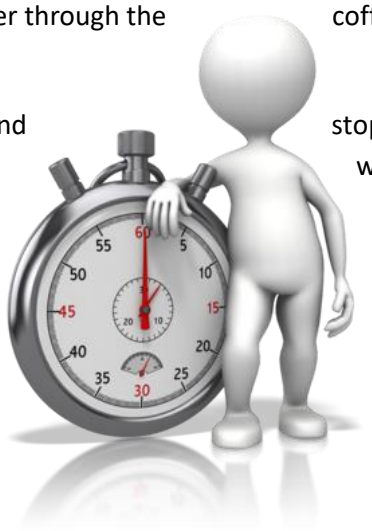
Within your work area you will have two vital pieces of equipment that you will need to familiar with, the espresso machine and the coffee grinder. This includes preparation for service, full operations and cleaning duties.

Depending on the size of your workplace, these may be small or large and may vary in capabilities. These should be industry current commercial grade espresso machine and coffee grinders. To use these, you will need to have received training and instruction to ensure that you are confident and are able to use these competently within your work role.

You should also ensure that you have read and understood the manufacturer's instructions for using these machines. These should also be referred to when needing to refresh your knowledge or when disassembling parts for cleaning or checking.

**Espresso machines can be:**

- **Manual** – these are operated by a lever to force the water through the coffee grounds
- **Semi-automatic** – this is manually controlled by a start and stop switch to deliver the shot of coffee; this requires careful watching and timing by the barista
- **Automatic** – these are programmed to provide the correct amount of water for coffee shots, the shots will need preparing by hand while the machine programs will deliver water through as required; this process should also be watched to ensure proper functioning and time requirements.



## Espresso machines in more detail

Espresso machines will need to be used carefully and with caution to hot water and steam functions. Being aware of its parts and controls is of the utmost importance, and also which part should not be touched when the machine is in full operation.

**Generally speaking, the espresso machine is made up of:**

- The group head – this is where the portafilter is inserted for extracting the espresso shot; the group head showers pressurised hot water through the diffusion plate over the coffee grounds (if the machine is large, there may be up to seven groups)
- Portafilter – this is the component where the ground coffee is placed into, before being put into the group head (the group) for brewing coffee, also known as a filter handle
- Portafilter basket – this is the filter basket for the portafilter which holds the coffee grounds within the portafilter, and is held in place by a spring
- Group gasket – this is an O-ring that seals the portafilter to the group
- Group screen – this is positioned in the group to screen off activity
- Steam wand – for steaming milk, this is operated by the steam valve lever
- Steam tip – this is at the end of the steam wand and dispenses the steam into milk
- Hot water tap – for dispensing hot water
- Group dosing keypad – seen on automatic (and super automatic) machines, this is the button that must be used to activate the group head; the keypad provides information on dispense times and quantities, programming and continuous flow

- Group dispensing switch – this works in the same way as the group dosing keypad, but is a straightforward on/off switch to activate the group head
- Machine-top – this vented top can be used to warm ceramic cups before serving
- Drain-gate/trough – alongside the drip pan and drain, this is the area where liquid drains away
- Power switch – the common position for this is on the machine backsplash, controls may display as 1-0-2, the setting for full operation is generally setting 2
- Pressure gauge – usually seen on the front of the machine, this has two needles to indicate boiler pressure and pump operating pressure
- Sight glass – this indicates the boiler water level; it typically appears as a glass tube with water that reaches to maximum and minimum level indicators.

**Tampers**

A coffee tamper is the device that is used to compress ground coffee for use in the espresso machine. The coffee in the portafilter basket should be tamped to ensure an even level and subsequent distribution of water through the coffee grounds. A convex shape at the bottom of the tamper will help ensure that grounds in the basket are evenly compressed as opposed to pushing grounds into the external sides of the basket. These may vary slightly in size, to suit the size of basket that you have, and tend to be round in shape with a small handle above for your use.

**Filter baskets for the portafilter**

Sizes and types of portafilter baskets exist for the many different espresso machines and the needs of the barista/workplace. Your organisation should identify the types and sorts that can be used for your espresso machine.

**These include:**

- Single baskets
- Double-filter baskets
- Triple-filter baskets
- Backflushing baskets.

**Working with steam and hot water**

It is important when working with espresso machines that care to your safety, and the safety of others, is made. Steam and hot water functions should be handled with care and respect.

Ensure that steam wands are submerged correctly into milk before using and that stainless steel steaming and frothing jugs are not overfilled, causing hot milk to splash or bubble over.

The jug should allow for the milk to double in size when it is frothed; be careful to fill the jug no less or no more than a third full (equally if too little milk is

in the jug, the milk will not foam as required). The steam tip should be near to the surface (but not exposed) to draw in air for frothing. This process will need to be experienced but a good starting point is to submerge the tip about half an inch under the surface of the milk.
When steaming milk, the milk is heated to create hot milk with only a little froth, and the jug may be filled more. The steam wand tip can be completely submerged for steaming.
You may require a thermometer on the side of the frothing jug to ensure that milk is not too cool or too hot, when frothing milk, stop at 65.6 degrees Celsius (150 degrees Fahrenheit) to allow the thermometer time to reach its true temperature (up to/at 70 degrees Celsius), this is the suggested temperature to ensure milk is in its optimum state.
Equally hot water dispensers should be used with caution and a watchful eye to ensure water is correctly dispensed.

**Dangers of espresso machines include:**

- Water leaks from worn or weak parts (this not only causes water on counter-tops and floors, this can also be a potential source of mould and bacteria growth)
- Burns and scalds from steam wands, handling the portafilter and hot water dispensers
- Bacteria build up inside espressos, if not cleaned appropriately.

## Using a coffee grinder

The grinder is used to convert coffee beans into ground coffee for use in espresso machines. Coffee beans should be placed into the grinder as and when coffee is required to be ground. In contrast to its name, the grinder does not grind or squash the coffee beans it slices into and cuts these down to size, preserving quality and taste.
**A coffee grinder includes:**

- The adjustment ring – this is where you can adjust the grind size (e.g. coarse or fine) of the grinding process
- The bean hopper – the large plastic container at the top of the grinder for placing coffee beans into

- The doser – this dispenses the final ground coffee into the portafilter.

**Use of bins**

Make sure that the work area has the required space for bins or knock boxes for emptying used coffee grounds into. These should be kept close by so that used coffee grounds are not dropped or spilt onto the floor, and should have lids to ensure coffee smells are kept to a minimum.
A portable knock box or small bin can be emptied regularly/each day and washed in a dish washer to provide a clean and sanitised piece of equipment ready for use, for the next day/shift.

## 2. Select and grind coffee beans

**2.1.** Select coffee beans and grind to appropriate particle size according to relevant factors

**2.2.** Complete test extractions before service to ensure correct particle size of grind, and assess and adjust according to relevant factors

**2.3.** Adjust grind regularly throughout the service period according to relevant factors

**2.4.** Monitor efficiency of grinder for correct dose and grind during use, and resolve or report issues

**2.5.** Clean grinder as required during or after the service period

## 2.1 – Select coffee beans and grind to appropriate particle size according to relevant factors

### All about the coffee

In recent years, coffee has increased in popularity, and so has the need for coffee houses/cafés. Coffee is made into a variety of beverages, e.g. cappuccino, latte and macchiato; all of which are made from a base shot of espresso coffee. Espresso is defined as a concentrated shot of coffee which is made via the espresso machine; this forces pressurised hot water through fine-ground coffee to deliver what we know as a 'shot' of coffee (known as 'pulling a shot').


The process of espresso coffee making includes the addition of 'crema', an aromatic, reddish-brown froth which is made through air bubbles mixing with soluble oils in the ground coffee (caused by the pressurisation of the water). This is what makes the coffee flavoursome and a trained barista (coffee-maker) can create good quality coffee beverages which are superior in taste, lower in caffeine than a hot water drip process such as percolating coffee.

### Green coffee beans or roasted coffee beans

Green coffee beans are unroasted and if stored correctly (see section 1.2 of this unit for information on coffee storage) will last longer in storage than roasted coffee beans. If choosing to use green coffee beans, these will need to be roasted before they can be used for making beverages. This will mean heating the green coffee beans until they turn brown and are roasted; this is typically done in an oven. It will depend on your establishment as to whether they prefer to roast their own green coffee beans or buy-in roasted coffee beans. This process will add time and will require an appropriate oven; if your organisation only stores roasted coffee beans for limited periods of time, it may not be cost-effective or practical to roast coffee beans.

If self-roasting green coffee beans, be aware that after roasting, the beans will release a lot of carbon dioxide. Safe storage of these is essential; this means packing in an air tight container, opening the container once a day (for the first few days after roasting) to release the carbon dioxide.

### Coffee roasts and blends

Coffee roasts can greatly impact upon the taste of your coffee, another reason why you may consider buying roasted coffee beans over green coffee beans. Roasts vary depending on how long they are roasted for and the variety of coffee beans that are roasted; roasts are termed as light, medium and dark roasts.

As the coffee beans absorb the heat during roasting, they progressively turn darker and oils from the beans will start to appear on the surface of the bean at higher temperatures. This can be a complex and subtle process to achieve the right degree of roast and subsequent flavours.

**Roast types:**

- **Light roasts** – these are light brown in colour with a light body (no oil is released from the bean). These have a toasted grain taste with pronounced acidity; they retain most of the caffeine from the bean.
- **Medium roasts** – these are medium brown in colour and have more body than a light roast (still no oil on from the bean). These have a more balanced flavour, aroma and acidity; they have less caffeine than the light roast variety.

- **Medium-dark roasts** – these are darker brown than the medium roasts and have some oil released from the bean. This has a heavier body and stronger taste.
- **Dark roasts** – these are the darkest of all roasts and have more oil on the bean surface. The coffee is usually more bitter, smoky or burnt taste, as derived from the roasting process and have the least caffeine.

