

# New and Emerging Products

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June 4, 2025

# Disclosure

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- The conclusions drawn from the NielsenIQ data are those of the researcher(s) and do not reflect the views of NielsenIQ. NielsenIQ is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported.
- The data presented are for information purposes only, please reach out for access to this deck.

# Oral Nicotine Pouches

# What is a Nicotine Pouch?

Pouch filled with nicotine powder

No tobacco leaf

Ingredients typically include:

- Nicotine
- Sweeteners/flavors
- pH stabilizers
- Fillers (cellulose/plant material)

To use, the pouch is placed between the top lip and gum

Usually, no spitting





# Types of Oral Tobacco Products

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Moist snuff/dip



Snus



Chewing tobacco



Nicotine pouches

# Pouched Products

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Moist Snuff/Dip



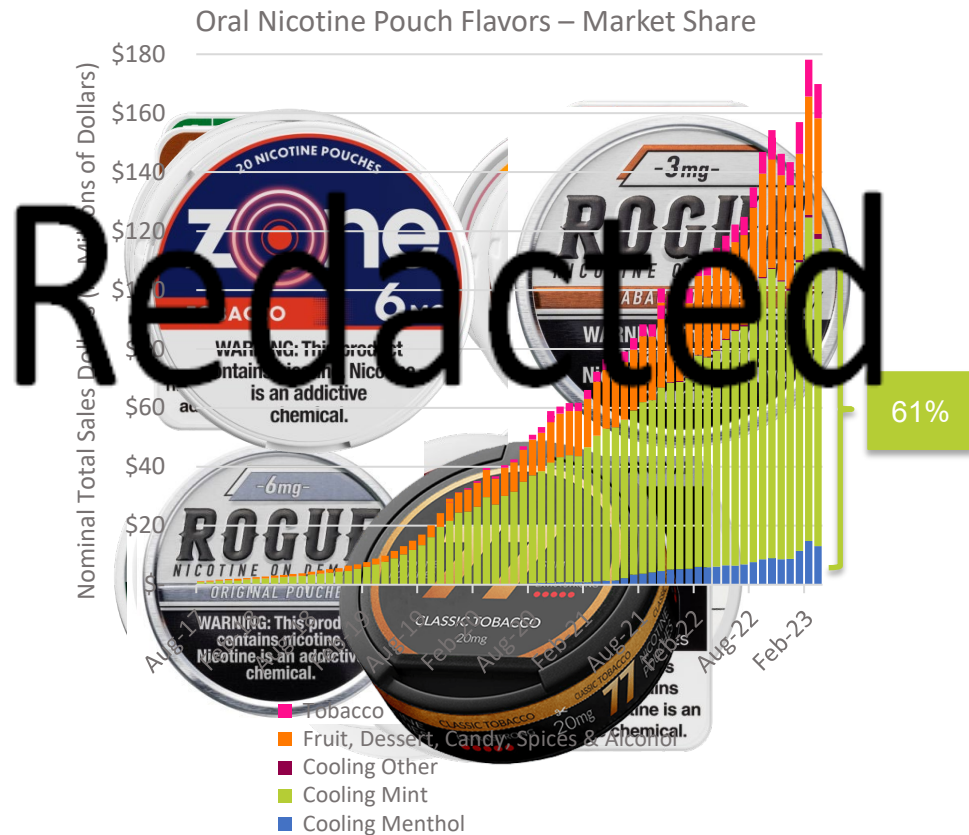
Snus



Nicotine Pouch

# Flavors in Nicotine Pouches

# Nicotine Pouch Flavors



# Nicotine in Nicotine Pouches

# Nicotine - Sources

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Tobacco plant



Other nightshade  
plants



Synthetic nicotine

# What Type of Nicotine is in Nicotine Pouches?



Some brands are made with **tobacco-derived nicotine**.

Some brands are made with **synthetic nicotine**.

Despite not being made with tobacco, **nicotine pouches are regulated as tobacco products** in the US (regardless of nicotine source).

# Wide Range of Nicotine Levels

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Stanfill *et al.* tested 37 nicotine pouch products sold in Atlanta (2019) and found:

- Total nicotine content ranged from 1.29 to 6.1 mg/pouch
- "...nicotine and pH levels found in some of these nicotine pouches are similar to conventional tobacco products, such as moist snuff and snus..."

