coffee – auniversalbeverage

Kape as referred to in the Arab and Western European Countries

Qahwa as known in the Philippines

Càfe as the Italians refer to it

Kaffee a German take on it

Кофеий say the Russian

Cafea by the Romanians

Kawa for the Polish

กาแฟ say the Thais

コーヒーas in Japan

• • • • wherever your coffee of choice may be brewed,
Esperer.H_2O will be the *water of choice* to manifest your *best coffee experience*

*innovative***DESIGNS**and**TECHNOLOGY**usa

The *intricate facts* on a *Coffee* produced with *Espérer* water

"After the intricate handling of the coffee plant and its beans we have found that the resultant coffee product is equally influenced by the intricate properties of the water that 'beveragizes' the final coffee."

Now announcing the discovery of *Espérer* as the precise water for the preparation of a GREAT TASTING COFFEE!

while adding to the profit

COFFEE BEANS → BEANS SEPARATION → BEANS PROCESSING → BEANS ROASTING → BEANS GRADING → ROASTING → ROAST GRADING → STORAGE → BREWING → SERVING

Definition: Coffee is a brewed beverage prepared from the roasted or baked seeds of several species of an evergreen shrub of the genus *Coffea*.

Coffee: Is slightly acidic (pH 5.0–5.1) and can have a stimulating effect on humans because of its caffeine content. It is one of the most popular drinks in the world.

The two most common sources of coffee beans are the highly regarded *Coffea arabica*, and the "robusta" form of the hardier *Coffea canephora*.

C. arabica, the most highly regarded species, is native to the southwestern highlands of Ethiopia and the Boma Plateau in southeastern Sudan and possibly Mount Marsabit in northern Kenya.[42] *C. canephora* is native to western and central Subsaharan Africa, from Guinea to the Uganda and southern Sudan.[43] Less popular species are *C. liberica*, *C. stenophylla*, *C. mauritiana*, and *C.racemosa*.

Process: Coffee berries and their seeds undergo several processes before they become the familiar roasted coffee.

After picking, green coffee is processed by one of two methods—the *dry process method*, simpler and less labor-intensive as the berries can be strip picked, and the *wet process method*, which incorporates fermentation into the process and yields a mild coffee.

Then they are sorted by ripeness and color and most often the flesh of the berry is removed, usually by machine, and the seeds are fermented to remove the slimy layer of mucilage still present on the seed.

When the fermentation is finished, the seeds are washed with large quantities of fresh water to remove the fermentation residue.

The best (but least used) method of drying coffee is using drying tables. In this method, the pulped and fermented coffee is spread thinly on raised beds, which allows the air to pass on all sides of the coffee, and then the coffee is mixed by hand. In this method the drying that takes place is more uniform, and fermentation is less likely. Most African coffee is dried in this manner and certain coffee farms around the world are starting to use this traditional method.

Next, the coffee is sorted, and labeled as green coffee. Another way to let the coffee seeds dry is to let them sit on a concrete patio and rake over them in the sunlight. Some companies use cylinders to pump in heated air to dry the coffee seeds, though this is generally in places where the humidity is very high**.**

Roasting: The roasting process influences the taste of the beverage by changing the coffee seed both physically and chemically. The seed decreases in weight as moisture is lost and increases in volume, causing it to become less dense. The density of the seed also influences the strength of the coffee and requirements for packaging.

The actual roasting begins when the temperature inside the seed reaches approximately 200 °C (392 °F), though different varieties of seeds differ in moisture and density and therefore roast at different rates. During

roasting, caramelization occurs as intense heat breaks down starches, changing them to simple sugars that begin to brown, which alters the color of the seed.

Sucrose is rapidly lost during the roasting process and may disappear entirely in darker roasts. During roasting, aromatic oils and acids weaken, changing the flavor; at 205 °C (401 °F), other oils start to develop. One of these oils, caffeol, is created at about 200 °C (392 °F), which is largely responsible for coffee's aroma and flavor.

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Grading of Roasted Beans:

Depending on the color of the roasted seeds as perceived by the human eye, they will be labeled as light, medium light, medium, medium dark, dark, or very dark. A more accurate method of discerning the degree of roast involves measuring the reflected light from roasted seeds illuminated with a light source in the near-infrared spectrum. This elaborate light meter uses a process known as spectroscopy to return a number that consistently indicates the roasted coffee's relative degree of roast or flavor development.