Coffee blends are the mixing of two or more coffee types/beans in order to achieve a certain taste/result in the ground coffee; this can include aspects such as coffee strength, aroma, bitterness, richness and smoothness. Espressos are traditionally made from a base of Brazilian arabicas with the addition of an African or Central American coffee to adjust the coffee blend and acidity. The blending of arabicas and robusta beans from different countries and climates produce a variety of blends.
Arabicas can be found in places such as Ethiopia, Columbia, Costa Rica, Guatemala, Sumatra, Java, Kenya, Tanzania, Papua New Guinea and Hawaii. Robustas can be found in mostly in Indonesia and Africa (grown in the eastern hemisphere), and are also grown in India and Brazil.

**Coffee blends may result in:**

- Sharp and sweet/aromatic coffee – use Central American coffee in your blend
- Body and sweetness in coffee – use Indonesian coffee in your blend (e.g. Sumatra or Sulawesi)
- Earthy/pungent coffee – use an Ethiopian coffee in your blend
- Spicy/pungent coffee – use a coffee from Yemen.

**Grinding coffee beans**

Coffee grounds can be loosely termed as coarse, medium or fine. Check with your manager/supervisor on the required size of grounds for your coffee beverages.

**Determine coffee ground size:**

- **Coarse** – chunky, e.g. similar to potting soil
- **Medium** – similar to coarse sand
- **Fine** – similar to sugar or salt
- **Extra fine** – smoother that sugar/salt but not as fine as flour
- **Turkish grind** – powdery like flour.

Your grinder should be fitted with the appropriate blade or burr grinder (depending on which type of grinder your place of work has) and calibrated to grind to the size required. Always use with care and attention to ensure that machine parts are in place correctly and are safe/ready to use. Espresso ground coffee is usually a fine to extra fine size.

It is important to grind to the correct coffee ground size as this will affect the quality of the coffee you produce for your beverages. For example, if espresso shots are extracted too fast, this will not draw out the correct coffee quality and will indicate that the ground size should be smaller. (A larger ground size will allow the hot water to travel through faster.)

Coffee beans should be placed into the hopper (the open container at the top of the grinder) and the grinder activated for the required time; this will vary on the size of ground but will be only for a matter of seconds, e.g. between 8 to 15 seconds, and as directed by your workplace procedures. Most grinders will have a doser (lever) that needs to be pulled during the grinding process; this will dispense the required amount of coffee into the portafilter ready for transporting into the espresso machine.

**Grind size**

It may be necessary to adjust the grind size to compensate for environmental differences, to ensure the coffee will make the required shot of espresso coffee. For example, humidity in the air will slow down the extraction process (due to the coffee ground absorbing moisture) and it may be necessary to grind a slightly coarser ground size. Equally, if coffee grounds are stronger in taste/aroma than is required (such as with a heavier darker roast), you may want to use a coarser grind to speed up the extraction and prevent too strong or bitter a taste in the espresso shot.

Creating variations in espresso coffee shots to maintain or produce the coffee you want, is part of the art of becoming a skilled barista. This is learnt over time; understanding the principles of grind size and how this will alter the espresso shot is important to know in order to progress your skills.

## 2.2 – Complete test extractions before service to ensure correct particle size of grind, and assess and adjust according to relevant factors

## 2.3 – Adjust grind regularly throughout the service period according to relevant factors

Test extractions

**Test extractions from your espresso machine will allow you to check that the coffee shot is produced as expected, and is of the correct quality for your beverage-making. This should be done before you begin service to ensure that the espresso machine is operating correctly. You should also check that other components of the machine are working well, e.g. the steam wand.**

You should check for:

- **Speed of extraction (it is recommended that a standard 30ml espresso shot takes approximately 30 seconds to be pulled (from start to final drip into the cup)**
- **Appearance of the coffee, including crema, texture and aroma**
- **Temperature of the coffee (approximately between 88 to 96 degrees Celsius depending on your coffee type and organisational requirements)**
- **Frothing of milk to ensure the machine is working correctly.**

It is important to ensure that coffee is fresh, i.e. freshly-ground and stored correctly for use. The more recent the coffee has been ground, the better the coffee beverage will taste.

Test extractions will enable you to make adjustments to the espresso machine or the grind size of the coffee so that beverages are made to required organisational standards. Environmental conditions, such as air humidity, and other factors such as new coffee beans or different coffee blends will affect the quality of your coffee shots and extraction requirements.

**Problems experienced may include:**

- Too light/large bubbles may indicate an adjustment is needed to the coffee grinder (i.e. the coffee ground is not correct, especially if the pull takes less than 25 seconds this may indicate a finer grind size is needed to slow the extraction process); if the pull time is correct it may indicate that the machine temperature is too cold
- Black or black outer rim with tiny bubbles and little crema, once again if the pull takes more time than required it may indicate an adjustment is needed with the ground coffee; if the pull time is correct the machine is running too hot
- Good colour but coffee is thin may indicate that the coffee beans are old and no longer of good quality; it may indicate that the pressure of water through the machine is not working correctly and the pump is defective.

As a general guide, if shots take less than 25 seconds to pull, the grind is too coarse and the water is moving through too fast; if the shot takes more than 35 seconds to pull, the grind is too fine and water is moving through too slowly. The grind should therefore be adjusted to either finer or coarser to achieve the correct pull time. Prior to grinding new coffee, it is also good practice to check your technique with the dose, coffee distribution and tamp to ensure this is performed correctly. You should also make sure that the correct dose or portion of coffee has been dispensed into the basket to make the required strength and amount that is needed.

**Adjusting the grinder**

As a rule the grinder should be calibrated regularly (e.g. each day) prior to service; this should be done to determine if the blade/burr is wearing and the effects of environmental changes to humidity levels, such as when experiencing a severe rain storm. Follow your manufacturer instructions and organisational guidance when adjusting the grinder, as a rule the following steps will be required.

**Adjust the coffee grinder by:**

- Pulling the doser until all the existing coffee has been dispensed from the grinder
- Pressing the collar release
- Rotating the collar to the desired position/direction to change the size of the coffee ground size, i.e. to coarse or finer (small adjustments of about three millimetres)
- Check the hopper and ensure the gate is open to allow the beans through
- Add coffee beans and activate the grinder
- Use the new ground coffee in a test shot to check if correct.

**Note:** if needing to adjust the grinder a few times until obtaining the correct coffee ground size, keep the unused coffee ground, store appropriately and use for other suitable coffee beverage types.

Check that settings on the grinder have not been changed or altered by other staff; always refer to the manufacturer's instructions on calibration and adjustment for your particular grinder. Electric grinders will automatically dispense grind after a certain period of time, therefore if using one of these you should check whether the dose or the grind size will need adjusting. Once the grind size is changed the dose time may also need adjusting to compensate for the automatic grind process.

**Awareness to the weather conditions**

Coffee grounds are easily affected by humidity and can produce different results if environmental conditions change. Therefore the grind size will need to be adjusted to compensate for either humid or dry conditions. It is wise to calibrate your grinder each day, or at least when weather conditions change. Keeping a check on your coffee shots with test extractions will help you to determine if any adjustments are required during the service period.

## 2.4 – **Monitor efficiency of grinder for correct dose and grind during use, and resolve or report issues**

**Monitoring the grinder**

The grinder should be monitored for its efficiency and continual best service. This part of the process is essential to providing good quality ground coffee and what may have worked well in the morning may change or deteriorate during the course of the day.

Monitoring is essentially about making sure that the grinder is used appropriately (as recommended by the manufacturer) and that it is working correctly. Part of this will include maintaining the grinder for service, i.e. clearing out coffee grit and debris regularly and cleaning inside the hopper and chamber area to prevent coffee oils and residues from building up and tainting further coffee batches.

If manufacturer instructions or organisational procedures do not give clear guidance to resolving a problem that you may have, or the problem still persists after following guidance, report this immediately to your manager/supervisor for their attention and assistance in resolving the matter.

**Problems with grinders include:**

- Rising temperature with the blade/burr chamber. Grinders will generate heat if used heavily causing changes to the quality and taste of the coffee that is ground. Grinders should not be used continually for prolonged periods and should only be used in short bursts when grinding (e.g. in 30 second bursts).

- Checking that the motor does not become clogged with coffee particles, causing burning and slowing down of grinding. This can affect the dosage amount that is dispensed into the portafilter.

- The doser/lever will require continual puling to avoid clumps of grounds and can be tiresome for the user when demand is heavy – the answers to this may be use of a doser-less grinder or standard doser grinder with a timer to dispense doses as required, but care should be taken to avoid or break up coffee ground clumps.

- Ensuring the grinder is cleaned out regularly and thoroughly so that old coffee grounds and particles are removed; this will ensure coffee is fresh from odours or taints. This can be fiddly and time-consuming to do, and can be aided by the use of a small vacuum or compressed air can to eliminate as much of the unused particles as possible. You will also need to remove oil and grease residues that are released from the coffee beans by wiping inside parts with a clean dry cloth and the burrs and blades. Follow your manufacturer instructions and organisational procedures for cleaning the grinder.

## The dose

The 'dose' is the term used to describe the correct amount of coffee that is required for the filter basket in the espresso machine. Therefore it is important to use the correct and same amount each time to ensure consistency and quality is achieved with the final coffee beverage.

**How to measure the dose**

**Measuring the dose can be carried out in the following ways:**

- By sight – using the amount you require through a visual assessment, the experienced barista will have a good understanding of dosage amounts for coffee. This should be transferred into the filter basket in a heaped position and then carefully levelled out so that the coffee is evenly distributed.

- Electronically – coffee can be weighed on small scales to ensure consistency is achieved with doses for use in the espresso machine. The cup can be weighed first and then the coffee beans or ground added and then weighed again, allowing you to determine the coffee weight. Scales that are water resistant are best to use as these will not only give consistent readings but also will last a lot longer.

- Manually – similar to dosing by sight, this is manually done but the dose is obtained by obtaining a pre-determined amount of ground coffee from the grinder each time into the basket.

- Mechanically – using a dosing grinder/lever system that dispenses the exact amount required into the portafilter to make a shot of espresso/one portion, the dosing chamber is filled to allow for quick dispensing as needed (good for high-turnover establishments where coffee is not left in the chamber for too long).

kept

Tamping should be done afterwards to ensure that the coffee is compacted correctly for using in the espresso machine.