Review by Travis *et al.* reported that higher level nicotine pouch strengths ( $\geq 6$  mg) "may deliver comparable or higher nicotine than conventional SLT products and cigarettes." (some industry studies included)



2 mg/pouch



15 mg/pouch

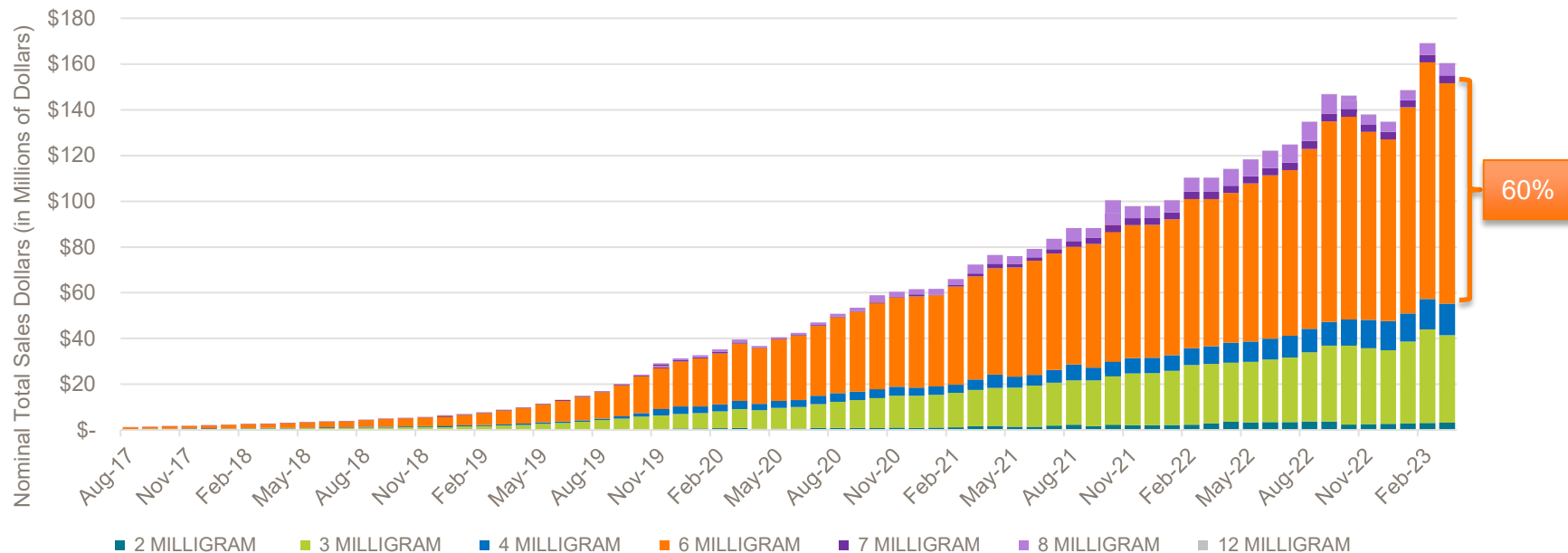


21 mg/pouch



# 6 mg is Most Popular in the US

Oral Nicotine Pouch Strength – Market Share



# Health Effects of Nicotine Pouches

# Any Harmful Chemicals in Nicotine Pouches?

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Mallock-Ohnesorg *et al.* tested 48 nicotine pouch products and found:

- 8 hazardous substances detected (European CLP regulation)
- 13 substances detected that are not authorized food flavorings by European regulators
- 3 possible carcinogens detected (methyl eugenol, benzophenone, and  $\beta$ -myrcene)

Mallock *et al.* tested 44 nicotine pouch products and found:

- TSNA (carcinogenic) detected in 26 products at very low levels

Generally, nicotine pouches contain fewer chemicals and lower levels of chemicals compared to cigarette smoke and smokeless tobacco

# Nicotine Pouch Potential Health Risks

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Nicotine pouches deliver nicotine and use can lead to nicotine addiction

