# THE RUM UNIVERSITY

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# THE CLASSIFICATIONS OF RUM

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# The Classifications of Rum

would like to thank you for picking up this material; I truly hope you will find it informative. The mission of The Rum University is to educate consumers and members of the industry about this wonderful distilled spirit. What is it? Where does it come from? How many different types are there? These are all very common questions, and by the time you reach the end of this lesson, you will be able to answer the all authoritatively.

In the following pages you will find a compilation of material that we published originally in "Got Rum?" between the months of April and November of 2011.

You can find additional rum lessons at the University's official site (www. rumuniversity.com), you can also keep up to date by reading the monthly "Got Rum?" Magazine (www.gotrum.com), which is full of news, reviews, technical articles, historical data, exclusive interviews and much more.

If you are a member of the industry, you can arrange for us to teach this or other courses at your next corporate meeting or consumer event. We can also customize material for your shareholder meetings or for newly recruited executives.

We look forward to serving your needs and to elevating the global image of rum.

Cheers!

Luis Ayala, Founder, Rum University
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# **Classifications of Rum, Part 1**

n this issue, we explore the classifications of rum based on the raw ingredients used in its fabrication. Additional classifications will be published in subsequent issues. If you have suggestions for topics, please send them to us. Once completed, this Rum University lesson will have covered the following subjects.

Classifications of rum based on raw material Classifications of rum based on fermentation method Classifications of rum based on distillation method Classifications of rum based on age Classifications of rum based on blending technique Classifications of rum based on style Classifications of rum based on added flavors Classifications of rum based on alcohol strength Classifications of rum based on color Classifications of rum based on marketing hype

**Sugarcane Juice**: Many French rums (rhums) are made from 100% sugarcane juice, which is then fermented, distilled and aged. These rums tend to contain a high level of floral/herbal aromas and are clearly differentiated from molasses-based rums. In French-speaking rum-producing countries, rums made from sugarcane juice are known as "Rhum Agricole," to differentiate them from "Rhum Industriel," which is made from molasses. Sugarcane juice is known as "Guarapo" or "Garapa" in most Spanish-speaking countries, and is obtained by crushing or pressing the freshly-harvested sugarcane stalks.



Making guarapo from sugarcane. Old sugar mill and steam locomotives museum in José Smith Comas, Matanzas province, Cuba. Photograph by Panther.

Molasses: When sugar processing plants extract sugar from the sugarcane juice, they boil the juice until crystals start to form, leaving behind a thick liquid known as molasses. Depending on how long they boil the juice and how much sugar they take out, one is left behind with Grade A Molasses (highest quality - highest percentage of fermentable sugar left), Grade B Molasses (slightly lower quality than Grade A), Grade C Molasses, Grade D Molasses and, finally, Black Strap Molasses (lower percentage of fermentable sugars, highest concentration of minerals). The better rums in the market are made using higher quality molasses because they contain a higher percentage of fermentable sugars and



a lower percentage of chemicals (used to extract sugar crystals) that can interfere with yeast during the fermentation of the molasses.



Macro photograph of a pile of sugar. Photographed by Lauri Andler (Phantom).

**Sugar**: Granulated sugar is sometimes used to supplement the sugars found in molasses, although it makes for a more expensive ingredient and the resulting alcohol lacks many of the subtle characteristics that we typically associate with good rums.

Brown sugar has more natural flavors than white sugar does and, as an ingredient, it is often used to sweeten the alcohol after distillation, just prior to bottling. Un-aged alcohol can be made more palatable by increasing its sweetness.

**Other**: A couple of distilleries (in Eastern Europe, possibly elsewhere) have distilled alcohol from fermented sugar beet extracts and have attempted to sell the resulting alcohol as rum. Fortunately they have faced opposition from larger markets and have not been able to export the product as such. Sugar beets, a member of the Chenopodiaceae family, are a great source of sucrose and a viable alternative to sugarcane when the goal of cultivation is obtaining sugar as a final product (sugar from sugar beets accounts for about 30% of the world's production). To our knowledge, none of the significant rum producing or consuming countries have laws that allow for alcohol made from fermented sugar beets to be labeled and sold as rum.