## 2.5 – Clean grinder as required during or after the service period

**Cleaning the grinder**


As briefly mentioned in section 2.4 of this unit, it is essential to keep the coffee grinder clean so that coffee is dispensed correctly and the grinder works efficiently.
The aim of cleaning the grinder is to remove all loose coffee debris and to clean away coffee oils and residue from within the machine.
Coffee oil and residue will cause coffee grounds to become sticky over time and will affect the coffee taste and quality. When cleaning the grinder make sure that the power to the grinder is turned off and disconnected from the power supply.
It is not possible to immerse the grinder into hot soapy water to wash it, but it may be possible to remove some parts, such as the bean hopper, for cleaning; it is important that metal parts and the motor are kept dry at all times and cleaning should be performed with the use of a dry brush and cloth. Most parts will need to be carefully wiped clean in situ. (If soapy water is used to clean chambers, etc., ensure that the soap is completely removed during the cleaning process so that coffee is not tainted by soap residue).

**Cleaning the grinder can include the use of:**

- A vacuum or compressed air can to eliminate coffee ground and bean particles from hard to reach places
- Dry cloths and brushes, such as a coffee grinder brush to reach into difficult areas to brush out particles
- Water with a little liquid detergent.

You should read your product instructions thoroughly before cleaning the grinder, and follow their recommended cleaning method – this ensures that if your grinder is under a product warranty that this remains validated. Cleaning your grinder in other ways may invalidate your product warranty if a fault then occurs as a consequence.

**You should:**

- Ensure all coffee beans and grounds are removed from the hopper and chamber and store these in air-tight containers as required to maintain freshness for future use
- Remove the hopper and remove all remaining coffee debris and grit
- With a dry cloth wipe the inside of the hopper during service hours and wash with hot soapy water/damp cloth at the end of each day
- Check the chute from the hopper and where coffee dispenses from, and loosen/remove debris with a non-metal implement such as a chopstick, cotton buds, small brush (e.g. a coffee grinder brush or toothbrush) or a dry cloth (it may also be possible to tap the grinder lightly to dislodge particles from within)
- Remove the grinds chamber (if this is removable) and wash and wipe down thoroughly (if not removable wipe this out in situ)

- Remove burrs/blades, clean/wipe down (inner burr sets are more difficult to remove and may be better wiped clean in situ).

**White rice or bread method**

It is possible to use either white rice or stale white bread in the grinder – this works on the principle that activating the grinder with one of these ingredients will mop up coffee oils and residue, leaving the grinder clean once the rice or bread are thoroughly removed. This method does require you to wipe down parts carefully with appropriate damp and dry cloths afterwards.
This may not be a viable option for your establishment as manufacturer cleaning instructions may not recommend this option.
Your workplace may also not want to introduce other food substances into the working environment for food health and safety reasons, as traces of rice or bread may remain.

**Regular cleaning**

Regular maintenance and cleaning will keep the grinder working well and allows you to become familiar with the working parts of the grinder. This will help you to notice if burrs/blades are wearing over time (which can alter the grind size) and if any parts become damaged. It is important to ensure that the grinder is kept dry for use as any moisture will affect the coffee that is ground, i.e. humidity, water absorption, and may cause coffee to clump and block machine parts.

## 3. Advise customers and take espresso coffee orders

**3.1.** Provide information and recommendations about types of coffee beverages and accompaniments

**3.2.** Identify customer preferences and take orders

## 3.1 – Provide information and recommendations about types of coffee beverages and accompaniments

## 3.2 – Identify customer preferences and take orders

**Understanding your customers**

It is possible to make a variety of coffee beverages from the espresso shot. Many coffee houses/establishments will offer a similar/same range of coffee beverages to ensure that they are able to compete and provide excellent customer service and options.

Customers will return if you are able to provide them with a consistent coffee beverage and service. Loyalty can be built as customers tend to gravitate towards a favourite place to buy their coffee. This can be for many reasons, for example, to meet with friends, hold business discussions, work and just relax in. Customers may pass by each day on their way to work, to classes and on their way through the neighbourhood; you will want to attract passers-by to make this their regular place of choice. The essential requirements for this will include having a welcoming environment, for example, clean tables and premises, comfy chairs, enticing coffee aromas and a relaxing mood (i.e. appropriate music and lighting). Your place of work should be customer-friendly and responsive; it should provide a good customer service that is efficient for those passing by and equally attentive to those who wish to stay.

**Coffee beverages**

Coffee beverages should follow set recipes and processes for making. Your organisation should have a set of standard recipes that they use and follow. As you build upon your barista skills this will become second nature (and so will the ability to consider and compensate for environmental factors and differences in coffee blends and roasts for extracting espresso shots). Your organisation should provide thorough training and guidance on making consistent coffee beverages.

**Coffee beverages include:**

- **Espresso (the short black)** – this is the shot of coffee that is produced from the espresso machine and can be served as a small shot of coffee in an espresso cup; this may be served with a glass of water. It is the concentrated coffee that is made from the coffee grounds with a slightly stronger taste and aroma than a black filter coffee. A Doppio is a double espresso shot served in a cup or small glass.

- **Ristretto** – this is a very strong coffee shot served in a small cup. It is made from the espresso machine similar to an espresso shot and is also usually served with a glass of water. The difference between an espresso shot and a ristretto shot is that the water contact time over the coffee grounds is reduced for the ristretto so that the shot is less bitter. This can be achieved by using finer coffee grounds, by stopping the extraction time earlier, or by using a firmer tamp to compact the grinds.

- **Americano** – this is a black coffee with an intense taste. This is made by pouring hot water (not boiling or too hot) over an espresso shot which breaks up the crema (a standard Americano is made with an equal ratio of water and espresso 1:1). The strength can be adjusted by adding less/more water; equally a Double Americano is an Americano with a double-shot of espresso instead of the single shot.
- **Long black** – this is also a black coffee. It is similar to an Americano but with two differences, this is made by pouring a double-shot (**not a single shot**) of espresso (or ristretto) over the hot water heated by the espresso machine (**the reverse process of the Americano**). This method retains the crema of the espresso and is stronger tasting than the Americano
- **Caffe latte** – this is a coffee with milk. It is made with a ratio of approximately one third of an espresso on top of two thirds steamed/hot milk and a thin layer of foamed milk.
- **Flat white** – this is similar to a latte (i.e. made with a shot of espresso and milk). The difference is in the ratio of espresso and milk, this has less milk and foam than a latte and looks like a latte without the foam on top. This is served in a cup not a latte glass. This can be made with a double-shot of espresso (popular this way in New Zealand) and is less milky in taste than a latte.
- **Cappuccino** – this is similar to a latte in appearance. This is made with a ratio of approximately one third espresso, one third steamed/hot milk and one third foamed milk, and is characterised by a sprinkle of chocolate on top of the foam (variations in espresso, milk and foam ratios can alter the beverage to variants such as dry, dark, wet or white cappuccinos).
- **Piccolo latte (or low tide latte)** – this is made from a ristretto shot and is topped with steamed/hot milk in a small latte glass. This drink is smaller than a standard latte (approximately one 30ml espresso shot to 80ml steamed milk)
- **Caffe macchiato/short macchiato (or espresso macchiato)** – this is an espresso shot topped with a very small amount of steamed/hot milk which is intended to moderate the taste of the coffee or stain it with milk (typically two teaspoons, although this may vary). Some establishments also include a touch of milk foam on top, although the espresso crema should add enough froth.
- **Long macchiato** – essentially the same as a caffe macchiato or short macchiato, the difference is the amount of liquid, for example, make with a double espresso and topped with milk (as above).
- **Latte macchiato** – this is made with hot milk (as a latte) but only has a small amount of espresso coffee on top. This is a staining of coffee within the milk (the opposite to a short macchiato). This is preferred by those who do not drink a lot of coffee and is a milkier version of a latte.

- **Caffe mocha** – this is an equal ratio of espresso shot and chocolate with a half ration of steamed/hot milk. This is a strong coffee with chocolate.
- **Mochaccino** – this is an equal ration of espresso, steamed milk, frothed milk with the addition of a chocolate to make a cappuccino style coffee with a hint of chocolate.

There are also a range of iced coffees (frappes) that you may need to make and serve. These are essentially a shot of espresso with cold milk and poured over ice. Frappes are commonly made with different syrups and flavourings to make this a popular summer drink.
You may also need to add flavoured syrups to coffees when requested by the customer. These should be dispensed as a set measure to ensure that the beverage is made consistently and is not over-sweetened (unless the customer requests an extra syrup shot). Syrups may include flavours such as caramel, vanilla and hazelnut. These may also be featured in seasonal drinks and promotions.
Chocolate powder or sprinkles will need to be added to coffee beverages, typically to the cappuccino and mochaccino. Always check if the customer requires this on their coffee as some may prefer not to have this. It is also good practice to leave a canister of chocolate powder on the counter top so customers can add this to their drinks.

## What's on the menu

With so many different options for coffee drinks, it is good practice for your organisation to have a menu for customers which describes the beverages that can be ordered and made. This can be a vital selling tool as it allows customers to read and understand the different drink options; they can comfortably decide away from the counter rather than being forced into a quick decision at the service counter. It is also usual to display a menu above the service counter, on windows and in places where customers are able to see and read this.
The menu should also provide details of prices for drinks this includes cup size options and additional syrups or shot charges. Cup size variations are typical for lattes and tall coffee beverages; small coffees such as an espresso or short macchiato will come in a set size.

**Drinks sizes can be termed as:**

- Small
- Medium/regular
- Large
- Extra-large.

## Accompaniments

This can include chocolate, biscuits and small snacks; it will depend on the nature of the establishment as to what other products may be sold there. Primarily a small café may focus on its drinks and sell additional brought in snacks which are not made on the premises. They may serve bottled drinks such as water and juices and also hot teas and hot chocolate. Alternatively the establishment may be a restaurant and serve a full range of meals and drinks.