Roast characteristics:

The degree of roast has an effect upon coffee flavor and body. Darker roasts are generally bolder because they have less fiber content and a more sugary flavor. Lighter roasts have a more complex and therefore perceived stronger flavor from aromatic oils and acids otherwise destroyed by longer roasting times. Roasting does not alter the amount of caffeine in the bean, but does give less caffeine when the beans are measured by volume because the beans expand during roasting.

A small amount of chaff is produced during roasting from the skin left on the seed after processing. Chaff is usually removed from the seeds by air movement, though a small amount is added to dark roast coffees to soak up oils on the seeds.

Storage:

Coffee is best stored in an airtight container made of ceramic, glass, or non-reactive metal. Higher quality prepackaged coffee usually has a one-way valve which prevents air from entering while allowing the coffee to release gases. Coffee freshness and flavor is preserved when it is stored away from moisture, heat, and light. The ability of coffee

to absorb strong smells from food means that it should be kept away from such smells. Storage of coffee in the refrigerator is not recommended due to the presence of moisture which can cause deterioration.[92] Exterior walls of buildings which face the sun may heat the interior of a home, and this heat may damage coffee stored near such a wall. Heat from nearby ovens also harms stored coffee.

In 1931, a method of packing coffee in a sealed vacuum in cans was introduced. The roasted coffee was packed and then 99% of the air was removed, allowing the coffee to be stored indefinitely until the can was opened. Today this method is in mass use for coffee in a large part of the world

Brewing:

Coffee seeds must be ground and brewed to create a beverage. The criteria for choosing a method include flavor and economy. Almost all methods of preparing coffee require that the seeds be ground and then mixed with hot water long enough to allow the flavor to emerge but not so long as to draw out bitter compounds. The liquid can be consumed after the spent grounds are removed. Brewing considerations include the fineness of grind, the way in which the water is to extract the flavor, additional flavorings such as sugar, milk, and spices, and the technique to be used to separate spent grounds. Ideal holding temperatures range from 85–88 °C (185–190 °F) to as high as 93 °C (199 °F) and the ideal serving temperature is 68 to 79 °C (154 to 174 °F).

The roasted coffee seeds may be ground at a roastery, in a grocery store, or in the home. Most coffee is roasted and ground at a roastery and sold in packaged form, though roasted coffee seeds can be ground at home immediately before consumption. It is also possible, though uncommon, to roast raw seeds at home.

The choice of brewing method depends to some extent on the degree to which the coffee seeds have been roasted. Lighter roasted coffee tends to be used for filter coffee as the combination of method and roast style results in higher acidity, complexity, and clearer nuances. Darker roasted coffee is used for espresso because the machine naturally extracts more dissolved solids, causing lighter coffee to become too acidic.

Coffee seeds may be ground in several ways. A burr grinder uses revolving elements to shear the seed; a blade grinder cuts the seeds with blades moving at high speed; and a mortar and pestle crushes the seeds. For most brewing methods a burr grinder is deemed superior because the grind is more even and the grind size can be adjusted.

The type of grind is often named after the brewing method for which it is generally used. Turkish grind is the finest grind, while coffee percolator or French press are the coarsest grinds. The most common grinds are between these two extremes: a medium grind is used in most home coffee-brewing machines.[96]

Coffee may be brewed by several methods. It may be boiled, steeped, or pressurized.

Brewing coffee by boiling was the earliest method, and Turkish coffee is an example of this method. It is prepared by grinding or pounding the seeds to a fine powder, then adding it to water and bringing it to the boil for no more than an instant in a pot called a *cezve* or, in Greek, a *bríki*. This produces a strong coffee with a layer of foam on the surface and sediment (which is not meant for drinking) settling at the bottom of the cup.

Coffee percolators and automatic coffeemakers brew coffee using gravity. In an automatic coffeemaker, hot water drips onto coffee grounds that are held in a paper, plastic, or perforated metal coffee filter, allowing the water to seep through the ground coffee while extracting its oils and essences. The liquid drips through the coffee and the filter into a carafe or pot, and the spent grounds are retained in the filter.