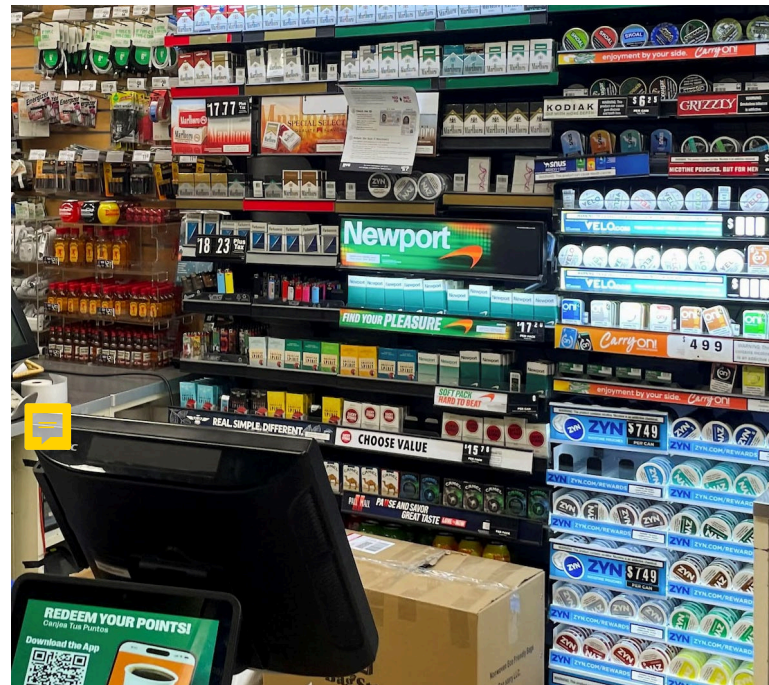
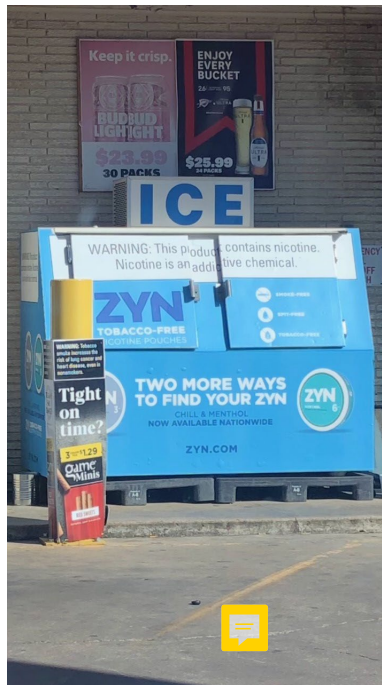
- Nicotine is harmful to developing brains
- Nicotine exposure can negatively affect the cardiovascular system
  - Especially in those with cardiovascular disease

Prolonged pouch use could lead to gum recession and oral lesions

**Long-term health risks not known**

# Marketing of Nicotine Pouches

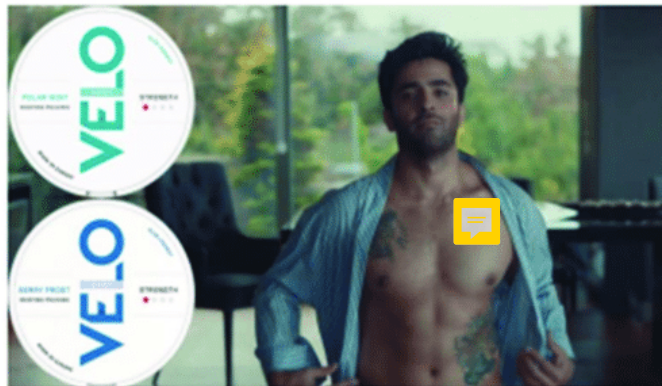
# Point of Sale



# Advertising Spending Data from Numerator

Duan *et al.* reported that between January 2019 – September 2021, 3 leading nicotine pouch brands spent \$24,774,650 on marketing

- Radio
  - TV
  - Mobile and online ads
  - Print
- Most ad \$ and occurrences**





# Event Marketing





# Zyn Rewards Program

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## HOW IT WORKS

[Watch the Introductory Video](#)



### SCAN CODES

Using your phone, scan the QR code on the back of your can to receive your points. Enter up to 60 codes per month. Keep in mind codes are case-sensitive!



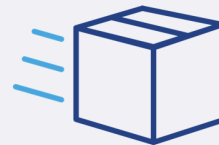
### COLLECT POINTS

Get 15 points for every reward code and look out for chances to earn bonus points.



### SHOP REWARDS

Browse more than 50 reward items and choose one to start saving for.



### ORDER, ENJOY

Use points to purchase rewards. Every order ships for free!