## Talking to customers and taking orders

It is important to interact in a friendly and helpful way with customers, providing advice and putting them at ease as much as possible. Regular visitors will become very familiar with the process of ordering and will be comfortable with ordering and placing their order(s). New or infrequent visitors may find the process and noise of the machines a little daunting; they may need a little time to read and absorb the information on beverage

choices. Always treat customers with respect and take time to interact fully with them so their experience is a pleasant one.
When speaking with customers, always provide relevant information and product advice if required. If a customer is unsure, you can assist them by explaining beverage types or differences such as cup sizes and syrup flavours. If it is not obvious that you have or are able to make a coffee with a milk substitute (such as soy) you can also inform customers of the milk choices that are available to them. Listen carefully to customers, and use active listening to determine their requirements. Active listening is the art of repeating/paraphrasing back to the customer what they have just said, in order to understand and clarify meaning.

**Customer orders**

Some coffee house may provide counter service, where coffees are made and served as customers wait; some may prefer to take table orders and serve these to the customer at their table. How this is done at your place of work will depend on the established set-up and working practices. Depending on the size and type of establishment, there may be a member of staff who takes down customer orders and payments, and another member of staff who makes the coffee beverages while customers wait. Alternatively you may need to take orders, payments and make drinks simultaneously. If working in a restaurant you may be more removed from customer contact.
When orders are taken they may be written down and passed to the barista (such as on the side of a takeaway cup, they may be spoken orders given to the barista, they may also be spoken and appropriate cups lined up to help prompt the barista to make the correct drinks in the right order of service. Your organisation should have an established pattern of working for the taking and processing of customer orders so that customers are served in the order they arrive.
When it is busy, you may use several or all of the espresso's group heads to make different coffees simultaneously, this helps when it is busy as it means you do not have to clean and prepare the same group head each time you make a beverage.
It is important to react promptly so that drinks are not rushed or made poorly, focus to the espresso machine process should be made. Your organisation should ensure that a safe system of working is in place so that all staff are able to carry out their work tasks without issue.

**Providing customers with options**

As barista you are well-placed to advise and provide customers with options, these options should be clearly communicated to the customer through customer interactions and menus. They may also be made visible in counter or customer area displays.

**Available options to meet specific customer preferences may include:**

- Accompaniments for coffee and other food items

- Service-ware, e.g. cup sizes for beverages and takeaway cups
- Strength of espresso/coffee
- Sweeteners for beverages, including white/brown sugar, sugar substitutes, chocolate and syrups
- Type of:
    - beans (roasts and blends)
    - milk (whole, semi-skimmed, skimmed and substitute).

milk

## 4. Extract and monitor quality of espresso

**4.1.** Select and prepare appropriate service-ware
**4.2.** Select correct filter basket and clean, dry and dose it with required amount of ground coffee
**4.3.** Tamp ground coffee to make even and level cake
**4.4.** Flush group head before attaching group handle to extract espresso
**4.5.** Monitor quality of extraction during service period and make adjustments
**4.6.** Monitor efficiency of espresso machine during service, and resolve or report issues

## 4.1 – Select and prepare appropriate service-ware

### Cups and glasses for coffees

Serving coffee is an art in its own right; there are a number of different cups and glasses which can be used to match and show off the types of coffee that are made. The coffee may also be topped with a swirl of foam decoration or a patterned sprinkle which may be a trademark of the particular establishment.
Service-ware should be readily available for service requirements and placed/stacked in the appropriate area for you to reach.

**Service-ware includes:**

- **Demitasse** – a cup and saucer designed for the small espresso shot or double espresso shot, and other short coffee drinks. These are designed to hold between 60 to 90ml.
- **Latte glass** – usually taller at the top of the glass and tapered in at the bottom with a small handle, this is for tall latte style drinks and is usually placed on a saucer.
- **Piccolo glass** – a short glass for piccolo latte, this holds approximately 130ml
- **Cups and saucers** – large enough to hold cappuccinos, flat whites, Americanos, etc.
- **Tall mugs** – to hold tall coffee beverages such as a long black or mochaccino
- **Cups, saucers and mugs** – to hold teas and hot chocolates
- **Glasses** – for cold drinks such as water and bottled drinks
- **Styrofoam/disposable cups and lids** – portable for takeaway service (small, medium, large etc.)
- **Cardboard trays and individual card cup holders –** for taking out coffee.

All service-ware should be clean and well-presented, i.e. without marks or chips. Items should match, and cups correctly matched to saucer sizes. It is important to know which drinks should be served in which glasses, cups and saucers, and mugs; this includes non-coffee beverages such as hot teas.
Additional items such as teaspoons, sugars and coffee biscuits should also be placed appropriately on the service-ware to provide an all-round and complete presentation and product. If providing items in customer areas, ensure that sugars, sweeteners, stirrers, etc. are provided and kept well-stocked during service hours.

### Organisational presentation standards

Standards for service and presentation will need to be maintained; your organisation will expect a high quality service to be given consistently to its customers. This will need to conform to industry standards and regulations, e.g. food standards, hygiene, and work health and safety.
**Organisational and industry standards will include:**

- Making beverages as advertised, i.e. using the right ingredients and making the beverage in the correct manner
- Making beverages from fresh ingredients
- Using the correct sized and shaped service-ware so that drinks are presented correctly and that volume/amounts of coffee conform to industry standards and measurements
- Using clean and presentable service-ware
- Using disposable service-ware that is recyclable and is made from less harmful materials (i.e. items that will decompose without causing negative impacts to the environment)
- Providing coffee accompaniments such as sugars and chocolate powder for sprinkling on to coffee.

## 4.2 – Select correct filter basket and clean, dry and dose it with required amount of ground coffee

## 4.3 – Tamp ground coffee to make even and level cake

**Filters for espresso machines**

Portafilters can be pressurised, commercial or pod. Pressurised are designed for home use espresso machines as they require little technical skill to set up filter creates its own pressure without the user needing to have a proficient tamping technique). These tend to be smaller in diameter (e.g. 53mm) and are durable, making them not such a good option for commercial use. They also not produce a high level of crema, which is an essential requirement for a competitive commercial market.

Pod varieties are those that are made for convenient espresso pod machines (where the filter is pre-packed and sealed as a capsule).

Finally, commercial portafilters are usual in commercial establishments where espresso machines are professionally used and require more barista intervention and skill. These are most commonly wider in diameter than pressurised portafilters (e.g. a current popular size in commercial use is 58mm).

You should check the diameter of the portafilter for your espresso before changing or purchasing replacements as these can vary between manufacturers. The diameter of your filter/baskets will stay the same (although it has been known with ridged baskets that there can be a variation in diameter above and below the ridge); the depth of the basket will be the changing factor when choosing a different size. Different sizes allow you to make single, double, or a larger coffee shot (the triple basket takes an approximate capacity of 22gms of coffee ground).

**Different portafilter baskets include:**

- Single filter basket, these can come in a small and a normal (or regular) size; the difference in size is the depth of the basket, a larger basket will contain more coffee and has less risk of channelling (i.e. where the water does not make correct contact with the coffee)
- Double filter basket
- Triple filter basket
- Ridged and ridgeless filter baskets in the different sizes
- Bottomless baskets – theses do not have spouts and allow the user to observe the espresso flow (good for training baristas who need to identify if channelling is occurring – this is most commonly experienced with an uneven tampering technique or inconsistency in the grind size
- Blanking filter basket for back flushing – this is essentially a basket (or disc) without holes, you can also use a rubber disc , this is used for back flushing/cleaning out the group head; when activating the pressurised water, the water is forced back up to flush out the head as there are no holes to allow it to pass through.

When selecting the basket size that you require, ensure this is cleaned and dried before you use this. Place the basket into the portafilter (portafilter handle) and dose with the correct amount of coffee.

**Dosing the basket**

Dosing means transferring the coffee grounds from the grinder into the appropriate size basket for use in the espresso machine; the required coffee amount needs to be correctly identified and added into the basket. Individual coffee establishments and restaurants will have their own guidelines for filing the basket with coffee,

i.e. basket sizes, how much coffee ground, whether flat or mounded in the filter basket. It is popular in Australia to 'up-dose' the basket which means slightly mounding the coffee so that it is above the top of the basket. For example, a 14gm basket would hold approximately 18gms of coffee if mounded, whereas Italian establishments will fill this to a level 14gm amount.
Once the basket has been dosed with coffee ground and the coffee settled, it will need to be tamped. Settling may be achieved by lightly tapping the portafilter and basket on the counter surface or by sweeping your finger lightly over the top of the basket. The method you use will depend upon your organisation and training.

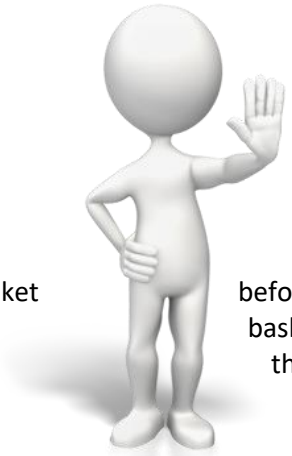
**Tamping coffee**

The purpose of tamping is to create an even, level and compact dose of coffee grounds in the filter basket. This prepares the coffee for maximum efficiency in the extraction process; i.e. achieving required quality, crema, texture, aroma and taste.
Tamping is the compressing of the coffee grounds within the basket, this is done by using a tamp (a small cylindrical press that fits snugly into the basket). This should be pressed down firmly to create the required depth and density of coffee as a cake in the basket.
**The coffee should be:**

- At an even depth all around the basket
- Even in density throughout
- Without gaps or breaks (including around the edge of the basket).


All baristas and coffee establishments will have their own techniques for tamping and experience will guide you as to how this works best for you/your organisation overtime. A firm pressure should be applied when tamping (around 30lbs); becoming familiar with your tools and coffee ground sizes will help you to understand and develop a confident approach to this small but important task in the espresso-making process.
Tamping is usually performed twice and may be finished off with a slight twist of the tamp above the coffee grounds. Twisting over the coffee grounds is not always recommended as it can disturb or break-up the coffee cake, experience with this method is key to ensuring the coffee is kept in its cake form.
**Note:** if using a finer coffee ground, less pressure will be required to achieve the correct density of coffee grounds.
**To recap, tamping pressure will need to take into consideration:**

- Coffee type/blend, e.g. if oily
- Grind size
- Volume of coffee in the basket.