**Summary:** Rum is made exclusively from sugarcane or its by-products, anyone telling you otherwise is attempting to deceive you.



Classifications of Rum, Part 2

n this issue, we explore the classifications of rum based on the fermentation method employed in its production. If you missed Part 1, please visit the website (www.gotrum.com) and download the April 2011 issue.

Fermentation refers to the process of converting sugars into alcohol (ethyl alcohol or ethanol). This is achieved by combining a yeast with the source of sugar. The most common yeast employed in the industry is *Saccharomyces cerevisiae*.

As the yeast converts sugars into alcohol, it releases carbon dioxide, yeast biomass and very small quantities of other products such as glycerol, fusel oils, aldehydes and ketones. The chart to the right displays a ratio of sugar to alcohol as fermentation takes place. These numbers are typical of the alcoholic beverage industry, not of the fuel alcohol industry.



Source: The Alcohol Textbook, Third Edition.

**Natural (Spontaneous) Fermentation:** Natural fermentation is similar to the process used in to make Lambic-style beer. Distilleries rely on wild, naturally occurring yeast, present in the air and in the cane juice to convert the sugars (sucrose) in the mash into alcohol. Natural fermentation takes place in open containers to maximize the exposure of the mash to the air. This type of fermentation, depending on the size of the vat, can take from one to two weeks, and the results are not 100% duplicable, for this reason this method is not commonly used.

**Controlled Fermentation (batch):** In this method, a predetermined strain of yeast is introduced into the mash and allowed to perform its job. To reduce the risk of natural fermentation from occurring, the controlled yeast is first mixed with a small batch of the mash, in some cases just a couple of ounces. Next, the yeast is allowed to multiply and reach a predetermined concentration. This starter is mixed with a larger amount of liquid, around a gallon, from the mash. This process is repeated two or three times until a large amount of highly concentrated starter is achieved, which is then added into the large fermentation tanks. Controlled fermentation done in this way can take from as few as two to three days to as many as seven and the results are very predictable and reproducible.

**Controlled Fermentation (continuous):** One of the most recent trends in the fermentation industry is that of fermenting in a continuous process rather than in batches. As the name implies, this method consists of a main fermentation tank that continuously receives a stream of diluted molasses. While the influx of molasses keeps the yeast thriving in the medium, an equal amount of liquid is extracted from a different place in the fermentation tank, already "digested" and ready to be distilled. While the concept of continuous fermentation is relatively new to the rum industry, it is not so in other fields, such as the medical industry. An early continuous process was a vinegar generator in which acetobacter attached to wood shavings inside a container with one opening on top and another one at the bottom. Trickling a sugar solution down through the container packed with the wood shavings produced vinegar. The acetic acid discourages contamination at conditions where the acetobacter thrive.

**Summary:** Regardless of which method is employed, fermentation is at the core of the alcohol industry. Without fermentation there would be no beer, wine or distilled spirits.



# ERUNATION DE LA Classifications of Rum, Part 3

n this issue, we explore the classifications of rum based on the distillation method employed in its production. If you missed Part 1 or Part 2, please visit the website (www. gotrum.com) and download the previous issues.

By definition, distillation is the process of separating one element from others in a liquid solution through a process of boiling and condensation of vapors.

Distillation is an essential part of making rum. Its first objective is to separate the alcohol from the fermented wash produced during the fermentation process. Its second objective is to remove the undesirable congeners from the alcohol and to retain the desired ones.

During distillation, heat is applied to a liquid mix until it reaches boiling. At this point, the vapor being released has a high concentration of the element in the mix with the lowest boiling point. Once this component has been evaporated from the mix, if heat continues to be applied, the element with the next lowest boiling point will commence to evaporate, and so on. Proper distillation and



Pot Still, Mt. Gay, Barbados

condensation techniques allow for a high degree of separation of components from a liquid mix. There are two distinctive types of distillation devices: pots and columns.