In a percolator, boiling water is forced into a chamber above a filter by steam pressure created by boiling. The water then seeps through the grounds, and the process is repeated until terminated by removing from the heat, by an internal timer, or by a thermostat that turns off the heater when the entire pot reaches a certain temperature.

Coffee may be brewed by steeping in a device such as a French press (also known as a *cafetière*, coffee press or coffee plunger). Ground coffee and hot water are combined in a cylindrical vessel and left to brew for a few minutes. A circular filter which fits tightly in the cylinder fixed to a plunger is then pushed down from the top to force the grounds to the bottom. The filter retains the grounds at the bottom as the coffee is poured from the container. Because the coffee grounds are in direct contact with the water, all the coffee oils remain in the liquid, making it a stronger beverage. This method of brewing leaves more sediment than in coffee made by an automatic coffee machine. Supporters of the French press method point out that the sediment issue can be minimized by using the right type of grinder: they claim that a rotary blade grinder cuts the coffee bean into a wide range of sizes, including a fine coffee dust that remains as sludge at the bottom of the cup, while a burr grinder uniformly grinds the beans into consistently-sized grinds, allowing the coffee to settle uniformly and be trapped by the press. 95% of the caffeine is released from the coffee seeds within the first minute of brewing.

The espresso method forces hot pressurized and vaporized water through ground coffee. As a result of brewing under high pressure (ideally between 9–10 atm), the espresso beverage is more concentrated (as much as 10 to 15 times the quantity of coffee to water as gravity-brewing methods can produce) and has a more complex physical and chemical constitution. A well-prepared espresso has a reddish-brown foam called *crema* that floats on the surface. Other pressurized water methods include the moka pot and vacuum coffee maker.

Cold brew coffee is made by steeping coarsely ground seeds in cold water for several hours, then filtering them. This results in a brew lower in acidity than most hot-brewing methods.

Water in the Brewing Process:

As we know, water is an intricate component of many processes, products and especially in beverages, such as a coffee product. Along with its intricacy manifested through its water properties, very little consideration is provided to the "type" of water that is used in the preparation of beverages.

Conventional thinking will only address the areas generically related to a "water filtration process" that a water was put through prior to it being used as a coffee brewing water.

With our group being involved with functional water, a water that has gained unique properties through the application of an electrical charge, we are able to provide the most ideal form of water for a wide array of processes and product formulations. How often is it that we would discuss such properties as pH (potential for hydrogen), DH (Dissolved Hydrogen), DO (Dissolved Oxygen), ORP (Oxidation Reduction Potential), EC (Electrical Conductivity), p*Kw* (Dissociation Ability), permeability of the water related to its ability to dissolve matter and lastly the combination of electrolytes that compose water.

As the water filtration process is coupled to our proprietary water enhancement process, we have truly redefined the properties of water. If we were to make a simple comparison of the tap water, "pre" and "post" our proprietary process, the water properties appear as follows:

Physicochemical Properties

	pH•	ORP-mV•	DO-ppm•	DH-ppm•	Current-A•	Voltage-V•	Temp-C°
Tap:	7.31	+305	7.16	0	0	0	20.0
H_2O:	7.62	-295	12.50	0.228	3.3	36.8	20.0

mV=milliVolts • ppm=parts per million • A=Amps • V=Voltage • °C=Celsius

The key water property, p*Kw* appearing on the Solvent side of water properties, is instrumental in "enhancing" the properties of water. As noted above, when Tap water is processed through electrolysis, certain critical properties of the water are redefined. These properties are in the following parameters of water chemistry.

SOLUTE	**pH**	**(H^+ or OH^-)**
	ORP	**(oxidation or reduction)**
	DO	**(dissolved oxygen)**
	DH	**(dissolved hydrogen)**
SOLVENT	**p*Kw***	**(dissociation activity)**
	Structure	

Science behind the Espérer Beverage Water:

The physicochemical properties of Esperer H_2O
Kokichi Hanaoka Ph.D.

The dissociation activity for water molecules is shown as the ion product of water. Ion product of water is shown through the following equation.

$[H^+][OH^-] = Kw = 10^{-14}$ at 25 ℃, 1 atm (1)

-log of *K*w is shown as equation (2)

$-\log Kw = pKw$ (2)

In general, the dissociation activity for water molecules shows a higher value at a higher temperature and at a higher pressure level. As a result of electrolysis applied to water with a diluted electrolyte solution the dissociation activity shows a higher value.

