

Definition of One Drink

Richard Hesky
Beloit College, Beloit, Wisconsin

Abstract

One standard drink is defined as containing 0.6 ounces of pure alcohol. This amount can be found in one can or bottle (12 ounces) of beer, one glass (5 ounces) of wine, or one shot (1.5 ounces) of hard liquor. An alcoholic proof is a measure of how much ethanol is in an alcoholic drink. This number is equivalent to double the percentage of the alcohol by volume. Ethanol, also known as ethyl alcohol, is a flammable, colorless chemical compound that is the potent part of an alcoholic beverage. One's body weight determines how much of this substance it is safe to consume. One to two drinks a day is considered safe and even beneficial, but it is important to be careful when dealing with such a potentially dangerous beverage.

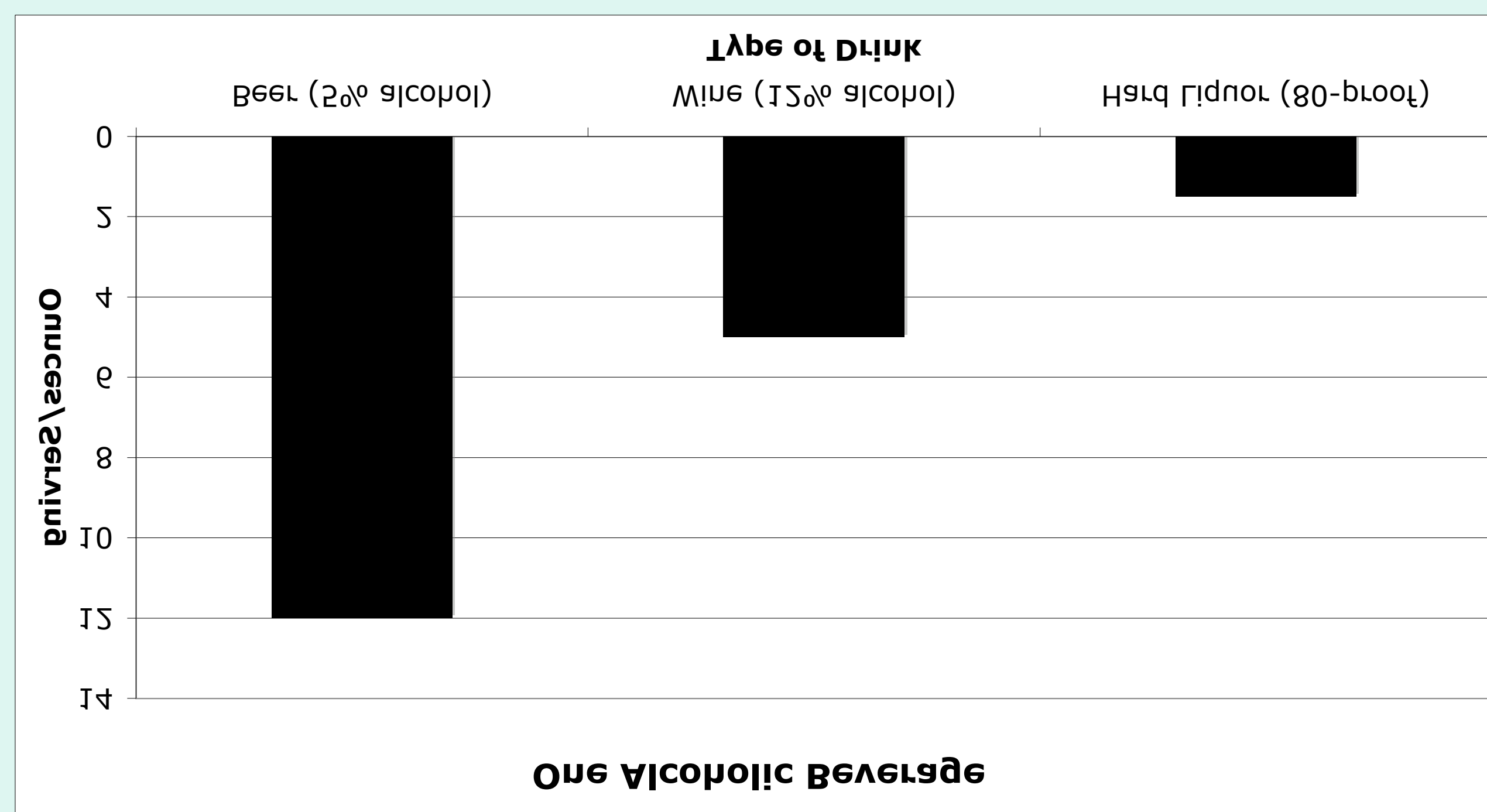
Introduction

LoveToKnow (3) says that "[If] you are a man under 65, and you have more than 14 drinks per week or more than four drinks at a time [you are drinking too much. If] you are a woman under 65, and you have more than 7 drinks per week or more than three drinks at a time [you are drinking too much. If] you are a man or woman over 65, and you have more than 7 drinks per week or more than three drinks at a time [you are drinking too much.]" So, what is one drink? Based on the hypothesis that such a definition exists, it has been found that the following are serving sizes for different types of alcohol. One serving of beer (5% alcohol) is equivalent to one can/bottle or twelve ounces. One serving of wine (12% alcohol) is equivalent to one glass or five ounces. One serving of hard liquor (80-proof or 40% alcohol) is equivalent to one shot or 1.5 ounces. Each of these is a drink because it contains 0.6 ounces of pure alcohol (ethanol). Mixed drinks often contain more than one serving of alcohol, as they require two or three shots of hard liquor. Additionally, many bartenders do not consider these recognized amounts as servings when preparing drinks and many containers that these types of beverages come in hold far more than just one drink (e.g. a large beer stein can hold 20 ounces or more).

Method

Researching online allowed me to discover the definition of one drink and other terms related to drinking responsibly.

Chart 1: One Alcoholic Beverage in Ounces



Men										
Approximate Blood Alcohol Percentage										
Drinks	Body Weight in Pounds								Sample Behavioral Effects	
	100	120	140	160	180	200	220	240		
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	Only Completely Safe Limit
1	.04	.03	.03	.02	.02	.02	.02	.02	.02	Impairment Begins
2	.08	.06	.05	.05	.04	.04	.03	.03	.03	Driving Skills Significantly Affected; Information Processing Altered
3	.11	.09	.08	.07	.06	.06	.05	.05	.05	
4	.15	.12	.11	.09	.08	.08	.07	.06	.06	
5	.19	.16	.13	.12	.11	.09	.09	.08	.08	Legally Intoxicated; Criminal Penalties; Reaction Time Slowed; Loss of Balance; Impaired Movement; Slurred Speech
6	.23	.19	.16	.14	.13	.11	.10	.09	.09	
7	.26	.22	.19	.16	.15	.13	.12	.11	.11	