**Pot Still**: These are the earliest distillation devices (also used in the production of Brandy and Scotch). A basic pot still consists of three parts: the kettle, where the liquid mixture is boiled, the condenser, which cools down the vapors coming from the kettle, and the gooseneck, which connects the kettle to the condenser. The liquid obtained from this type of distillation is also known as "single distillate," since it is processed through the still only once. Typically this liquid is processed a second time, thus producing a "double distillate" which is cleaner and stronger than the single distillate. Several distilleries have taken this a step further by running the distillate a third, even a fourth time through the still, obtaining a cleaner, stronger, more rectified spirit at the end of each run. Because the amount of liquid that can be distilled at one time with a pot still is limited to the size of the kettle, distillers employing this method must perform their work batch by batch, which is a very labor intensive process (the kettle must be cleaned in between batches).

**Column Still**: The continuous distillation system was created in an attempt to make the distillation process more consistent. It also reduced the amount of work required to process each batch, thus allowing for higher volumes of alcohol to be produced. A distillation column is constructed much like a vertical maze, made up of a number of horizontal trays placed at different levels throughout the column. Here the fermented liquid mixture is introduced into the column at its highest level while steam is introduced at its lowest level. As the liquid makes its way down the column, it is heated by the surrounding steam, and the alcohol in the mix is vaporized. Once it reaches the bottom of the column, the "wash" contains no alcohol and is removed through a release valve. The saturated steam is collected from the top of the column and is then cooled down, allowing it to condense. Depending on the type of alcohol desired, column still operators will employ several columns, each one feeding the next, each one producing a cleaner, stronger, more "rectified" spirit.



Figure 6. Perforated trays.





Distillation contactors (trays). Source: The Alcohol Textbook, 3rd Edition, pg. 275



When classifying rum based on its age, all products fall within two main catogores: Unaged and Aged. Aged rums can then be sub-categorized into young, medium, old and very old. Terms such as *Reserva, Añejo, Viejo, Antiguo* and *Envejecido* are often employed on labels and/or product names. They all connote aging, but none of these suggests a particular number of years.

**Unaged**: Technically, unaged rum is not rum, but rather aguardiente, which is ethyl alcohol with or without a lot of congeners, depending on the distillation method. There have been claims by some companies that their products are "bottle-aged" or "aged in stainless steel containers." Both of these mean the alcohol is unaged, as only time spent inside a wooden barrel constitutes as aging.

## **Observations:**

1 - Rum does not age in stainless steel containers or glass bottles, contrary to claims made by some creative marketers and misinformed writers.

2 - Adding wood chips to rum does not constitute aging either, unless the combination of rum and chips is then stored inside an oak barrel.



Stainless Steel Tank, NOT for aging!

**Aged**: The age of a rum refers exclusively to the amount of time the rum spent inside a wooden (typically oak) barrel prior to bottling.

In the USA, if a rum label displays an age statement, by law this age has to be that of the youngest rum in the blend (if the rum is blended). In Europe, the same rum's label can instead display the age of the oldest barrel-aged rum in the blend (if the rum is blended).

Some countries allow barrels in their aging warehouses to be topped off, which reduces the amount of air space and thus reduces the amount of rum lost to evaporation. Other countries do not allow topping, resulting in higher evaporation losses each year.

It is also important to note the weather conditions of the aging warehouse and/or country: hotter climates will age a rum faster than cooler climates. So a 3 year old rum aged in Barbados will mature as much or more than a 6 year old rum aged in Scotland.

Age alone is not an indicator of quality, as climate (natural and artificial) dictate how the rum interacts with the barrel while in the aging warehouses. Knowing where a rum comes from, the laws of that country, and the age statement (if one is provided) on the label, are all pieces of the puzzle needed to fully understand a rum's character.

## Why is aging important?

When first distilled, sugarcane ethanol (raw alcohol) has a crystalline and absolutely transparent appearance. When distilled with the purpose of creating rum, the distinctive flavors found in the distillate are the result of many compounds produced during alcoholic fermentation (for more on fermentation see Classifications of Rum, Part 2).