Espérer H_2O demonstrates a very interesting phenomenon due to the higher dissociation activity brought through the process of electrolysis applied to water without a higher temperature and a higher level of pressure. Based upon the conventional approach undertaken through the application of electrolysis to water, the electrolyzed water created on the cathode, within an electrolysis chamber, shows a higher pH due to the reduction of water molecules by the electrode reaction on the cathode.

At times, this higher pH electrolyzed water is not suitable for foods or drinking beverages. Our new electrolyzed water, called Esperer H_2O, shows a near-neutral pH inspite of a higher electrical current that is applied to the water.
The electrolyzed water with a higher level of dissociation activity easily provides the reaction field for the chemical reaction to occur. At the same time, it is easy to extract the byproduct characteristics from the substances because of state of hydration instilled

around the ionic particles constituting the various substances. For this instance, we have applied this water to coffee beans to create a great coffee product.

As a result of these enhanced properties, Esperer H_2O as the newly-formed electrolyzed functional water, the following unique phenomena have resulted from it.

1) A mellowed taste for coffee.
2) A mild taste for alcohol beverages created with a combination of water.
3) A mild-but-enriched taste for foods prepared in combination with water.
4) The lessened use of raw materials for coffee, beverages and other soup stock items.

As a direct result of the redefined properties of water, the following operational and product benefits are noted in a coffee made from Arabica coffee beans.

Operational benefits: 35% reduction to the cost of goods attained through the 35% reduction in the use of coffee beans to create a finished product.

-this 35% reduction is brought about directly from the improved permeability of the Esperer water resulting in the inner-most flavors extracted from each coffee ingredient resulting in the need of 35% lesser coffee ingredients to create the same finished volume of the coffee beverage.

Product benefits: An enhanced flavored coffee with a fullness and deeper coffee aroma.

-these enhancements are a direct result of the improved permeability of the enhanced water caused by a higher state of dissociation activity, higher levels of dissolved hydrogen and oxygen and an alkaline pH introduced into a base acidic pH product.

The combined results of these improved coffee brewing properties of the water create a coffee product with:

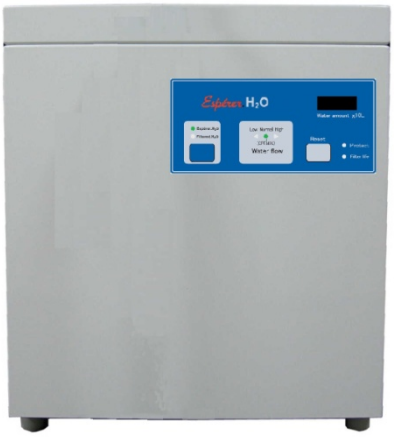
-a smoother texture
-a deeper aroma

-a lesser acidic bite
-a richer taste

With all of the improved features resulting in a "memorable and impressionable coffee experience".

Business benefits:

-improved profitablity attained directly from a reduction to the cost of goods sold.
-increase to goodwill on account of a reputation that will be built based upon the "great tasting coffee" produced by the retail establishment.



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● Coffee Companies and Brands that will benefit from the Espérer.H2O ●

Company name	Year founded	Location	Subsidiary brands
Alterra Coffee Roasters	1993	Milwaukee, Wisconsin, USA	Owned by Mars, Incorporated, since 2010
An Giang Coffee		Vietnam	
Aroma Espresso Bar	1994	Jerusalem, Israel	
Barcaffe	1970	Slovenia	Owned by Droga Kolinska[1]
Bewley's	1840	Dublin, Ireland	Java City and Rebecca's Cafe
Black Ivory coffee		Thailand	
Bridgehead Coffee	1981	Ottawa, Ontario, Canada	
Café Bom Dia		Brazil	
Café Britt	1985	Costa Rica	
Café Coffee Day	1996	Bengaluru, India	Café Coffee Day, Coffee Day Express, Coffee Day Beverages, Fresh & Ground
Cafédirect			
Caffè Nero	1997	London, United Kingdom	
Caffé Vita Coffee Roasting Company	1995	Seattle, Washington, USA	
Caribou Coffee	1992	Brooklyn Center, Minnesota, USA	
Coffee Beanery	1976	Flushing, Michigan	
Coffeeshop Company	1999	Vienna, Austria	
Colectivo Coffee Roasters	1993	Milwaukee, Wisconsin, USA	
Coop Kaffe		Oslo, Norway	Owned by Coop Norge Handel AS
Costa Coffee	1971	Dunstable, England	
Dallmayr	1985	Munich, Germany	
Death Wish Coffee			
Delta Cafés	1961	Campo Maior, Portugal	
Diedrich Coffee	1972	Irvine, California, USA	
Douwe Egberts	1753	Joure and Utrecht, Netherlands	Part of The J.M. Smucker Co. in the USA; Part of Sara Lee worldwide (excluding the USA); Kanis & Gunnik, Van Nelle
Dulce Café	1980	South Africa	
Dunkin' Donuts	1950	Quincy, Massachusetts, USA	Retail grocery products licensed for manufacture by The J.M. Smucker Co.

