

## How is alcohol made?

The type of alcohol in the alcoholic drinks we drink is a chemical called ethanol. To make alcohol, you need to put grains, fruits or vegetables through a process called fermentation. During fermentation, yeast breaks sugar down into ethanol and carbon dioxide. This process is done without any air present and once complete, the carbon dioxide gas bubbles out into the air, leaving ethanol and water behind.

So to put it simply:

**“Sugar + Yeast + Time = Alcohol + CO<sub>2</sub>”**

Fermentation allows us to make beer, wine, cider, and similar alcoholic beverages, up to around 15% ABV (alcohol by volume). This is well and good, but what if we want something a bit stronger? That's where distillation comes in.

**Distillation** is basically the process of separation the alcohol, from the rest of the non-alcoholic liquid, by heating the fermented solution, condensing and collecting the alcohol rich vapors released, as a high alcohol strength liquid (spirit), while also changing the flavor and removing the color.

### Type of distillation

**Pot still distillation** during pot distillation, the wash heats in the main chamber until boiling ethanol vapor rises to the head of the still and exits via the lyne arm. From here, vapor passes into the cooling coil, where it condenses and flows as a liquid into a collection vessel. Pot stills are used to make many of the world's great spirit styles, such as single malt scotch, cognac, many rums, and most mezcal.

**Column still distillation** has partitions, or perforated plates, that set up chambers within the still. The mash enters near the top of the still and immediately starts to sink. ... As the liquid interacts with the steam, the heat vaporizes the mash and forces the alcohol and other volatile molecules up the still. Column stills can distill proofs as high as the 95% ABV.

### Relevant terminology

**Liquor or spirit** is an alcoholic product made from grain, a fruit or a vegetable derived sugar, the product is then fermented and distilled. This yields a lower water content and a higher ABV.

**Liqueur** is a sweetened spirit with various flavours, oils or extracts.

**Aperitif/Aperitivo** is a lower ABV beverage traditionally served before a meal. It comes in a variety of flavours (usually citrus), but is usually lighter.

## Vodka

Has a Russian origin and is often called a "neutral grain spirit" because the standard method for making it is by fermenting and distilling grain. This can be corn, rye, wheat, or any other grain that the distiller chooses to use. Potato vodka has long been a popular product of Poland and other potato growing regions, such as Idaho and Scandinavian countries. Vodka can be distilled from nearly anything, though and you will find vodkas made from things like beets and grapes.

Vodka is a rectified spirit, meaning that it is often distilled at least three times. Some are distilled five or more times. The assumption is that the more times it is distilled, the cleaner and smoother it is.

After distillation, vodka may be filtered, often through charcoal. Vodka requires no aging and is ready to drink right away. However, it is cut with water from still strength to bottling proof, which is typically 40% ABV.



## Gin

Gin is a distilled alcoholic drink that derives its predominant flavour from juniper berries (*Juniperus communis*). Gin is one of the broadest categories of spirits, all of various origins, styles, and flavour profiles, that revolve around juniper as a common ingredient.

Gin today is produced in subtly different ways, from a wide range of herbal ingredients, giving rise to a number of distinct styles and brands. After juniper, gin tends to be flavoured with botanical/herbal, spice, floral or fruit-flavours or often a combination. It is most commonly consumed mixed with tonic water. Gin is also often used as a base spirit to produce flavoured gin-based liqueurs such as, for example, Sloe gin, traditionally by the addition of fruit, flavourings and sugar.

### Styles/Types of Gin

**Gin** is a juniper-flavoured spirit made not via the redistillation of botanicals, but by simply adding approved natural flavouring substances to a neutral spirit of agricultural origin. The predominant flavour must be juniper. Minimum bottled strength is 37.5% ABV.

**Distilled gin** is produced exclusively by redistilling ethanol of agricultural origin with an initial strength of 96% ABV (the azeotrope of water and ethanol) in stills traditionally used for gin, in the presence of

juniper berries and of other natural botanicals, provided that the juniper taste is predominant. Gin obtained simply by adding essences or flavourings to ethanol of agricultural origin is not distilled gin. Minimum bottled strength is 37.5% ABV.