The characteristic fruity aromas of the bouquet are primarily due to a mixture of: hexyl acetate (green, sweet fruit aroma), ethyl caproate (apple, pineapple-like aroma), iso-amyl acetate (banana-like aroma), ethyl caprylate (apple, berry-like aroma) and 2-phenylethyl acetate (fruity, flowery flavor with a honey note)

When aged in wooden barrels, these fragrances and flavors are modified and enhanced, therefore Master Blenders pay maximum attention during the aging stage in order to create a harmony between the original freshness and the maturity of fragrance that only wood can give.

Distillates are excellent dissolvers and can easily extract substances contained in the wood such as lignin. Since wood is porous, it allows the distillate within the barrel to transpire over time, the result is that lignin and many other substances oxidize and offer unmistakable fragrances such as vanilla, tobacco and sweet spices, as well as intense and mature aromas of cocoa, liquorice and cinnamon.

It is only through barrel aging that sugarcane ethanol becomes rum (many rum producing countries do not allow anything younger than 2-3 years to be called "rum"). It is also during aging that rum takes on hues ranging from light straw-color to darker and amber shades, depending on the length of aging and the type of wood used. The most common wood used to make barrels for aging rum is oak (both French and American oak), among the most expensive are cherry-wood, acacia and almond wood.



A look inside a wooden cask. Source: El Pantera



n this issue, we explore the classifications of rum based on the blending technique employed in its production. If you missed Parts 1 through 4, please visit the website (www. gotrum.com) and download the previous issues.

**Single Barrel**: In its purest form, a *Single Barrel Rum* is one where each bottle of the finished product is clearly identified with the barrel that it was filled from (usually a barrel number and a bottle number). Some countries allow the distilleries to "top off" barrels using rum from other barrels of the same age. Reducing the amount of air in the barrels this way reduces the amount lost to evaporation (the *angel's share*).

A typical 200 liter barrel will yield at most a batch of 22 cases of 12 750ml bottles each. Because barrels tend to vary a lot (due to tannins, resins, etc.), each batch will have characteristics that make it unique from other batches. Some companies empty hundreds of barrels of rum into a large wooden mixing vat, where the rum rests for weeks or months before being bottled, calling the resulting product a "single barrel", referring to the mixing vat, rather than to the individual barrels.

Single barrel rums are typically more expensive than other types and are less consistent over time.



**Solera**: The Solera method is sometimes employed in the blending of rums. Originally developed by the Spanish and often used in the production of Sherries, it consists of a series of barrels placed in long rows, stacked four, five or more levels high, each row containing a different "vintage."

Rum ready to be bottled is drawn from the bottom level of barrels. Only about one third of the rum in each barrel is removed. At this point, rum from the barrels above is used to refill the bottom barrels and so forth until all the levels are full again. Each year, as the new rum is added to the top barrel, some rum is moved down to the next level for aging. As a result, the young rum picks up some of the characteristics of the older rum and provides

consistent quality year after year.

Solera rums are typically the most consistent over time, but are also more laborious.

**Traditional or Classic**: Blending is not a science, it is the art of mixing different rums of different types and ages together, and when desired, adding flavoring or coloring agents. Most rums produced in the world are traditionally blended after maturation to achieve the particular characteristics desired.

Blending usually takes place in very large containers where individual barrels are emptied and mixed together to ensure product consistency. Some distilleries will blend pot still and column



still rums together to come up with a light, yet complex character. Other companies will mix column still rums of different ages and styles (some lighter, some heavier) in order to achieve unique flavor profiles.

Traditionally or Classically blended rums are the most common in the world because in the complex world of blending, they are the easiest to produce.



Aging warehouse, Industrias Licoreras de Guatemala.



n this issue, we explore the classifications of rum based on their style. If you missed Parts 1 through 5, please visit the website (www.gotrum.com) and download the previous issues.

 American (Colonial): This style of rum is reminiscent of the original product distilled by enterprising Colonials with brandy-making experience in the 1700's and 1800's. The rum was pot-stilled, had a high level of congeners and was aged (more than likely very briefly), in oak containers only long enough to transport it to markets and to keep it while being sold to eager consumers.