Company name	Year founded	Location	Subsidiary brands
Dunn Bros	1987	St. Paul, Minnesota, USA	
Eight O'Clock Coffee	1859	Montvale, New Jersey, USA	Originally created by The Great Atlantic & Pacific Tea Company, which held on the brand until 2003. Became part of the Tata family in 2006.
Equal Exchange	1986	West Bridgewater, Massachusetts, USA	
Franck	1892	Croatia	
Gloria Jean's Coffees	1979	1979 (USA); 1996 (Australia)	
Highlands Coffee	1998	Vietnam	
Illy	1933	Italy	
Indian Coffee House	Early 1940s	India	
Jittery Joe's	1994	Athens, Georgia, USA	
J.J. Darboven Americas, Inc.	1866 in Hamburg, 2014 in New York	Hamburg, Germany	Eilles, Moevenpick, Intencion (Fair Trade), Alberto, Mozart, IDEE
The J.M. Smucker Company	1897	Orrville, Ohio, USA	Folgers, Millstone Coffee, Douwe Egberts in the USA, Cafe Bustelo, Kava, Life is Good, Medaglia D'Oro, Pilon
Juan Valdez Cafe	2002	Colombia	
Julius Meinl	1862	Austria	
Kardar Kish	1999	Iran	
Keurig Green Mountain	1996	United States	
Koa Coffee Plantation	1997	Captain Cook, Hawaii, USA	
Kraft Foods	1853	Tarrytown, New York, USA	Café HAG, General Foods International, Gevalia, Jacobs, Kenco, Maxwell House, Nabob, Sanka, Tassimo
Lavazza	1895	Italy	
Massimo Zanetti	1973		Chase & Sanborn Coffee Company, Chock full o'Nuts, Hills Brothers Coffee, MJB, Segafredo Zanetti
Matthew Algie	1864		
Maxwell House	1892	New York, United Kingdom	

Company name	Year founded	Location	Subsidiary brands
Melitta	1908	Minden, Germany	
Mikel Coffee Company	2008	Larissa, Greece	
Miko Coffee	1801	Belgium	
Nestlé	1866	Switzerland	Nescafé, Nespresso, Taster's Choice
New England Coffee	1916	Malden, Massachusetts, USA	
Peet's Coffee & Tea	1966	Emeryville, California, USA	
Philz Coffee	2003	San Francisco, California, USA	
Red Diamond	1906	Birmingham, Alabama, USA	
7-Eleven Corporation	1927	Dallas, Texas	
Starbucks	1971	Seattle, Washington, USA	Seattle's Best Coffee, Starbucks, Tazo
Starr's Market	1979	Missouri, USA	
Strauss	1930	Petah Tikva, Israel	Elite Instant Coffee, Elite Turkish Coffee, Platinum
Tchibo	1949	Hamburg, Germany	
Taylor's Coffee	-	Harrogate, West Yorkshire	Owned by Betty's and Taylor's Group
Tim Hortons	1964	Hamilton, Ontario, Canada	
Top Shelf Coffee	1994	Warren, Ohio	
Torke Coffee Roasting Company	1941	Sheboygan, Wisconsin	Weeden Creek Farms
Trung Nguyên	1996	Vietnam	
Tully's Coffee	1992	Seattle, Washington, USA	
Van Houtte	1919	Canada	