8	.30	.25	.21	.19	.17	.15	.14	.13	.13	Legally Intoxicated; Criminal Penalties; Reaction Time Slowed; Loss of Balance; Impaired Movement; Slurred Speech
9	.34	.28	.24	.21	.19	.17	.15	.14	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	.16	

Women										
Approximate Blood Alcohol Percentage										
Drinks	Body Weight in Pounds								Sample Behavioral Effects	
	90	100	120	140	160	180	200	220		240
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	Only Completely Safe Limit
1	.05	.05	.04	.03	.03	.03	.02	.02	.02	Impairment Begins
2	.10	.09	.08	.07	.06	.05	.05	.04	.04	Driving Skills Significantly Affected; Information Processing Altered
3	.15	.14	.11	.10	.09	.08	.07	.06	.06	
4	.20	.18	.15	.13	.11	.10	.09	.08	.08	
5	.25	.23	.19	.16	.14	.13	.11	.10	.09	Legally Intoxicated; Criminal Penalties; Reaction Time Slowed; Loss of Balance; Impaired Movement; Slurred Speech
6	.30	.27	.23	.19	.17	.15	.14	.12	.11	
7	.35	.32	.27	.23	.20	.18	.16	.14	.13	
8	.40	.36	.30	.26	.23	.20	.18	.17	.15	Legally Intoxicated; Criminal Penalties; Reaction Time Slowed; Loss of Balance; Impaired Movement; Slurred Speech
9	.45	.41	.34	.29	.26	.23	.20	.19	.17	
10	.51	.45	.38	.32	.28	.25	.23	.21	.19	

Table 2: Blood Alcohol Concentrations for Men and Women (1)

Results

Ethanol

Ethanol is the alcohol in alcoholic beverages. It is produced by the action of microorganisms on the carbohydrates of grapes, grains, and other carbohydrate-containing substances. It is also known as ethyl alcohol and is a flammable and colorless chemical compound (see fig. 1). Ethanol is the potent part of alcohol and is what causes euphoria, an inflated sense of well-being and pleasure.

Alcoholic Proof and Percentage

Alcoholic percentage refers to the percentage of alcohol by volume. Each degree of alcoholic proof is equal to 0.5% alcohol by volume. Therefore, an alcoholic proof is also a statement of alcohol by volume, but by each percent the alcohol by volume increases, the proof increases by 2.

Blood Alcohol Concentration

Blood alcohol content (BAC) or blood alcohol concentration is the concentration of alcohol in one's blood. It is measured either as a percentage by mass, by mass per volume, or a combination. For example, a BAC of 0.2% can mean 2 grams of alcohol per 1000 grams of an individual's blood, or it can mean 0.2 grams of alcohol per 100 milliliters of blood. Most often BAC is measured and reported as grams of alcohol per 1000 milliliters of blood. The number of drinks consumed is a poor measure of intoxication, but does help in predicting BAC. There is much variation in effects of drinks on BAC based on one's body weight, gender, and body fat percentage. Tolerance to alcohol varies from one person to another, and can be affected by such factors as genetics, adaptation to chronic alcohol use, and synergistic effects of drugs. Alcohol content in blood can be directly measured by a hospital laboratory. More commonly in law enforcement investigations, BAC is estimated from breath alcohol concentration, measured with a machine commonly referred to as a Breathalyzer.