A good representative of this style is Prichard's Fine Rum (Prichard's Distillery), distilled in Tennessee.

 Cuban and Puerto Rican: The Puerto Rican rum style is derived from the Cuban style, in which the goal is to distill the lightest, cleanest, most rectified alcohol possible, and then to add flavor to it only through careful aging and blending. For this reason, Cuban and Puerto Rican rums are considered to be "light" rums.

A great example of Puerto Rican style is Don Q Grand Añejo from Serrallés.

• **French**: Not all rums (rhums) made in French-speaking countries are considered to be French in style. Only those distilled in pot stills from fermented sugarcane juice (as opposed to distilled from molasses) are considered French in style. French rums are characterized by a large amount of congeners and aldehydes (fruity and floral notes).

Good representatives of this style are made in Martinique (for example Depaz), in the French West Indies.

 Jamaican/Guyanese: Epitomized by dark, heavy and potent products, rums from these two countries have defined this category and, subsequently, have fought against the ensuing stereotype. While not all rums produced in these two countries are true to the original style, a few of them continue to perpetuate it, perhaps no one more than Myer's Jamaican Rum.

A great example of a modern Jamaican- style rum is Appleton's V/X.

• Naval (British Royal Navy): Rum was distributed to British sailors daily as a ration meant to keep morale high, a much needed incentive since the work was arduous and financially not very rewarding. Naval rum was rarely purchased from a single country/distillery,

instead the Admiralty had a "recipe" which typically included combining rums from Barbados, Jamaica and Guyana (read "Rum Yesterday and Today" by High Barty-King and Anton Massel for more information).

While Pusser's is the most commonly named representative of this genre, British Royal Navy Imperial Rum is the most authentic.

• **Spanish**: When Spanish settlers arrived to the New World, they brought their brandymaking skills (and equipment) with them. It did not take a very long time for them to start using locally abundant fruits and sugarcane to produce alcohol. Spanish-style rums are characterized by their highly-fruity, brandy-like bouquet, with dominant raisin/currant/berry elements. While these can be produced using column stills, most rums in this category are produced by distilleries that employ pot stills.

A great example of this style is Ron Zafra Master Reserve from Panama.

Other: Different countries are using forms of sugar that are readily available in their markets but which are not typical outside their countries. One such example is Mexico, where some distilleries have began fermenting and distilling *piloncillo*, which is a very unrefined and moist form of compacted brown sugar. Rums distilled from piloncillo have very peculiar organoleptic properties that distinguish them from other rums. Future practice will dictate if this is the beginning of a "Mexican Style" of rum or not.



Rum styles from around the world



n this issue, we explore the classifications of rum based on their flavors and alcohol content. If you missed Parts 1 through 6, please visit the website (www.gotrum.com) and download the previous issues.

## Rum types based on added flavors

 Fruit Flavored: For the most part, fruit-flavored rums sold throughout the world are nothing more than un-aged alcohol (ethanol) with flavoring, coloring (sometimes) and sweetener added. Such products should not be sold as rum, since they are made with un-aged alcohol.

A great example of a fruit-flavored rum that is made using aged rum is Santa Teresa's Rhum Orange, from Venezuela.

 Spiced: Like fruit-flavored rums, most spiced rums sold are made with unaged rum (ethanol). The most typical ingredients used to flavor these products are: vanilla, cinnamon, nutmeg, clover, coffee and sugar. From these, only cinnamon, nutmeg and clove are considered true spices.

An excellent example of a spiced rum is Sailor Jerry Spiced Navy Rum.

Herbal or Botanical: This category is comprised by rums with ingredients such as: tree or plant leaves, bark, flowers or roots. These rums usually claim to have healing or aphrodisiac powers and are often consumed as digestifs.

A great example of a botanical rum is the Mamajuana (or Damajuana) from the Dominican Republic. Another example is Bois Bandé Rum from the Caribbean. Both of these are considered to have many healing properties and are consumed regularly by people in their respective countries.

**Other**: There are rum-based beverages or infusions available throughout the rum producing world which fall outside of the previous three categories.

