

The most famous export of Scotland is Scotch Whisky. Scotch whisky is an alcoholic beverage whose production, labeling, and marketing is governed by the Scotch Whisky Regulations that passed the Parliament of the United Kingdom in 2009. These regulations distinguish Scotch Whisky from whiskey made in many other countries. They insure that the whisky is produced and aged in Scotland, properly labeled, and marketed in a consistent manner.

All Scotch Whisky begins as Single Malt Scotch Whisky or Single Grain Scotch Whisky. Single Malt Scotch Whisky is made from water, malted barley, and yeast at a single distillery in pot stills. These distinctive stills are used to collect the alcohol produced by a mixture of roasted barley, water and yeast. Single Grain Scotch Whisky includes other grains in the fermentation process and is carried out at a single distillery. If two or more Single Malt Scotch Whiskies from different distilleries are blended together, the blend is called a Blended Malt Scotch Whisky. If two or more Single Grain Whiskies from different distilleries are blended together, the blend is called a Blended Grain Scotch Whisky. Blended Scotch Whisky is blended from Single Malt and Single Grain Scotch Whiskies.

Historically, the alcohol content of Scotch Whisky was reported as the proof of the beverage. This term was defined as 7/4 times the alcohol by volume (abv) in the United Kingdom. The origins of the term proof traces back to the rum that British sailors were allocated as part of their rations. Good rum was rum that had not been watered down to a lower alcohol content. To prove that a rum was not watered down, gunpowder was added to the rum and then tested to see if the gunpowder would ignite. If the rum contained too much water, it would not ignite. However, rum containing 57.15% alcohol by volume or greater would ignite and would be considered to have 100 degrees of proof.

Today, alcoholic beverages are labeled with the alcohol by volume. In particular, Scotch Whisky must be 40% abv or greater. It is very common to find blended whisky with an abv of 43 or 46%. The abv of whisky directly from the cask can be as high as 60% and each individual cask will have a different abv. The blender at a distillery will combine Scotch Whisky from different casks to give the product from a specific batch a consistent taste.

Suppose we want to create a Blended Malt Scotch Whisky from 10 liters of Bladnoch 9 year old Single Malt Scotch Whisky from Cask 325 (55.5% abv) with 5 liters of Bladnoch 8 year old Single Malt Whisky (46% abv). The volume of alcohol in the 9 year old Single Malt Whisky is calculated by multiplying the volume of liquid time the alcohol by volume,

$$\text{Alcohol volume} = (10 \text{ liters})(55.5\%) = 5.55 \text{ liters}$$

The volume of alcohol in the 8 year old Single Malt Scotch Whisky is

$$\text{Alcohol volume} = (5 \text{ liters})(46\%) = 2.3 \text{ liters}$$

The blend will contain a total alcohol volume of $5.55 + 2.3 = 7.85$ liters . We can divide this volume by the total volume of Scotch Whisky, $10 + 5 = 15$ liters , to find the alcohol by volume of the blend:

$$\frac{\text{Total volume of alcohol}}{\text{Total volume of Scotch Whisky}} = \frac{7.85 \text{ liters}}{15 \text{ liters}} \approx .523$$

or 52.3% alcohol by volume.

Several different cask types are used by the Scottish Whisky industry to age their products.

Type	Approximate Volume
Butt	500 liters
Hogshead	250 liters
Barrel	175 liters
Quarter	125 liters
Octave	50 liters

These casks are usually constructed from oak and have often been used to store bourbon or sherry. The casks impart unique characteristics to Scotch Whisky that make it prized by drinkers around the world.