



Fluid ounce

⚠ This is an old revision of this page, as edited by ClueBot NG (talk | contribs) at 14:08, 14 January 2018 (*Reverting possible vandalism by 106.213.233.178 to version by 2605:6000:EC87:500:D9EC:6526:4FFD:6A38. Report False Positive? Thanks, ClueBot NG. (3247373) (Bot)*). The present address (URL) is a permanent link to this revision, which may differ significantly from the current revision.

A **fluid ounce** (abbreviated **fl oz**, **fl. oz.** or **oz. fl.**, old forms ℥, fl ℥, f℥, f ℥) is a unit of volume (also called capacity) typically used for measuring liquids. Various definitions have been used throughout history, but only two are still in common use: the British Imperial and the United States customary fluid ounce.

An **imperial fluid ounce** is $\frac{1}{20}$ of an imperial pint, $\frac{1}{160}$ of an imperial gallon or approximately 28.4 ml.

A **US fluid ounce** is $\frac{1}{16}$ of a US fluid pint and $\frac{1}{128}$ of a US liquid gallon or approximately 29.57 ml, making it about 4% larger than the imperial fluid ounce.

The fluid ounce is distinct from the ounce as a unit of weight or mass, although it is sometimes referred to simply as an "ounce" where context makes the meaning clear, such as ounces in a bottle.

History

The fluid ounce was originally the volume occupied by one ounce of some substance, such as wine (in England) or water (in Scotland). The ounce in question varied depending on the system of fluid measure, such as that used for wine versus ale. Various ounces were used over the centuries, including the Tower ounce, troy ounce, avoirdupois ounce, and various ounces used in international trade, such as Paris troy. The situation is further complicated by the medieval practice of "allowances", whereby a unit of measure was not necessarily equal to the sum of its parts. For example, the 364-pound woolsack (165 kg) had a 14-pound allowance (6.4 kg) for the weight of the sack and other packaging materials.^[1]

In 1824, the British Parliament defined the imperial gallon as the volume of ten pounds of water at standard temperature.^[2] The gallon was divided into four quarts, the quart into two pints, the pint into four

Fluid ounce



An example of a 2 fl.oz shot glass in British Imperial fluid ounces

General information

Unit system	<u>Imperial units</u> , <u>US customary units</u>
Unit of	Volume
Symbol	fl oz

Conversions (imperial)

1 imp fl oz in is equal to ...
SI units	28.41306 ml
US customary units	0.9607599 US fl oz

Conversions (US)

1 US fl oz in is equal to ...
-------------------	---------------------

gills, and the gill into five ounces. Thus, there were 160 imperial fluid ounces to the gallon making the mass of a fluid ounce of water approximately one avoirdupois ounce (28.4 g). This relationship is still approximately valid even though the imperial gallon's definition was later revised to be 4.54609 litres, making the imperial fluid ounce exactly 28.4130625 ml.

SI units	29.57353 ml
Imperial units	1.040843 imp fl oz

The US fluid ounce is based on the US gallon, which is based on the wine gallon of 231 cubic inches that was used in England prior to 1824. With the adoption of the international inch, the US fluid ounce became 29.5735295625 ml exactly, or about 4% larger than the imperial unit.

Definitions and equivalences

Imperial fluid ounce

1 imperial fluid ounce =

$\frac{1}{160}$ imperial gallon

$\frac{1}{40}$ imperial quart

$\frac{1}{20}$ imperial pint

$\frac{1}{5}$ imperial gill

8 imperial fluid drams

28.4130625 millilitres^[3]

≈ 1.733871455 cubic inches

≈ 0.960759940 US fluid ounces

≈ the volume of 1 avoirdupois ounce of water^[2]

US customary fluid ounce

1 US fluid ounce =

$\frac{1}{128}$ US gallon

$\frac{1}{32}$ US quart

$\frac{1}{16}$ US pint

$\frac{1}{8}$ US cup

$\frac{1}{4}$ US gill

2 US tablespoons

6 US teaspoons

8 US fluid drams

1.8046875 cubic inches^[4]

29.5735295625 millilitres

≈ 1.040842731 imperial fluid ounces

US food labelling fluid ounce

US regulation 21 CFR 101.9(b)(5)(viii) also defines a fluid ounce as exactly 30 millilitres, but this is for use in nutrition labelling only.^[5]

30 millilitres ≈ 1.055852392 imperial fluid ounces^[3]

≈ 1.014420681 US customary fluid ounces^[4]

≈ 1.830712323 cubic inches

References and notes

1. Connor, R. D.; Simpson, Allen David Cumming; Morrison-Low, A. D.; National Museums of Scotland (2004). *Weights and measures in Scotland: a European perspective* (<https://books.google.com/books?id=2ePaAAAAMAAJ>). NMS. p. 153. ISBN 978-1-901663-88-4. Retrieved 21 September 2012.
2. The imperial gallon was originally defined as the volume occupied by ten avoirdupois pounds (4.54 kg) of distilled water weighed in air with brass weights with the barometer standing at 30 inches of mercury (102 kPa) at a temperature of 62 °F (16.7 °C).
3. "The Units of Measurement Regulations 1995 (Schedule)" (http://www.opsi.gov.uk/si/si1995/Uksi_19951804_en_2.htm). 20 September 2000. Retrieved 18 April 2006.
4. One US gallon is defined as 231 cubic inches.
5. "Food and Drug Administration, HHS" (http://a257.g.akamaitech.net/7/257/2422/01apr20051500/e.docket.access.gpo.gov/cfr_2005/aprqr/pdf/21cfr101.9.pdf) (PDF). Retrieved 18 April 2006.

Retrieved from "https://en.wikipedia.org/w/index.php?title=Fluid_ounce&oldid=820396046"

■