# Zyn Rewards Program



**ZYN METAL CAN**

1500 POINTS

100 Cans



**E-GIFT CARD: AMAZON  
\$100**

3250 POINTS

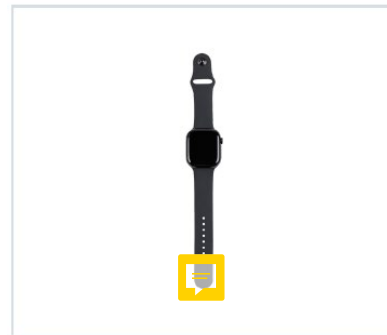
217 Cans



**META QUEST 3S BUNDLE**

7880 POINTS

526 Cans



**APPLE WATCH SERIES 10**

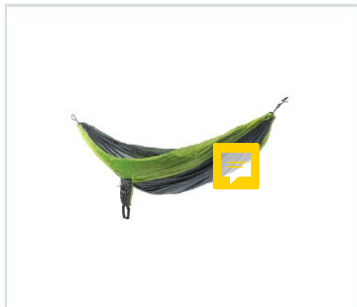
11250 POINTS

750 Cans

**\*1 can = 15 points**

# Zyn Rewards Program

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**ENO DOUBLENEST  
HAMMOCK**

2310 POINTS

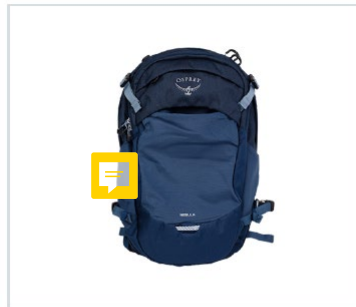
**154 Cans**



**LEATHERMAN WINGMAN**

2340 POINTS

**156 Cans**



**OSPREY NEBULA  
BACKPACK**

4230 POINTS

**282 Cans**



**SOLO STOVE BONFIRE**

7880 POINTS

**526 Cans**

**\*1 can = 15 points**

# Zyn Rewards Program

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**E-GIFT CARD: SEPHORA  
\$50**

1650 POINTS

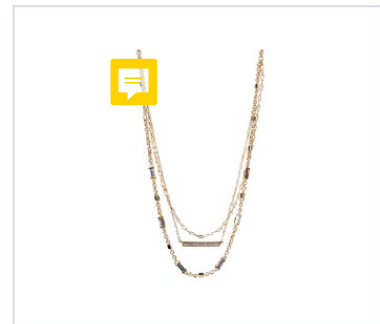
**110 Cans**



**KENDRA SCOTT NOLA  
GOLD STUD EARRINGS**

1980 POINTS

**132 Cans**



**KENDRA SCOTT ADDISON  
TRIPLE STRAND  
NECKLACE**

2480 POINTS

**166 Cans**

**\*1 can = 15 points**



Thanks for enrolling in our  
**Rewards program.** We can't wait for you  
to start enjoying your perks. Remember,  
every 10 punches leads to a Reward.



Hella™ Cocktail Co. Bitters Set



ONE Polarized  
Sunglasses

on!® product coupons

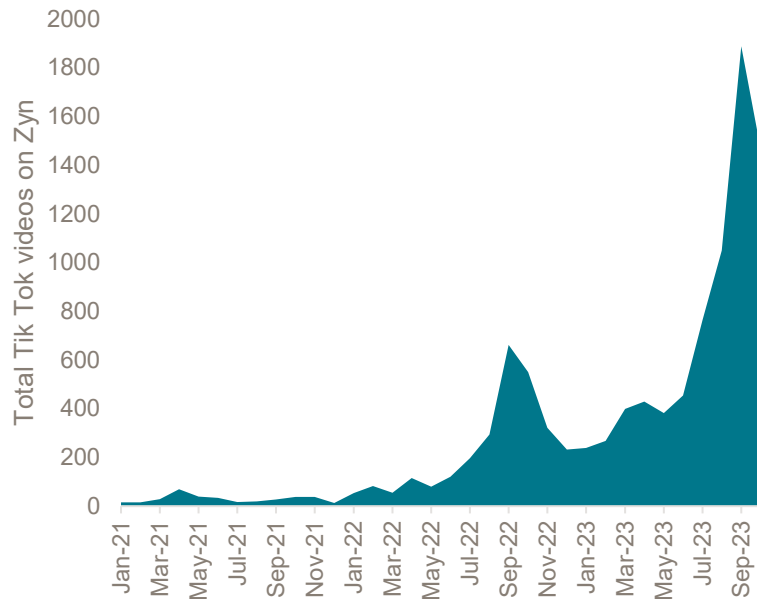


**TRADE YOUR  
POINTS FOR  
PERKS.**

[VISIT REWARDS PROGRAM](#)



