

Alcohol in Mouthwash

[Pete Matthews Jr](https://3nt.xyz) – <https://3nt.xyz> – © September 24, 2025

The Listerine website includes:

Is Alcohol In Mouthwash Bad?

Alcohol in mouthwash is not inherently bad. It serves a functional role dissolving active ingredients like essential oils for plaque and gingivitis efficacy. Unlike consuming alcoholic beverages, the alcohol in mouthwash is not ingested and thus does not have the systemic effects associated with drinking alcohol.

However, there are downsides to mouthwashes with alcohol:

- **Burning Sensation:** Some individuals experience discomfort or a burning sensation in the mouth when using alcohol-based mouthwashes.
- **Contraindications:** Alcohol-based mouthwashes may not be recommended for children, individuals with a history of alcohol addiction, those of certain religious beliefs.

However, Listerine does not mention the elephant in the room: cancer. Listerine has dismissed risks of alcohol because it is “not ingested.” The abstract of the Ustrell-Borras review of studies, includes this partial contradiction:

Oral and pharynx cancer represent a serious global problem, reaching an incidence of half a million cases annually. The role of tobacco and alcohol have been studied and proven to be one of its risk factors. We also know that mouthwashes contain a variable percentage of alcohol, so there is a reasonable concern about their role in carcinogenesis.

...

It cannot be guaranteed that the use of mouthwash represents an independent risk factor for the development of head and neck cancer. However, the risk does increase when it occurs in association with other carcinogenic risk factors.

Rephrasing, the risk of oral cancer from an alcohol-based mouthwash may be acceptable for a person with minimal other risks (does not use tobacco products, low or no consumption of alcohol). A mouthwash with more alcohol might pose more risk than one with less. “Listerine® Antiseptic Mouthwash COOL MINT® mouthwash [sic] contains 21.6% alcohol.”

“TopCare® Freshening Mouthwash” (“compare to Scope®”) contains 15% alcohol. Unwilling to brush and floss more than nightly, the author often uses this product after his first meal of the day. It is clearly superior to water for removing detritus from the mouth after a meal, especially between teeth. The author ascribes its superiority for this purpose primarily to alcohol being a superior solvent to water.

A friend suggested to the author that the superiority might instead be due to detergents in the product. If that is the case, then it might be better to avoid the cancer risk of alcohol and use an alcohol-free product.

Ingredient	TopCare “Freshening Mouthwash”
Water	
Alcohol	Solvent for active ingredients – and possibly more.
Glycerin	Aka glycerol, a sweet-tasting sugar alcohol used in many products, including foods, soaps, medicines, and skin products. Glycerin is widely regarded as the most effective humectant, a water-absorbing substance that helps keep things moist. Also used as a lubricant.
Flavor	
Polysorbate 80	Surfactant and emulsifier. Dish and laundry detergents include surfactants among their many ingredients.
Sodium saccharin	A non-nutritive artificial sweetener.
Sodium benzoate	A preservative widely used in acidic foods, a salt of benzoic acid. Can potentially convert to the carcinogen benzene when combined with ascorbic acid (vitamin C) in beverages. The FDA allows up to 0.1% concentration in foods and beverages.
Cetylpyridinium chloride*	An antiseptic effective in preventing dental plaque and reducing gingivitis. The label does not make health claims for this ingredient, so does not state how much is present.
Benzoic acid	Food preservative and antimicrobial agent.
Colors	

* “Topcare® Alcohol Free Oral Health Mouthwash” (“compare to Crest® Pro-Health™ Mouth Rinse”) claims “antigingivitis/antiplaque” and lists cetylpyridinium chloride (0.07%) as the active ingredient. (Polysorbate 80 and alcohol (above) are replaced by poloxamer 188 [a surfactant that is also used as a neuroprotective agent for disorders of the central nervous system], propylene glycol [generally recognized as safe], and sucralose [a highly-tested artificial sweetener].)

Glycerin and polysorbate 80 may be there partly for detergent effect. I decided to make and test a detergent-free bourbon mouthwash:

B = units of bourbon
A = units of alcohol in bourbon (40%)
W = units of distilled water to be added, to make 15% bourbon

$$B = A + 1.5 \cdot A = 2.5 \cdot A$$
$$A = 0.15 \cdot (B + W)$$
$$A = 0.15 \cdot (2.5 \cdot A + W)$$
$$A = 0.375 \cdot A + 0.15 \cdot W$$
$$W = (A - 0.375 \cdot A) / 0.15$$
$$W = 0.625 \cdot A / 0.15$$
$$W = 4.1667 \cdot A$$

I decided on nice integer proportions:

A = 6g, B = 15g, and W = 25g [6/(15+25) = 15%]

The bourbon (15% alcohol) mouthwash worked quite well, perhaps as well as the 15% Topcare mouthwash, and way better than water. The ubiquitous polysorbate 80 and glycerin in the Topcare product may have contributed slightly to its performance.

Right or wrong, the author does not particularly trust poloxamers: 188 (in the alcohol free product), 407 (in an old bottle of Act[®] that I discarded), or any of the 29 other numbers listed in the Wikipedia article. It seems likely that limited testing of some poloxamers has been extrapolated to others. Much of the reported testing seems to be concerned with purity, actual concentration, and breakdown at increased temperatures in cosmetics, rather than the possibility of undesirable effects in mouthwash. A more discerning reader than the author could pursue the Singh-Joy report.

This article is based on research and the practical experiment described above. The author has no training or experience in either medicine or medical research.

References.

“Alcohol vs. Alcohol-Free Mouthwash,” [HTTPS://WWW.LISTERINE.COM/bad-breath/alcohol-vs-alcohol-free-mouthwash](https://www.listerine.com/bad-breath/alcohol-vs-alcohol-free-mouthwash).

Ustrell-Borras, Marina, et. al.; “Alcohol-based mouthwash as a risk factor of oral cancer: A systematic review,” [HTTPS://PMC.NCBI.NLM.NIH.GOV/articles/PMC6982979/](https://PMC.NCBI.NLM.NIH.GOV/articles/PMC6982979/), © 2020, Medicina Oral S.L.

Chen, Win Ning, et. al.; “Poloxamer 188 (P188), A Potential Polymeric Protective Agent for Central Nervous System Disorders: A Systematic Review,” [HTTPS://PMC.NCBI.NLM.NIH.GOV/articles/PMC9878954/](https://PMC.NCBI.NLM.NIH.GOV/articles/PMC9878954/) © 2022 Bentham Science Publishers.

“Poloxamer,” [HTTPS://EN.WIKIPEDIA.ORG/wiki/Poloxamer](https://en.wikipedia.org/wiki/Poloxamer).

Singh-Joy, Subhashni D, et. al; “Safety assessment of poloxamers ... [35 compounds] ... as used in cosmetics,” [HTTPS://PUBMED.NCBI.NLM.NIH.GOV/18830866/](https://pubmed.ncbi.nlm.nih.gov/18830866/).