**A tamping mat**

Tamping mats (a food grade rubber mat) can be placed underneath the filter basket before tamping. This can be used to protect the counter top, to protect the filter basket, to keep the filter basket steady and to ensure that no coffee grounds are forced through onto the counter surface. This may or may not be used depending on your environment and organisational needs.

## 4.4 – Flush group head before attaching group handle to extract espresso

## 4.5 – Monitor quality of extraction during service period and make adjustments

### Flushing the group head

Before connecting the portafilter with your tamped coffee into the group head, it is good practice to flush the group head with a little hot water (as if pulling a shot) to clean the group head and screen (only a small amount, approximately an ounce, if flushing much more the temperature decrease as the espresso takes time to heat back to service temperature will be greater).
This should be done before each shot to remove any previous coffee grit from the last extraction made and to prevent re-brewing used grounds into the next shot.
It also prevents a build-up of coffee grit from occurring which can clog-up the machine. It keeps your espresso machine clean and stops you from making a tainted espresso shot.

### Extracting espresso

When the group head has been flushed, insert the portafilter into the group head for making your espresso shot. As you work, you may prefer to flush your group head directly after making a shot as this allows more time for the espresso machine to reach back up to optimal temperature whilst you prepare for the next shot.
The portafilter will lock into place by the connection of two flanges that move upwards into the group head as it is rotated into place. This may be locked by either turning left or right, depending on the type of espresso machine that you work with.

### The quality of the extraction

When you pull your espresso shots you will need to monitor the process to check for consistency and correct operation of the machine. As you activate the water, you should check that the pull time is accurate to your organisational requirements, ideally somewhere between 25 to 30 seconds. The use of a timer or stopwatch will ensure you monitor this accurately.

**Quality indicators for espresso coffee extraction:**

- **Changes in colour of crema** – this should be a deep reddish-brown and not black (or light/tan, known as 'blonde'). A black shot may indicate a slow pulled-shot while a blonde shot may indicate a quick pulled-shot. It is good to note that as the shot is nearing its end it can run blonde and some baristas prefer to stop the shot manually at this point, this prevents the tannic acid breaking down from the coffee shell in the grounds causing a bitter/astringent aftertaste to the coffee.

- **Changes in flow texture** – the shot should be well-filled with crema and this will show as bubbles in the liquid; as the stream changes from a froth liquid to a flat liquid this is an indicator that the shot is nearing or should be at its end.

- **Cake of used ground coffee** – the prepared coffee should be tamped to provide the perfect resistance/density against the pressure of the water as it flows through. This should be firm but not solid. When the cake is correctly packed the crema will be produced throughout the pull time, creating the perfect espresso shot.

- **Water pressure during extraction** – this should be at 8 to 10 bars of pressure to create a good pull; the higher the pressure the greater the intensity of coffee taste.

If changes or inconsistencies in your espresso shots occur, you will need to make adjustments to address this. This can include changes to grind size, coffee batch or blend, water temperature or water pressure of the espresso machine, coffee dosing, coffee tamping and maintaining cleanliness of the espresso and grinder etc.

**Factors relevant to quality of espresso coffee:**

- Ambient humidity which will impact upon grind size due to coffee absorbing moisture in the air
- Consistency of used coffee grounds, e.g. doses, tamping and blend
- Crema on top of the espresso
- Quality and rate of espresso flow
- Steam pressure during foaming and steaming of milk
- Taste of the espresso shot/coffee beverages.

Generally speaking, coffee beverages are all made from a base espresso shot with variables added. Some may be made using double (or even triple) espresso shots if ordering a larger volume drink or requiring a stronger tasting coffee. Espresso can be drunk as a drink, but most customers will find this too strong or intense a flavour. It is also possible to use a ristretto instead of an espresso to make coffee beverages as this will be less intense and the shorter pull time will produce a sweeter taste.

**Extraction for the espresso and ristretto:**

- Extraction time for the single espresso shot (approximately 30 seconds) will result in a standard 30ml shot
- A single ristretto shot is smaller at 15ml and this will be pulled at an approximate time of 15 seconds, as this is a smaller volume, it is common to serve a double ristretto instead of the single size. This is a 30ml shot pulled at 15 seconds; a shorter extraction means less acidity.

Once the extraction has taken place the portafilter will need to be removed and the coffee grit emptied from the basket into the knock box. This can be done by flipping the portafilter over to face downwards. Knock the portafilter against the bar in the centre of the knock box to release the coffee puck (used coffee cake). Wipe the portafilter and basket with a clean cloth, ensure this is dry and return it to the group head to pre-warm this for the next shot.

## 4.6 – Monitor efficiency of espresso machine during service, and resolve or report issues

**Efficiency measures**

To ensure efficiency is maintained when making espresso shots, as mentioned in section 4.4/4.5 of this unit, the espresso machine should be monitored during service hours. If more than one barista is using the machine, it may mean that different group heads are monitored by the baristas using them, or it may be that one individual is appointed to ensure consistency and efficiency of the espresso machine is achieved for all.

**If you need to resolve an issue with the machine, ensure that you check your:**

- Dose
- Grind
- Tamping technique
- Water flow
- Water pressure
- Water temperature.

If none of the above appears to be the cause of the problem or cannot be resolved, you should report any inefficiencies experienced to your manager/supervisor or the head barista; this will alert them that a problem exists and needs to be assessed further. They will need to determine the level of action and whether additional technical expertise is required.

It may be a simple matter of checking each part of the machine, or sequence of events, in a logical order to eliminate the possible cause, or switching the espresso off and on again to reset the machine. If there is a fault with the machine, further technical assistance may be needed.

**Your organisation may have:**

- An appointed technician who is responsible for faults and repairs
- A service contract with another company to fix/repair faults
- Warranty cover with the machine and/or telephone support for machine problems.

## 5. Undertake milk texturing process

**5.1.** Select cold milk and appropriate milk foaming jug to fulfil customer orders
**5.2.** Purge the steam wand every time before texturing
**5.3.** Texture milk according to type of milk and coffee beverage
**5.4.** Visually and aurally monitor and adjust the texture and temperature
**5.5.** Clean the steam wand on the outside and purge every time after texturing
**5.6.** Combine foam and milk through swirling, ensuring even consistency
**5.7.** Pour milk immediately after swirling, according to the coffee beverage

## 5.1 – Select cold milk and appropriate milk foaming jug to fulfil customer orders

### Selecting milk for coffee beverages

Customers will expect to have a choice in the milk products offered when it comes to making their coffee beverages.
Some customers will prefer a cream or whole milk taste in their coffee, others may prefer a lower fat option and some customers may be lactose intolerant or have a dietary requirement for a milk substitute.
**Different dairy/milk products that can be used include:**

- Cream
- Whole milk
- Low fat/semi skimmed milk
- Skimmed milk
- UHT milk
- Milk substitutes, for example:
  - soy milk
  - rice milk
  - almond milk.

You can use any milk for your coffee-making but there will be differences in taste and texture, which will be down to customer preference and dietary requirements. Milk should be fresh and cold for making a good froth in coffee beverages.
The higher the fat content and milk solids (i.e. whey protein, caseins, lactose, trace minerals), the better the milk will mix with the coffee; it creates a more luxurious beverage that is thicker in body and complementary in taste. Nevertheless, this will be down to personal preference as some customers will not like the taste of milk or may prefer not to have the greasy texture that fuller fat milk will have. The less fat in the milk, the thinner the coffee beverage. It is possible to obtain enhanced milk with a relatively low fat content but with additional milk solids which help to give a better foam result.

### Frothing different milk types

Both whole and skimmed milk will froth consistently. Skimmed milk is a little easier to froth and creates larger bubbles but will dissipate faster that whole milk foam.
Generally speaking the higher the milk protein content (milk solids) the better the foam result will be, i.e. soft and whipped that mixes or sits well on beverages and holds its body or form better. Whole milk will achieve a better micro-foam texture that is commonly seen in cappuccinos.

### Milk foaming jugs

You will need to use the appropriate size milk jug when making your coffee beverages. Jugs are made from stainless steel and should be of a high quality standard with a safe and adequately sized handle and milk spout for pouring.
**Milk jugs can be in the following sizes:**

- One third of a litre
- Two thirds of a litre

- One litre
- Two litres.

The smallest size jug (one third of a litre) will make approximately enough steamed milk for a standard cappuccino (or equivalent sized coffee beverage). The two thirds of litre size is a good choice for many as it holds enough milk for two to three cappuccinos. It will also depend on the size of your espresso machine as to the size of the jug that may be most appropriate for you. This is because the size of the wand and the available machine pressure will also dictate the maximum size of the jug.

For example, a three-head espresso machine will tend to have enough steam pressure for using a one litre milk jug. A smaller machine may only have steam pressure capacity for two thirds of a litre jug size.

The shape of the jug will be down to personal preference and the way you prefer to foam or steam the milk, it is possible to obtain straight jugs and bell-shaped jugs. Be mindful that the wand length will need to be appropriate for the size of jugs you use.

## 5.2 – Purge the steam wand every time before texturing

## 5.3 – Texture milk according to type of milk and coffee beverage

**Purge the steam wand**

After using the steam wand, you should carefully wipe the outside of the wand and tip with a damp cloth, this helps to maintain the cleanliness and efficiency of the wand. The wand tip will be very hot so handling this carefully is essential (a hot wand will also be easier to remove the excess milk from).

Along with this, you will also need to purge the steam wand to ensure that the holes on the end of the wand are cleared and cleaned through, and condensation is eliminated before you use this to make the next beverage.

To purge the steam wand, you should briefly activate the steam function so that it flushes through the wand tip. Now you are ready to reuse your steam wand for the next coffee beverage.