**London gin** is obtained exclusively from ethanol of agricultural origin with a maximum methanol content of 5 grams per hectolitre of 100% ABV equivalent, whose flavour is introduced exclusively through the re-distillation in traditional stills of ethanol in the presence of all the natural plant materials used, the resultant distillate of which is at least 70% ABV. London gin may not contain added sweetening exceeding 0.1 grams of sugars per litre of the final product, nor colourants, nor any added ingredients other than water. The predominant flavour must be juniper. The term London gin may be supplemented by the term dry. Minimum bottled strength is 37.5% ABV.

### Who invented the gin & tonic?

The cocktail was introduced by the army of the British East India Company in India. In India and other tropical regions, malaria was a persistent problem. In the 1700s Scottish doctor George Cleghorn studied how quinine, a traditional cure for malaria, could be used to prevent the disease. The quinine was drunk in tonic water, however the bitter taste was unpleasant. British officers in India in the early 19th century took to adding a mixture of water, sugar, lime and gin to the quinine in order to make the drink more palatable, thus gin and tonic was born.

## Tequila

Is a distilled beverage made from the blue agave plant, primarily in the area surrounding the city of Tequila of the central western Mexican state of Jalisco. Mexican laws state that tequila can only be produced in the state of Jalisco and limited municipalities in the states of Guanajuato, Michoacán, Nayarit, and Tamaulipas.

Tequila is made by distilling the fermented juices of the Weber blue agave plant (*Agave tequilana*). It looks like a giant aloe vera with spiked barbs on the tips. After seven to 10 years of growth, the agave plant is ready to be harvested.



Underground, the plant produces a large bulb called a *piña*, which looks similar to a white pineapple. The agave's leaves are removed and the piñas are quartered and slowly baked in steam or brick ovens until the starches are converted to sugars. The baked agave is crushed to extract the sweet juice, which is then fermented with yeast to convert the sugar into alcohol.

Tequila is distilled in either pot or column stills. Tequila can be between 35% and 55% alcohol content. It must contain at least 40% alcohol to be sold in the United States.

### Four categories for tequila

**Blanco "white" or plata "silver"** white spirit, unaged and bottled or stored immediately after distillation, or aged less than two months in stainless steel or neutral oak barrels

**Reposado "rested"** aged a minimum of two months, but less than a year in oak barrels of any size

**Añejo "aged" or "vintage"** aged a minimum of one year, but less than three years in small oak barrels

**Extra Añejo "extra aged" or "ultra aged"** aged a minimum of three years in oak barrels; this category was established in March 2006.



## Mezcal

Both tequila and mezcal are made from the harvested core of the agave plant, otherwise known as the "piña." While mezcal can be produced from up to 50 species of the agave plant, Tequila can be made from just one: agave tequilana Weber, or Weber blue agave.

However, that's where the similarities in production end. Tequila is typically produced by steaming the agave inside industrial ovens before being distilled two or three times in copper pots. Mezcal, on the other hand, is cooked inside earthen pits that are lined with lava rocks and filled with wood and charcoal before being distilled in clay pots. While some large-scale mezcal producers have adopted modern methods, artisanal mezcal makers continue to use this more traditional method, which is the source of the smokiness commonly associated with mezcal.

Mezcal is also grouped into three categories by age, including joven (blanco or abacado/0-2 months), reposado (2-12 months) and añejo (at least one year).

### The Worm

Likely, you've wondered what's up with the worm? Well, there is a larva in most of the bottles of mezcal. This is the larva of the moth that lives in the heart of the agave plant. It is a tasty snack in parts of Mexico. Which is how it ended up drowned in a bottle of mezcal.

When everyone who has a barn is firing up their still and making mezcal or tequila, how do you get people to buy yours? People love to eat the worms live or roasted. If they see it in the mezcal bottle they'll buy it.



## Rum

Is a distilled alcoholic drink made by fermenting then distilling sugarcane molasses or sugarcane juice. The distillate, a clear liquid, is usually aged in oak barrels. Most rums are produced in Caribbean and American countries. Rums are produced in various grades. So let's find out more about the most common types of rum that are available.

**Light rum** is also known as white or silver rum and has nearly no color and a light flavor. It is filtered multiple times to remove any impurities and is not aged very long. This is the most common rum in a Mojito.

**Gold rum** is also known as amber rum. This rum has been aged in wooden casks for some period of time which gives the spirit its signature color and sweeter, richer flavor.

