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# How to Test If Alcohol Has Methanol

By Joshua Suico; Updated March 13, 2018



Methanol is an alcohol like ethanol, the active ingredient in alcoholic drinks. Methanol can also give the same kind of buzz or 'high' as ethanol, but it is much more toxic and can cause severe and even fatal illness. This alcohol occurs naturally at low levels in fermented drinks. Commercially manufactured alcoholic drinks have techniques for removing the methanol. However, homemade brewers do not have the technology to remove methanol, while illicit liquor sold sometimes uses methanol as a cheap

substitute for ethanol. The presence of methanol in alcohol can be tested using the sodium dichromate reaction.

## Testing for methanol using sodium dichromate

Add 10 drops of the alcohol to be tested to a test tube.

In a separate test tube, mix 8 mL of the sodium dichromate solution with 4 mL of dilute sulfuric acid. Gently swirl the test tube a few times to mix the two components. Take up a portion of this mixed dichromate solution in a dropper.

Add 10 drops of the mixed dichromate solution to the test tube containing the alcohol. Swirl the test tube gently a few times.

Fan the air around the mouth or opening of the test tube toward your nose. The fanning should be done with the test tube around 8-12 inches away from your face. Take note of the smell.

Methanol is present if a pungent, irritating odor can be smelled. This pungent odor comes from methanal, which forms from the reaction of methanol with acidified sodium dichromate. A dominating fruity odor without any pungent smell indicates that only ethanol is present and there is no methanol. The fruity odor comes from ethanal, which forms from the reaction of ethanol with acidified sodium dichromate.

### Tip

If methanol is present, there is a chance that the pungent odor may be faint. Ask the help of a person who has a good sense of smell who also does not have an allergy or bad reaction to pungent odors.

## Warning

All of the chemicals used in the test must be considered to be toxic and harmful. Avoid contact with these chemicals at all times and utilize protective gear such as goggles, gloves and laboratory gowns. Do not smell the test tube directly, instead, fan the air around the mouth of the test tube. Conduct this test only in a safe environment with proper ventilation and away from children. Do not perform the smelling if you have an allergy or a bad reaction to pungent odors.

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## Things Needed

- Dropper
- Graduated cylinder
- Test tubes
- Test tube rack
- Sodium dichromate solution (0.1 M)
- Sulfuric acid (1 M)
- Gloves
- Laboratory coat
- Goggles

## References

- Nuffield Foundation: The oxidation of alcohols
- NCBI PubMed: Defining a tolerable concentration of methanol in alcoholic drinks
- Rutgers University: Reactions of Alcohols

## About the Author



Joshua Suico is a university teacher specializing in chemistry and the life sciences. He holds a Master of Science degree in chemistry. During his college days, he once intentionally dropped sodium pellets into a sink for fun and for science.