**Texturing milk**

Different coffee beverages requiring milk will need to have the correct milk texturing process; this involves foaming and steaming in different degrees.

**Milk used should:**

- Be very cold and fresh (it is also recommended to use a chilled/cold jug as milk will foam better in this)
- Never be re-heated or re-steamed (only steam/heat the quantity of milk required for the beverage(s) you are making and throw away unused milk)
- Be stored out of bright light and preferably in opaque containers
- Not be mixed with different batches or dated milk (milk should be kept pure and be as fresh as possible)
- Not be temperature mixed, i.e. hot milk should not be mixed with cold milk as this can cause bacteria to grow.

Heating milk involves stretching (aerating the milk) to create foam and texturing (emulsifying the milk) to both heat and mix foam and milk together.

**The basics to heating/steaming milk:**

- Fill your jug with cold milk (to the size required, which is about half way up the appropriate sized jug to allows for milk expansion of approximately 50 percent)
- Attach a thermometer to the side of the jug to check temperature of milk during steaming
- Expel/purge the steam wand over the drip tray and wipe wand with a clean damp cloth
- Place the steam wand tip into the milk just below the surface and turn on, the wand should be close to the surface but be submerged, this will capture air and incorporate it into the milk to create foam or micro-foam (i.e. stretching the milk); milk should be made to spin in a whirlpool

motion during this process and a hissing or popping sound will be heard, stop when correct amount of foam is made (milk will expand in the jug and the temperature may reach to 40 degrees Celsius)

- Next, submerge the steam wand a little lower into the milk and continue to spin the milk in a whirlpool action, the hissing or popping should stop when taking the wand lower and the foam created will then be mixed with the milk to emulsify; this should be continued until the jug becomes too hot to touch (around 60 degrees Celsius)
- Now the milk is ready, it can be given a slight knock on the counter to disperse any large bubbles and rested until ready to pour, just before pouring you should lightly swirl the milk around the jug to polish this and ensure the foam and milk are mixed
- When pouring, the foam will pour first, the milk should be poured at a steady pace into the coffee; if pouring multiple drinks from the same jug, remember to share/pour out the foam between all cups (or split the milk by pouring into a second jug).

When making your coffee beverages, you will need to heat, stretch and texturise the milk in different ways to achieve the required result. Your organisation should provide you with clear guidance and the steps to take to create the correct coffee beverage; a brief summary is shown below.

**Texturing for different coffee beverage includes:**

- Cappuccinos should be made with micro-foam and steamed milk (or half foam, half steamed milk)
- Lattes should be made mostly with steamed milk and topped with a little milk foam
- A flat white should be made with steamed milk
- Expresso macchiato should be topped with a little steamed milk to stain through the coffee (sometimes made with a little foam to sit on top)
- Caffe mocha should be made with steamed milk (and can be topped with whipped cream).

## 5.4 – Visually and aurally monitor and adjust the texture and temperature
## 5.5 – Clean the steam wand on the outside and purge every time after texturing

**Develop a good technique for texturing**

Milk texturing becomes easier with practice as you become more familiar with using the espresso machine, steam wand and different beverage requirements. You will be able to improve and adjust your technique to suit your needs. Heating milk may at first appear to be a simple process but if not done correctly, this can greatly affect the end result of your coffee beverage.

**You will need to be aware of:**

- Volume of milk and jug sizes that you will need to use for texturing
- Type of milk used, e.g. soy milk will produce a drier foam
- Temperature of milk during the process
- Motion and movement of the milk to achieve desired result
- The texturing requirements for different beverages.

As well as using a thermometer to gauge milk temperature throughout the process, you will need to be able to visually identify the stages of texturing so that you can respond according to needs. This will allow you to become fully engaged in your technique and actions to accurately heat/steam the milk.

You should also be able to listen to the texturing to determine when milk is being foamed and when milk is being steamed. When foamed, milk will make a hissing noise as air is drawn into the milk, when steamed this will not hiss. You should also be able to describe the process and subtle changes, as you may need to discuss this or refer to a colleague or manager. Equally if a customer prefers less or more foam, you may need to create a more bespoke beverage upon request.

**A guide to temperature for texturing milk**

Milk will need to heated to achieve a smooth and velvety texture, equally milk that is heated too much will burn and will be ruined; therefore temperature is an important factor when steaming and frothing.

When foaming, milk temperature will reach to around 40 degrees Celsius (the point at which milk will foam).

When steaming milk, the temperature should not go over 70 degrees Celsius, over this temperature and milk protein will begin to curdle and the foam will disappear. You should stop heating your milk when the temperature reaches in the mid-60 degrees Celsius (approximately 65 degrees Celsius) as the thermometer will take additional time to reach the actual temperature of the milk. Working with temperatures will become easier, but it is useful to practice with the equipment and in the working environment to gain real experience of this.

The espresso shot should be at approximately 90 degrees Celsius when pouring in the milk so that an optimum beverage temperature is gained.

**A note on water temperature**

Temperature is not only important for milk it is also important for the hot water that you use for your espresso or ristretto shots. Your espresso machine's hot water temperature should be set so that a constant temperature is maintained for your espresso shots. If using a lot of hot water continuously, or making hot tea beverages, it is important to note that the boiler will need a little time to heat up the water as the temperature will decrease when in use.

Equally if you do not use the espresso machine for short periods of time, the water may become too hot (or hotter than required for the first initial use). Run the water momentarily through the group head at regular

intervals to stabilise the temperature.

**Keeping the steam wand clean**

As mentioned in section 5.2/5.3 of this unit, the steam wand should be wiped clean and purged after each beverage is made. This ensures that the wand is clean and old milk is removed.

Additionally, you will need to clean the wand more thoroughly as part of your ongoing cleaning and maintenance program (more on cleaning your espresso machine can be seen in section 7 of this unit). This is to ensure that the wand is cleaned efficiently inside the tip to prevent milk residue from building-up and the wand holes from becoming blocked. Your organisation should have standard procedures for all cleaning and maintenance of machines and manufacturer instructions to refer to; you should follow these when carrying out cleaning and maintenance tasks.

A method for cleaning the steam wand is described next; this can be done after each use or periodically.

**For a more thorough clean you can:**

- Purge steam from the wand for a few seconds
- Close the steam valve for approximately three seconds
- Fill a jug with clean cold water and carefully place the wand into this (about two to three inches into the jug).
- If correctly executed, you will hear a small click sound as the water is drawn up the holes into the tip of the steam wand
- Next lower the jug so the wand tip is exposed
- Open the steam valve and water should flush out of the steam wand holes along with any milk residue that has built up inside.

The vacuum that is created as the cold water is drawn up should not be enough to travel up into the boiler but care should be taken when doing this procedure to ensure safe handling. This should be a quick action and the wand should not be left to soak in the water for any length of time.

## 5.6 – Combine foam and milk through swirling, ensuring even consistency

## 5.7 – Pour milk immediately after swirling, according to the coffee beverage

**Emulsifying milk and foam**

As mentioned in section 5.2/5.3, emulsifying is the mixing of foam and steamed milk to create the correct texture for coffee beverages.

Some drinks require more foam than milk, such as cappuccino drinks, while others may only require a small amount of foam and mostly steamed milk, such as lattes. However much foam or milk, you will need to ensure that these are combined correctly for coffee beverages, depending on the specific recipe requirements.

**Swirling milk and foam**

Swirling ensures that the milk mixes and combines during the heating and texturing process, after this has been completed, you will need to attend to your espresso shot (your organisational procedure may be to make the espresso first or after steaming the milk).

If swiftly making your espresso shot after steaming, the milk may settle but can be easily brought back to the correct texture through swirling (and possibly gently knocking the bottom of the jug on the counter).

It is useful to note that the crema in the espresso will start degrading and cannot be reactivated; if making lots of steamed milk for your beverage(s) this may be a reason to pull your shot(s) after steaming the milk. This will depend on your overall speed and organisational set-up (e.g. whether working with another barista to make your drinks, and how many group heads on the espresso machine).

## Pouring heated milk into beverages

Milk should be poured quickly after steaming into your recently pulled espresso shot. This should be poured evenly and consistently to create the particular coffee beverage that you are making; paying attention to any individual customer preferences or requests.
Foam is lighter and will sit on top of the denser steamed milk, this will pour into drinks first and the milk will pour after, sinking into the coffee below.
**Pouring should be done as below:**

- If milk has stopped swirling after heating has taken place, swirl this to create movement in the jug, do this a couple of times to ensure milk does not separate and begin pouring closely at the edge of the cup or glass, a latte glass can be picked up for pouring, cups should be left on the saucer

- The milk being poured should be poured carefully to avoid breaking up the crema of the espresso shot; you are aiming to raise-up the crema as the milk pours through and down, leaving a ring of coffee around the top of the glass or cup.

Your beverage should be finished off with additional coffee art, chocolate powder, cup mat, spoon etc. and then served.
**Note:** if adding a syrup flavour to your coffee, this should be put into the cup/glass first, before the espresso shot is made.

## 6. Serve espresso coffee beverages

**6.1.** Present coffee beverages attractively and without drips and spills

**6.2.** Serve coffee beverages promptly at the required temperature and with appropriate accompaniments

**6.3.** Minimise waste to maximise profitability of beverages produced

## 6.1 – Present coffee beverages attractively and without drips and spills
## 6.2 – Serve coffee beverages promptly at the required temperature and with appropriate accompaniments

### Coffee presentation

When taking the care and time to get the science right for pulling perfect espresso shots, it is of equal importance to take time to present the finished beverage in an attractive manner to customers. This can be practiced to ensure that the milk and foam blends correctly with the coffee and that any coffee art is applied with skill. Choosing the correct service-ware will also show off your coffee beverages in the most appealing way.
Over time presentation of coffee will become faster and what may appear to be time-consuming at first, will become second nature to you. A swirl of foam on top with a little flourish will also show your skill at making a coffee with your attention to details.

**Your coffee beverages should demonstrate consistency and quality of:**

- Appearance
- Aroma
- Body
- Crema on top of the espresso
- Flavour
- Taste
- Strength
- Volume.