Discussion

Awareness of the fact that there is a definition for one drink is very important. By knowing what this definition is, one can know how many drinks he or she has had and if this number is too high to be considered legally safe based on BAC. One will be able to determine how much pure ethyl alcohol he or she has ingested. If one has not been consuming standard drinks, one can be aware of the amount of alcohol ingested in drink equivalents by paying attention and using simple math when considering proofs and percentages. Finally, knowing how many drinks one has consumed allows one to determine where he or she falls in blood alcohol content and how that may affect him or her.

References

- "Blood Alcohol Level Estimation Charts." June 2003. National Institute of Health. 1 Mar. 2007 <<http://pubs.niaaa.nih.gov/publications/niaaa-guide/images/fig7.jpg>>.
- "Chapter 23 Organic Chemistry." 2004. Prentice-Hall, Inc. 1 Mar. 2007 <http://wps.prenhall.com/wps/media/objects/602/616516/Chapter_23.html>.
- "Drinking Problem - Recovery." 10 Mar. 2006. LoveToKnow. 1 Mar. 2007 <http://addiction.lovetoknow.com/wiki/Drinking_Problem>.
- Sizer, Frances, and Ellie Whitney. *Nutrition Concepts and Controversies*. 10th ed. Belmont, California: Thomson Higher Education, 2006. 91-98.

Table 1: Common Alcoholic Proofs and Their Equivalent Percentages of Alcohol by Volume

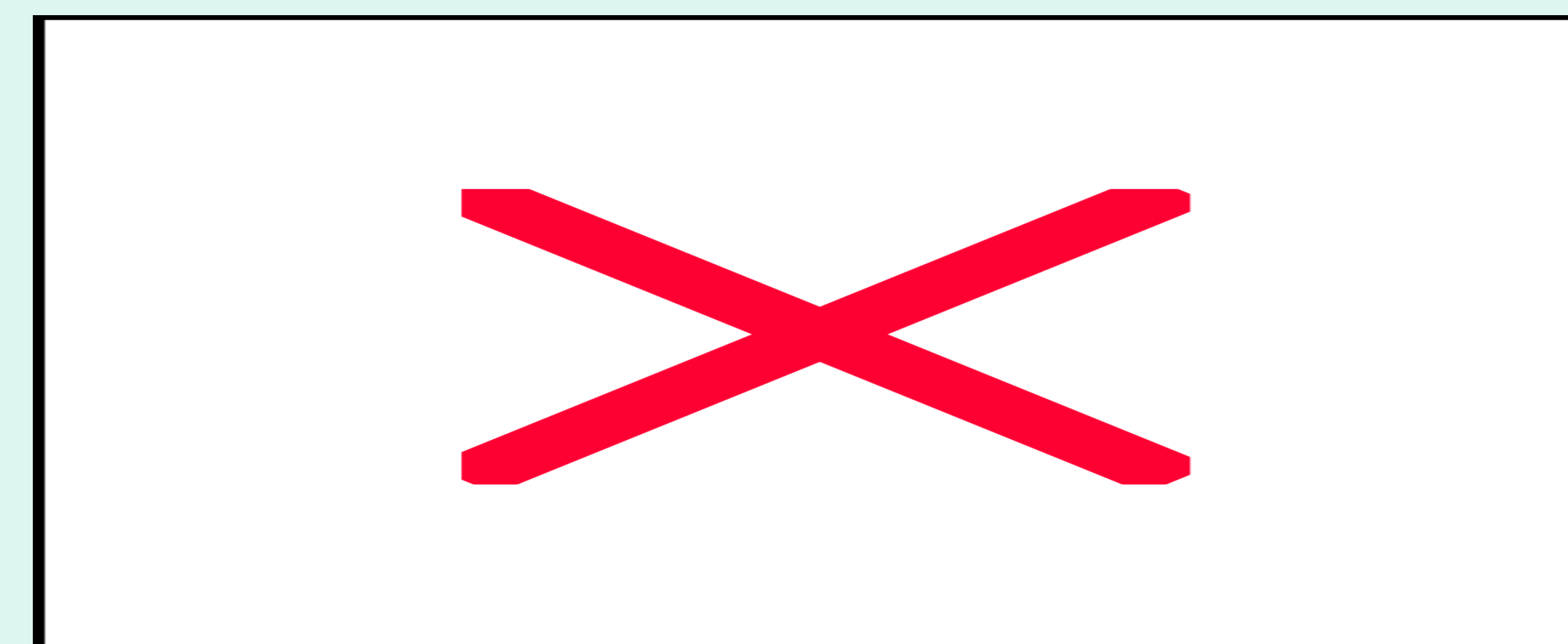


Figure 1: Structure of Ethanol

