

Heat-not-Burn (HnB) Products

What are HnBs?

HnB products heat disposable tobacco sticks (also called HeatSticks) to the point that they produce an aerosol, but without combustion.

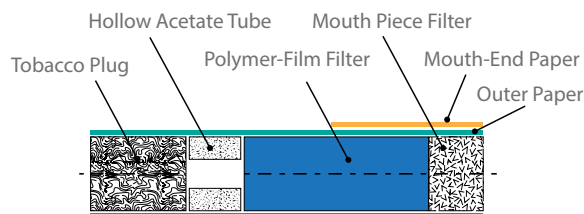
HnBs are different from electronic cigarettes because HnBs use real tobacco to deliver nicotine, while electronic cigarettes use liquid nicotine solution.



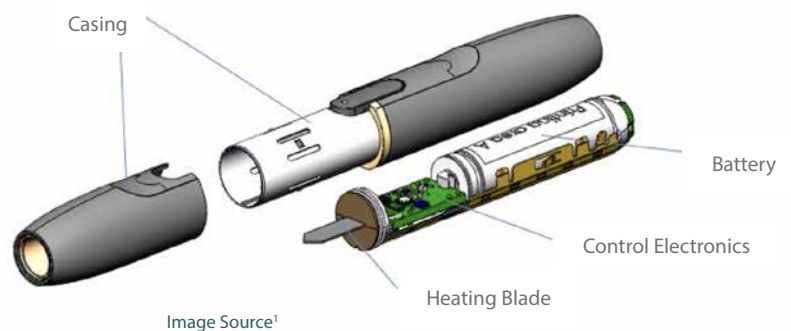
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Heat-not-Burn
(HnB) Products*

Learning Objectives:

1. Describe HNB products and how they work.
2. Review their current regulatory status.
3. Compare the health risks of HNB products to combustible cigarettes.



Cross-sectional view of the Tobacco Stick



How are HnBs different from conventional cigarettes?

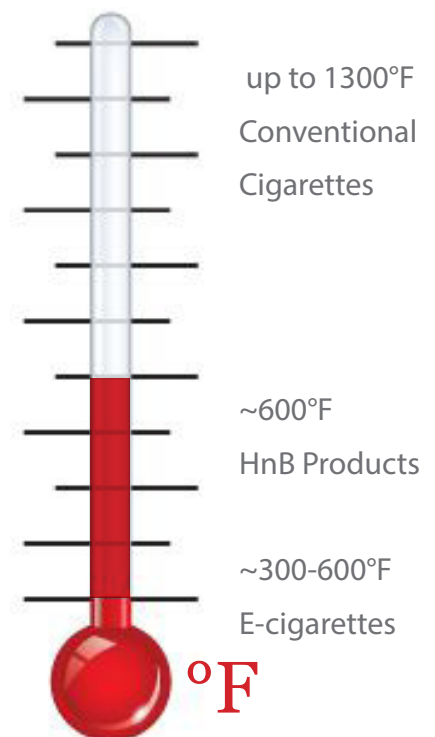
- Conventional cigarettes reach a higher temperature than HnBs, which is why conventional cigarettes burn.
- Because these products are not supposed to combust, they are marketed as being a safer alternative to conventional cigarettes.

What does the research show?

Research suggests the story is a little more complicated than what the marketing suggests.

In some ways, HnB products may reduce risks to the user (compared to conventional cigarettes):

- HnB emits about half as much tar and 99% less carbon monoxide as conventional cigarettes.
- There are also lower levels of other harmful chemicals like carbonyls, formaldehyde, and ammonia compared to conventional cigarettes.



“Reduced risk” does not mean that these products are safe.

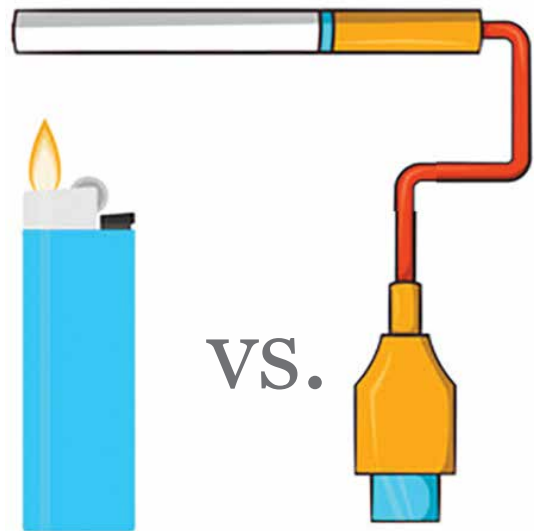
- Exposure to some of these compounds may be harmful even at low doses.
- HnBs can expose users to free radicals and can lead to oxidative stress and inflammatory response in the airways.
- Contrary to marketing claims, there is evidence that combustion may occur when using HnB products, thereby exposing the user to harmful compounds; more charring occurs when the device is not cleaned between each use.

Notably, the long-term effects of HnB use remain unknown.

What is the current regulatory status of HnB products?

There are currently two types of HNBs which are approved for marketing by the FDA

- One uses a carbon tip wrapped in glass fibers that is lit by the user.
- The other uses a rechargeable, battery powered heating device.
- They are regulated in the same way as conventional cigarettes.



References

Fried, N. D., & Gardner, J. D. (2020). Heat-not-burn tobacco products: an emerging threat to cardiovascular health. *American Journal of Physiology-Heart and Circulatory Physiology*, 319(6), H1234-H1239.

Kopa, P. N., & Pawliczak, R. (2020). IQOS—a heat-not-burn (HnB) tobacco product—chemical composition and possible impact on oxidative stress and inflammatory response. A systematic review. *Toxicology mechanisms and methods*, 30(2), 81-87.

U.S. Food and Drug Administration, 2020. How are Non-Combusted Cigarettes, Sometimes Called Heat-Not-Burn Products, Different from E-Cigarettes and Cigarettes? <https://www.fda.gov/tobacco-products/products-ingredients-components/how-are-non-combusted-cigarettes-sometimes-called-heat-not-burn-products-different-e-cigarettes-and> Silver Spring, MD 20993 US.

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