### Coffee/latte art

Latte art, simply stated, is the art of pouring steamed milk into, and through, espresso to create a visual pattern on the surface of the beverage.

**This can be done by using the following techniques:**

- **Free pour art** – this requires a precise and more technical approach as it relies on the hand and wrist movements of the barista as the steamed milk is poured into the espresso to create the pattern of choice, e.g. s tulip pattern
- **Etching art** – this is free-drawing onto the coffee with a thin implement/tool; this is dependent on the skill of the barista as to what they are confidently and competently able to draw, and can be very individualistic, e.g. portraits.

The coffee beverage should be placed on a saucer (if appropriate to the coffee and the type of service-ware required) with a small paper coaster/mat under the cup. This provides a non-slip layer and also captures drips or small spills in the saucer. Although a small detail, this also helps to provide a quality presentation. Some places may prefer to use a small, thin napkin which is folded on the saucer to do the same job.

Establishments may also place a decorative chocolate or biscuit on the saucer, along with a standard teaspoon, to complete the presentation. Presentation will be down to your organisation's requirements and your skill as a barista.
If beverages, such as cappuccinos, require a chocolate sprinkle, the barista may prefer to use a stencil to create a perfect chocolate shape on top of the beverage (as opposed to coffee art which is most commonly seen on lattes as cappuccinos have more foam than milk).

**Serving coffee**

When serving drinks, these should be served promptly so that temperature, beverage consistency and appearance are not allowed to deteriorate. The customer should receive their order in good time after their initial request and customers should be served in order of sequence. If customers are kept waiting for a long period of time, this will impact negatively, especially if they are in transit and are waiting for a take-out order.
Never present a coffee with spills or drips and ensure the cup or glass is placed in front of the customer with the handle to the right (the teaspoon should be clean, dry and shiny, and also positioned to the right on the saucer).

**The customer should also be presented with accompaniments such as:**

- Sugar and sweeteners
- Chocolate or cinnamon powder
- Serviettes/napkins
- When serving tea:
    - a small saucer for placing the used tea bag
    - lemon slices (if a menu option/item).

Be aware of the environment and how busy (or quiet) it may be; if busy, you may be able to notify another person/barista to assist in serving. If quiet, this is a good time to restock, grind coffee and perform general cleaning and maintenance tasks.

## 6.3 – Minimise waste to maximise profitability of beverages produced

### Accounting for waste

Within your workplace, your manager/owner will need to account for waste as part of their business overheads. Waste is a normal part of any business and minimising this is essential for two reasons.

**These are:**

- **Profit margins** – waste will need to be financially accounted for and can impact a business's liquidity to achieve healthy profits and also to reinvest back into the business (including staff wages); this is your business sustainability
- **Environmental** – waste can impact negatively on the environment, for example over-use of disposable cups, lids and holders, stirrers, packaging and waste food; simple changes such as recycling efficiently, swapping disposable options for non-disposable and careful management of ingredients can be of great benefit.

### Types of waste

Your establishment may incur packaging waste, food waste, paper waste from napkins and towels and plastic/wood waste from items such as straws, stirrers and disposable cutlery. It can be surprising how much waste is generated during the course of a typical day. Not only is waste obtained through the use of items but also through unused or out-of-date items such as food products.

Waste can also be generated when ingredients are not managed or stored correctly; this can include miscalculating and over-using or preparing too much on a regular/daily basis. For example, using too much milk when heating for coffee beverages or making more snack items than needed for your customer numbers.

**Food waste includes:**

- Food or snack items
- Milk
- Coffee beans/grounds.

### Reducing waste

Small differences can be made when using your ingredients to make a worthwhile reduction to your levels of food waste. It is about having awareness to resource items and managing these effectively. This includes making and preparing just what will be needed and used within the day; your place of work can assess usage amounts from past business activities to gauge such requirements.

Stock should be monitored closely and ordered as needed; this doesn't mean ordering at the last minute or as items run out, it means checking that there is a good amount of ingredients in stock to cover your business needs, which are fresh and at their best for business use. Items that can be bulk-ordered will be more cost-effective, such as sugars and sweeteners; items with a shorter shelf-life should be managed and ordered as needed.

When grinding coffee, you could grind smaller amounts, just enough for your immediate use or for a set period of time to cover a busy period. For making coffee beverages it is essential that you develop a good understanding of your ingredients and how these should be prepared and used. This will prevent coffee grounds from being stored too long, losing their quality.

Use the size of milk jug that is appropriate to the amount of coffee beverage you are making and check that the amount of milk you pour is right for your needs. This will help prevent pouring away excess milk after it has been heated to make your beverage. Milk should not be left to sit in jugs and should never be reheated.

Ensure that milk does not accumulate in refrigerators, if stock is building-up; it may be more cost-effective to delay or stop your next order or purchase of milk. You should also check that old milk is not used or left behind newer milk containers giving you a false indication of how much and how long your stocks will effectively last.

If food portions are large and waste is high, your establishment could consider reducing portion sizes to prevent accumulating an excess of food waste.

Finally, ensure that working practices incorporate correct storage and handling methods for all ingredients. This will prevent shortening product lifespans and unnecessary wastage of items.

**Disposing of food waste**

If possible use a composting system for food waste and coffee grounds, of course this will depend upon the amount of waste you have for composting, if a lot, you may prefer just to compost some of this waste. Opinion is divided as to whether coffee grains should, or should not, be washed down the sink into drains. Suffice to say if not composting, the safest option is to throw used coffee grounds and grit into your general waste (if going to landfill, coffee grounds are one of the few things that will decompose thoroughly).

Food or items that cannot be sold after the day of preparation but are still safe to use, can also be given to homeless shelters and food kitchens so that items can be used rather than thrown away.

**Handling other waste**

Your place of work should adopt an efficient recycling system for all packaging and disposables used. It should also ensure that bins are provided for general waste so that premises are kept clear and clean of debris. This should be made easy for both staff and customers to use; bins should be visible and clearly marked to indicate their contents. Behind the counter general bins and knock-bins should be readily available so that staff are able to dispose of items in the correct bins and keep the area clean, this will make cleaning up and waste disposal quicker and more efficient. It will also ensure that the premises stay clean, tidy and will be a place that people will want to visit and use.

## 7. Clean espresso equipment

**7.1.** Clean espresso machine and equipment thoroughly and safely according to organisational procedures and manufacturer instructions

**7.2.** Maintain water filtration system according to organisational procedures

**7.3.** Refer faults and maintenance issues requiring technical specialists to supervisor

**7.4.** Use energy and water resources efficiently when preparing coffee beverages and cleaning to reduce negative environmental impacts

## 7.1 – Clean espresso machine and equipment thoroughly and safely according to organisational procedures and manufacturer instructions

### Cleaning the espresso machine

As previously mentioned, it is important to maintain machine cleanliness when pulling espresso shots; this ensures that the quality of your espresso is consistent and of a high standard throughout service hours. You should follow your manufacturer's instructions and organisational work procedures when doing this.

**This includes:**

- Cleaning duties after each use (e.g. flushing the group head)
- Daily cleaning tasks (e.g. cleaning the inside of the steam wand)
- A weekly deep clean (e.g. backflushing the machine with a cleaning solution, if this is recommended by the manufacturer)
- Descaling your machine at set intervals to eliminate mineral deposits from the water, oil and milk residue (e.g. every two to three months), if not using a water softening system.

**To recap, parts of the espresso that will require regular cleaning (at timeframes that suit your level of machine use, e.g. each day):**

- Group handles (portafilter handles)
- Group heads and screens
- Filter baskets
- Steam wands and arms
- Drip trays
- Water reserve
- Machine panels and exterior
- Top of the espresso machine including cup warmers.

### Specific cleaning tasks

Along with sanitising and wiping clean the outside of the machine, flushing the group head(s), purging and wiping the exterior of the wand, emptying and cleaning drip trays as you use the espresso machine, you will also need to perform other cleaning duties.

This includes cleaning the gasket (the rubber ring that seals the group head and portafilter); a small brush can be used to clean the gasket of coffee debris while the group head is then flushed to wash off the debris.

It also includes washing the screen and underneath of the group head; you may need to loosen and remove a small screw to detach the screen from the group. The screen should be thoroughly cleaned along with the interior of the group that is then revealed to you. The screen should then be refitted and screwed back into place.

**Backflushing or backwashing the machine**

As mentioned previously in section 4.2/4.3 of this unit, a blanking filter basket or disc (a basket or rubber disc without holes) can be used in the portafilter(s) to seal off the group head(s). If your machine manufacturer recommends this process for the machine you have, this will need to be done so that the internal workings are flushed clean, removing all coffee particles and grit.

Once the portafilter with the blank filter basket or disc is attached into the group head, the water needs to be activated. This is not able to escape through the blanking filter/disc and is therefore forced back up into the machine, flushing it through. The portafilter is then removed, allowing the dirty water to drain out. This process should be repeated a few times until the water runs out clean (and as recommended in your manufacturer instructions). This is done without the use of chemicals (unless performing a deep clean) and is recommended to be carried out several times a day (e.g. four times a day) to ensure the group head interior is kept clear.

A chemical backflush detergent can be used less frequently to clean through, e.g. once a week. Using a dedicated cleaning solution will help maintain the longevity of your machine and clean out oils and residue.

**Perform a deep clean**

A deep clean involves using recommended chemical cleaning solutions to ensure machine parts are thoroughly sanitised. It is good practice to do this once a week or more often if the machine is heavily used. Parts that can be disassembled should be taken off and soaked for a period of time (e.g. over-night) in the made-up solution. It is usual for the colour to change when the coffee residues is cleaned off the parts. You can clean the portafilters, baskets, steam wand, group screen, drip trays etc. as described in your product instructions. Once soaked these should be scrubbed and rinsed thoroughly in warm water. Used cleaning solution should be discarded with care and as described in the cleaning solution instructions or safety data sheet (SDS).