**Black rum** is also known as dark rum and has been aged the longest of any of these types of rum. The extended time it spends in wooden casks gives it a dark color and deep, smoky-sweet flavor. The most common brands are Gosling's Black Seal Rum, the iconic spirit in a Dark & Stormy, and Myer's Dark Rum, used in many tiki drinks.

**Spiced rum** typically is aged for the same length of time as black rum but spices and caramel colorings are added to give it a signature sweet spice taste. A brand you may be familiar with is Captain Morgan.



## Cachaça

The Brazilian sugar cane spirit known as cachaça (kah-SHA-sah) is one of the most popular categories of cane spirit in the world. Made from fresh sugar cane juice, cachaça is often bottled with little or no aging in barrels, presenting a full-flavored profile spirit most popularly enjoyed in cocktails, such as the caipirinha (kai-pee-REEN-yah), the national drink of Brazil.

Some premium products, referred to as artisanal cachaças, are often made in small quantities and aged in woods indigenous to Brazil. The region of Minas Gerais in Brazil is well known for producing artisanal cachaça. Using natural yeast in the environment, these spirits are distilled in copper pots in small batches. Maturing in wood develops special aroma components and softens the finish.



## Whisky & Whiskey

Whisky or whiskey is a type of distilled alcoholic beverage made from fermented grain mash. Various grains (which may be malted) are used for different varieties, including barley, corn, rye, and wheat. Whisky is typically aged in wooden casks, generally made of charred white oak.

**Scotch Whisky** is always spelled without the e. In order to be officially called Scotch whisky. The spirit needs to mature in oak for at least three years. Production and maturation must take place in Scotland. Single malt Scotch whisky must be made from 100% malted barley.

**Irish whiskey** is always spelled with an e – this is a key difference between Irish whiskey and Scotch whisky. Irish whiskey uses little or no peat, so there is usually no smokiness in these whiskies. Irish whiskey may contain a distillate of malt, a barley distillate and a portion of grain spirit. Irish whiskey is distilled three times. Like Scotch whisky, Irish whiskey must be matured for a legal minimum of three years.

**Bourbon** is American whiskey that has been made from a minimum of 51% corn with rye and malted barley. Examples of bourbon include Jim Beam and Wild Turkey whiskey. Bourbon spirit is always matured in fresh oak casks, which are charred to yield more flavour.

**Rye whiskey** is made in the same way as bourbon, but is made up of 51% rye. Examples of rye whiskey include Wild Turkey Rye and Jim Beam Rye. Rye whiskies tend to be spicier in character. Tennessee whiskey is made in the same way as bourbon, but it is charcoal mellowed before maturation.

**Japanese whisky** came into being in the 1920s. It was inspired by Scotch whisky – Scottish academic institutions trained the first whisky makers of Japan. This means that the process of making Japanese whisky is very similar to Scotch whisky production, however Japanese whisky has no legal minimal maturation period. Most blended Japanese whiskies do use an amount of Scotch malt whisky in their composition – usually this is aged over five years old.

## – Scotch Whisky Regions

**Speyside** the most densely populated Whisky region in the world, famous for fertile glens and, of course, the River Spey. Speyside whiskies are known for being fragrant with peat and full of fruit. Apple, pear, honey, vanilla and spice all have a part to play in expressions from this region, which are commonly matured in Sherry casks.

**Lowland** soft and smooth malts are characteristic of this region, offering a gentle, elegant palate reminiscent of grass, honeysuckle, cream, ginger, toffee, toast and cinnamon. The whiskies are often lighter in character and perfect for pre-dinner drinks.

**Highland** this region, which also takes in the islands, has a huge diversity of flavours and characters. From lighter whiskies all the way through salty coastal malts, the Highlands offer a Scotch for all palates.

**Campbeltown** whiskies are varied and full of flavour. Hints of salt, smoke, fruit, vanilla and toffee mingle in whiskies of robust and rich character.

**Islay** (pronounced 'eye-luh') is a magical island where the majority of its population are involved in whisky production. Famous for fiery, heavily peated whiskies.

## Brandy/Cognac/Armagnac/Calvados

**Brandy** is a spirit produced by distilling wine. Brandy generally contains 35–60% ABV and is typically drunk as an after-dinner digestif. Some brandies are aged in wooden casks. Others are colored with caramel coloring to imitate the effect of aging, and some are produced using a combination of both aging and coloring. Varieties of wine brandy can be found across the winemaking world. Among the most renowned are Cognac and Armagnac from southwestern France.

