

1.7.1 Espresso as a lifestyle: brewed on the spur of the moment

One of the meanings of the word *espresso* (express) is that it is made for a special purpose, on the moment, on order (Marzullo, 1965; Hazon, 1981); therefore it is made for the occasion on express request, extemporaneously rather than fast. This concept is clarified by the saying ‘the consumer not the espresso must wait’. As a direct consequence, once brewed, espresso cannot be kept, and must be drunk immediately, before the foam shrinks and collapses, breaking into patches on the surface. After a while, the surface of the liquid is completely free from foam, which has dried out on the walls of the cup above the liquid.

If an espresso is kept waiting, smoothness of taste is lost and perceived acidity increases with time regardless of cooling. Furthermore, if the cup cools down, an unbalanced saltiness becomes noticeable.

- Freshness of preparation must be an integral part of the definition of this very special brew.

1.7.2 Espresso as a brewing technique: it requires pressure

At the beginning of the twentieth century the need for preparing a cup of coffee within seconds of a customer’s request led to an increase in the pressure of the extraction water. Water was heated up to its boiling point in a sealed kettle, so that the steam in equilibrium created pressure, accelerating extraction. A drawback of this technique was that brewing with boiling water provokes over-extraction of astringent and bitter, usually less soluble, substances, which give a *burnt* taste to the brew.

Brewing was first improved by separating the water used for brewing, best hot but not boiling, from the heating water. Pressures as high as 10 bars could be created by a lever, multiplying the force of the arm of the bartender, producing a thick layer of foam on the cup. The lever has now been replaced by an electric pump, simpler and more regular to operate.

A pressure field applied within a fluid produces potential energy – what is known as Bernoulli’s piezometric energy – which can be easily transformed into kinetic energy, and further transformed into surface potential energy and heat.