If you have a steam wand brush, this can be used to clean the inside of the wand; unscrew the tip of the wand and use the brush dipped in an appropriate cleanser and scrub inside. If the wand is purged and cleaned after each use properly, a wand brush will not be an essential tool to use.

**Descaling the espresso machine**

It is recommended that a dedicated water filtration system is used for the espresso machine, to avoid scale accumulation. By installing an appropriate system for your water type/area, it can limit/prevent the build-up of water deposits and the need for descaling.

If needing to descale you should follow all manufacturer and product instructions; use an appropriate descaling solution and follow all required steps and stated timeframes.

For example, to remove deposits from within the machine, use a recommended descaling solution that is designed to do the job. Fill your machine's reservoir with clean water, add the descaling solution to the water and allow this to dissolve. You will then need to activate the steam wand for a short time to allow the solution to briefly run through.

**Steps to descale may include the following:**

- Turn off the espresso machine and allow the descaling solution to work for approximately twenty minutes

- Run the solution through the steam wand and group(s), using a suitable container underneath to collect the water (if using a super automatic espresso machine do not run the solution trough the group(s))
- Turn off the machine for another 20 minutes and then run half of the solution through the steam wand and the other half through the group(s) unless using a super automatic (as mentioned above) and all should be flushed through the steam wand
- Fill the water reservoir with clean, fresh water and run all the water through the steam wand (and group(s) if not a super automatic), repeat this process if required.

Note: the descaling solution will contain citric acid which needs to completely flushed through, or the metal on the exterior of the machine will become tarnished.

**Cleaning the grinder should be performed as mentioned in section 2.5 of this unit.**

## A note on safety data sheets (SDS)

Safety data sheets provide in-depth information on the properties of hazardous chemicals to ensure that health and safety is maintained in the workplace. They also give information on how to use the chemical, how to store it and the precautions that should be taken, including use of personal protective equipment (PPE). This information can be used to prevent mishandling of dangerous and harmful substances and to ensure that all those using the chemicals have access to the required safety and product information.

**This includes information on:**

- Chemical identification, including the contact details of the manufacturer and recommended use for the chemical
- The hazard of the chemical
- The chemical components, including stabilising additives
- First aid measures required in the instance of exposure or an accident
- What to do if there is a fire, i.e. the measures needed to deal with the substance and protection of others such as fire fighters

- Accidental measures, in case of a leak or chemical spillage including evacuation and containment
- Handling and storage requirements, including appropriate ventilation
- Exposure controls, including use of PPE, exposure limits and engineering controls
- Physical and chemical properties, including appearance, vapour density and viscosity
- Chemical stability and reactivity, i.e. how to contain and store the chemical safely in order to prevent instability

- Toxicological information, what may occur if exposed beyond safe levels and the routes of exposure
- Ecological information (not mandatory), information to show the impact the chemical may have on the environment
- Disposal (not mandatory), appropriate containers, recommendations on appropriate disposal and special precautions
- Transport information (not mandatory), how it should be shipped, e.g. classification and packing requirements
- Regulatory information (not mandatory), information on health, safety and environmental regulations specific to the chemical (if not indicated elsewhere).

Further information on safety data sheets can be found at the Safe Work Australia website: http://www.safeworkaustralia.gov.au/sites/swa/whs-information/hazardous-chemicals/sds/pages/sds (access date: 04.07.2016).
Workplace procedures should also incorporate and interpret SDS requirements and hazards into plain English. Procedures should include the use of appropriate personal protective equipment, safe methods and techniques for chemical applications and awareness to the hazards that may be experienced when using them. It is the responsibility of the organisation to provide step-by-step instructions that ensure staff remain safe at work.

## 7.2 – Maintain water filtration system according to organisational procedures

### Using a dedicated water filtration system

When using espresso machines, it is important that your organisation considers the type of water that is being run through the machine and how this may affect the machine workings over time. If you work in an area where water has a heavy amount of impurities, it may be useful for your organisation to install and use a dedicated water filtration system. This can be tailored to suit your water and by using a dedicated filtering process, can be used to remove out the impurities that you do not want, e.g. iron, calcium and phosphates, improving the taste and quality of the water you use.
This will help prevent the need to descale your espresso machine and the use of harsh chemicals which can degrade thin copper tubing that may be used to connect components together.
This system will need separate management to ensure that filtration is maintained. It is important to note that

most systems will only remove most of the impurities (not all); if using a system that requires filter cartridges to be changed periodically, ensure that this is monitored and cartridges are changed at the required times Water impurities will build-up over time and will not necessarily be obvious to spot until a period of time has elapsed. For health reasons water should not pass through filter cartridges that have been in place for a year or longer as bacteria can begin to grow; cartridges should be changed regularly , e.g. every three or six months.
If using a water softening system this will be more effective at reducing scale deposits as these are specifically designed to soften the water (or take out the majority of the limescale). This can be achieved with use of an ion exchange resin.
It is also possible to use distilled water or a reverse osmosis (RO) water system. Reverse osmosis is a process to completely demineralise your water (or deionise it) by pushing it through a membrane system, under pressure. Water treated in this way can become 'tasteless' as the minerals that are in the water are completely taken out leaving the water in its purest state.

**Water impurities**

Limescale is a natural mineral (made up primarily of calcium carbonate) and this will leave a chalky white deposit that hardens. This can coat the insides of machine parts, pipes and cause eventual blockages. This is to be avoided if at all possible as it will affect water temperature, pressure and the steam performance of the espresso.
To help alleviate a build-up, ensure that you use your machine regularly, even just running the hot water through without making any drinks. It is the repeat action of the water heating and cooling in the espresso machine that encourages limescale to form. Maintaining a constant temperature and not letting the machine stand still will help diminish this. (Commercial espresso machines are at less risk than domestic ones as they are most likely to be used regularly.)
Along with limescale, if there is an overabundance of other impurities in the water, the quality will be affected, e.g. taste and colour (another reason that your organisation may wish to use a dedicated filtering system). For example, iron in the water can cause redness to the colour, if in high abundance.
Water minerals are not necessarily bad to drink unless there are high levels of certain minerals which are above recommended health levels. Different mineral content may alter taste and cause water scum/film (more noticeable in hot teas).

**Maintaining water requirements**

Always follow your organisational requirements for using water at work. This includes using water in your espresso machine and for other appliances such as dish washers.
Take care to consider the impacts of misuse, including inappropriate use of chemicals and cleaners, not taking the time to follow steps and required procedures and overuse of water.
If maintaining a water filtration system for your organisation you should ensure that you follow organisational instructions and guidelines (to your level of responsibility).

## 7.3 – Refer faults and maintenance issues requiring technical specialists to supervisor

**Assessing machine faults**

When any machinery or equipment problems occur, you should first identify where the problem is occurring in order to assess where the fault may lie. Do not carry on using the device in case this exacerbates the problem or causes the machine to break.

If the problem is easily rectified and is within your capability to do so, you should take a moment to address this to ensure the machinery is appropriately maintained for use. You may need to reset machinery, or perform minor cleaning and maintenance tasks to keep the machine working as expected. For example, if the coffee grinder stops working or slows down, you may need to remove old coffee particles and debris from the bean hopper chute or passageway to the chamber (remembering to disconnect this from the power supply first).

Some issues may be resolved by referring to work procedures, manufacturer instructions or asking the advice of a colleague. These will be the problems that are easy to resolve but may not be ones that you have not yet experienced.

If your assessment determines that a more serious fault has occurred (one which requires technical assistance) you should report this to your supervisor or manager immediately. They will be able to arrange for a technical specialist to attend to the machine. Faults or problems that cannot be rectified through normal machine functions will come under the responsibility of your supervisor, manager or coffee shop owner. Procedures to deal with situations such as this should be in place for all staff to know and follow.

**You should:**

- Always follow standard work procedures in the event of a machine fault
- Never attempt to fix a problem that requires technical expertise
- Request assistance from your supervisor if you have not been trained to resolve the particular machine problem
- Always refer to the appropriate technical/qualified expert if the problem requires this.

## 7.4 – Use energy and water resources efficiently when preparing coffee beverages and cleaning to reduce negative environmental impacts

**Using water**

When working, it will be necessary to use water throughout the day. For example, when pulling espresso shots, flushing the group(s) and purging the wand.
It is also used for washing service-ware and for general mopping, wiping tables and other cleaning duties. This is an essential requirement and to ensure water is used moderately, care should be taken to minimise waste.
**Ways to save water can include:**

- Flushing only a small amount of water through the group head between shots (approximately 1 ounce)
- Purging the steam wand just for one to two seconds each time
- Use of sensor taps or foot operated taps to prevent prolonged water flow
- Filling dishwashers to full capacity
- Ensuring service-ware items are in good quantities to prevent the need from continually washing items (so washers can be loaded efficiently and hand washing can be done when reaching a set amount of items)
- Organising cleaning duties efficiently to ensure you use appropriate equipment to clean and containers of the correct size
- Organising cleaning tasks to prevent re-filling buckets or containers unnecessarily
- Re-using water as much as possible, e.g. use hot water drawn from the boiler at the start and end service for you mop bucket or for watering plants herbs (when this has properly cooled)
- Awareness of washing items under running taps, where possible soak these or wash in still/contained water bowls.

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**Using energy**

When using energy to power machines, ensure that machines are switched on in good time to enable full-machine start-up and functioning. Follow manufacturer instructions and work guidelines when using energy for your appliances and premise needs. It is encouraging to know that with improvements in technology, newer machines and appliances are being built with energy efficiency in mind. If looking to replace or buy a machine, a newer-made item will be a better option.

If any machinery is switched on and is not being used for long periods, switch these off if viable to do so. Some machines may use additional bursts of energy to power up so if using these sporadically it may be better to weigh up whether more energy will be used if needing to use these frequently.

Within the premises, use energy efficient lighting, such as LED lights or energy saving bulbs, and make sure that areas do not use excessive amounts of light. Switch off lights in rooms that are not being used; when cleaning at the end of the day, check that all power is switched off where it is safe to do so. Consideration to how energy is used and where improved practices can be made will help to make your place of work more energy efficient.