**Cognac** is a type of brandy, and after the distillation and during the aging process, is also called eau de vie. It is produced by twice distilling white wines produced in any of the designated growing regions. The white wine used in making cognac is very dry, acidic, and thin. Though it has been characterized as "virtually undrinkable", it is excellent for distillation and aging. It may be made only from a strict list of grape varieties. For it to be considered a true cru, the wine must be at least 90% Ugni blanc (known in Italy as Trebbiano), Folle blanche and Colombard, while up to 10% of the grapes used can be Folignan, Jurançon blanc, Meslier St-François (also called Blanc Ramé), Sélect, Montils, or Sémillon.

Cognac production falls under French appellation d'origine contrôlée designation, with production methods and naming required to meet certain legal requirements.

**Henri IV Dudognon Heritage Cognac Grande Champagne** – At \$2,000,000 a bottle, this cognac is also known as the DNA of cognac. The most expensive bottle of cognac in history comes bottled in crystal, it is 24-karat gold dipped with Sterling platinum and features 6,500 certified cut diamonds as decoration. It's filled with 100 cl. Ultra Premium Cognac Grande Champagne, aged in barrels for more than 100 years to produce an alcohol content of 41%.

### The official quality grades of cognac

**V.S. (Very Special)** or ★★★ (three stars) designates a blend in which the youngest brandy has been aged for at least two years in a cask.

**V.S.O.P. (Very Superior Old Pale)** or Reserve designates a blend in which the youngest brandy is aged for at least four years in a cask. Napoléon designates a blend in which the youngest brandy is aged for at least six years.

**XO (Extra Old)** minimum age of the youngest brandy used in an XO blend was increased to 10 years in April 2018; this rule was originally scheduled for implementation in 2016, but was postponed due to inadequate stocks. The Napoleon designation, previously unofficial, is used to specifically denote those blends with a minimum age of six years that do not meet the revised XO definition.

**Hors d'âge (Beyond Age)** is a designation which BNIC states is equal to XO, but in practice the term is used by producers to market a high-quality product beyond the official age scale.



**Armagnac** is a grape brandy produced primarily from four grape varieties (Ugni Blanc, Folle Blanche, Baco 22A and Colombard), although 10 are permitted. Made in the Gascony region of France to the south of Bordeaux, it is distilled only once and often aged in oak barrels for many decades. Armagnac can be divided into two main categories: vintage and non-vintage.

**Vintage Armagnacs** are distilled from grapes grown in a single year, with the date displayed on the bottle.

**Non-vintage Armagnacs** can either be labelled by age, where the number of years quoted relates to the youngest component of the blend or by category: VS (minimum two years in wood), VSOP (at least four years), XO (more than six years) or Hors d'Age (10 years plus).

Armagnac was one of the first areas in France to begin distilling spirits, but the overall volume of production is far smaller than cognac production and therefore is less known outside Europe.



**Calvados** is apple cider distilled into Brandy. But, in reality, it's much more than that. For starters, it's not made from just one kind of apple. There are well over 100 different apple varieties permitted in its production. And not only does the spirit differ by area in which the apples are grown, the production and aging methods also vary. In a similar fashion as their spirited neighbors, Calvados styles can be as binary as Cognac versus Armagnac.

Apples used for production are divided into four categories which are always blended when destined for Calvados. Bitter varieties contribute flavor while tart varieties offer acidity, and sweet varieties come packed with sugar to aid fermentation while the rest is simply bittersweet. With triple digits worth of apples to choose from, distillers have the ability to find a harmonious blend that best suits their desired style.

When a specific age (in years) is indicated the number reflects the youngest portion, meaning the blend will also include spirit that's far older than what's printed on the label. A vintage statement, on the other hand, means that spirit has come from a single year rather than several different ones. Additionally, Calvados can be bottled by age category as listed below

Fine, Trois Étoiles, Trois pommes, VS - 2 years  
Réserve, Vieux - 3 years  
VO, VSOP, Vieille Réserve - 4 years  
XO, Très Vieux, Extra, Très Vieille Réserve,  
Napoléon, Hors d'âge - 6 years