Examples of rums in this category are the peanut-flavored rum from St. Lucia (Nutz N' Rum) and the gun powder-flavored rum from New Zealand (Smoke & Oakum's Gunpowder Rum).

## Rum types based on alcohol content

- Regular/Standard: Any rum that is bottled and sold with an alcohol strength between 35% and 45%. Most of the rums consumed in the world fall in this category. Some countries require the strength to be at 37.5% while others require it to be at 40% or higher.
- Strong and Over-proof: Strong rums have alcohol strengths over 45%, typically around 55% but lower than 75%. Traditional over-proof rums have alcohol strengths of 75% or higher. Exercise caution when tasting these rums, either dilute them (up to 50%) with water or drastically adjust the amount sampled. An interesting fact about overproof rums is that ice does not float on them due to the specific weight of the ice and the rum.
- Rum Liqueur: laws vary from country to country regarding what constitutes a liqueur but everyone agrees that the alcohol strength is lower than that of straight rum, and that the sugar content is quite elevated. The combination of low alcohol and high sugar result in a smoothtasting product which people with a low tolerance for alcohol tend to favor.





We look to the final installment of the **Classifications of Rum** series from **The Rum University**. In this issue, we explore the classifications of rum based on their color and the marketing hype surrounding them. If you missed Parts 1 through 7, please visit the website (www.gotrum.com) and download the previous issues of "Got Rum?". You can also download the entire series as a single PDF from the university's website (www. RumUniversity.com).

## Rum types based on color

- White: Also known as Clear, See-Through, Crystal, Blanco, Blanc, Silver and Plata. This
  is the most popular rum color (by volume) in the world, since it is the cheapest to produce.
  Most white rums are un-aged or aged for only one year or less, although there are notable
  exceptions from countries with aging laws, such as Flor de Caña Extra Dry 4 Year Old
  from Nicaragua, which is carbon filtered after aging for 4 years to remove the color. Many
  years ago, Trinidadian distillery Caroni produced what was perhaps the oldest white rum
  in the market: Superb White Magic, which had been aged for 7 years.
- **Gold**: Also known as *Oro*, *Brown*, *Amber*, *Ambré*, *Paille* and *Dorado*. This color denotes aging, as the color is derived from tannins in the barrel staves. Unfortunately the color can also be easily obtained by adding caramel or molasses to white rum. When assessing the age of a rum based on its Golden/amber color, look for the signs of true aging (for example oakiness, in the aroma and the taste) and watch out for the signs of caramel.
- Dark/Black: Also known as Oscuro, Mulato or Negro. Like Gold rums, the dark color can be obtained naturally (legitimately) through careful aging, but is most often the result of additives incorporated into the recipe to obtain a dramatic effect. Golden rums may be very dark and still considered Gold in color. Where is the line that separates them from Dark rums? In the USA there are no regulations regarding the use of the words *dark* or *black*, so it is up to each manufacturer to decide.
- **Other**: Flavored rums tend to be given the color of the ingredient they are trying to showcase. Coffee-flavored rums, for example, will have a richly dark, almost black color. Lime or citrus-flavored rums will sometimes have a green or orange tint. If there is a food-grade coloring agent available, it is only a matter of time before someone adds it to rum. One of the most famous examples in this category is Three-D Spirits' RedRum.

## Rum types based on marketing

Marketers are tasked with the un-enviable mission of differentiating their rums from the competition. Many rely on the intrinsic qualities (age, type of still used in its production, taste, aroma, etc.) while others resort to creative applications of the language, such as using the word *cask* instead of *barrel*, or using elegant-sounding words that really have no meaning, like *special* and *reserve*. One word that is frequently used to describe rum is *Premium*. It may surprise you to know that this word is commonly used in the industry to refer to products based on their retail *price*, not the quality.

Other meaningless terms applied to rums that have no bearing on quality include: Super Premium, Ultra Premium, Reserve, Special Reserve and Family Reserve.

Congratulations! You have reached the end of this Rum University course on the Classifications of Rum!



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