# Zyn sub-culture on Tik Tok



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When you ask your 21 yr old friend to get you zyns but he

X

Report

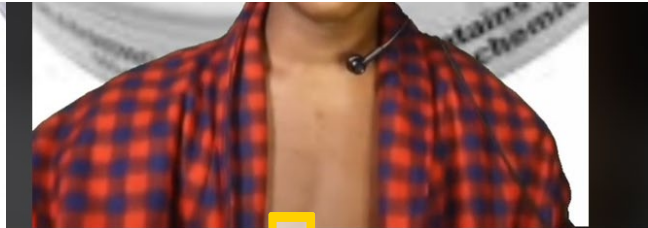
## Zynbabwe

A country almost like [Zimbabwe](#), except every man and child has a [pack](#) of zynachinos and an [upper decky lip pillow](#) at all times.

[Himmy Neutron packs](#) so many [upper decky](#) lip cushions, he must be from Zynbabwe

by [Ferda\\_Kanye](#) October 21, 2022

Find related content



Find related content

Report



# Wear your identity

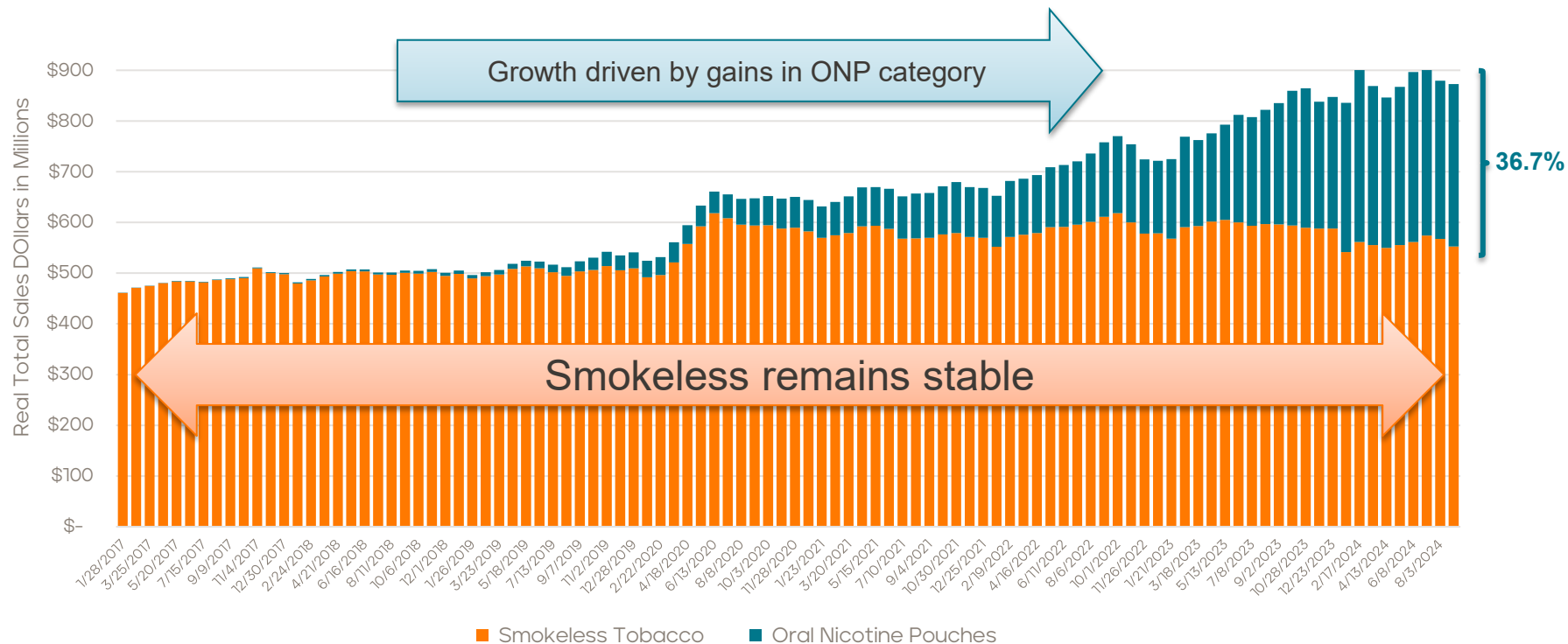
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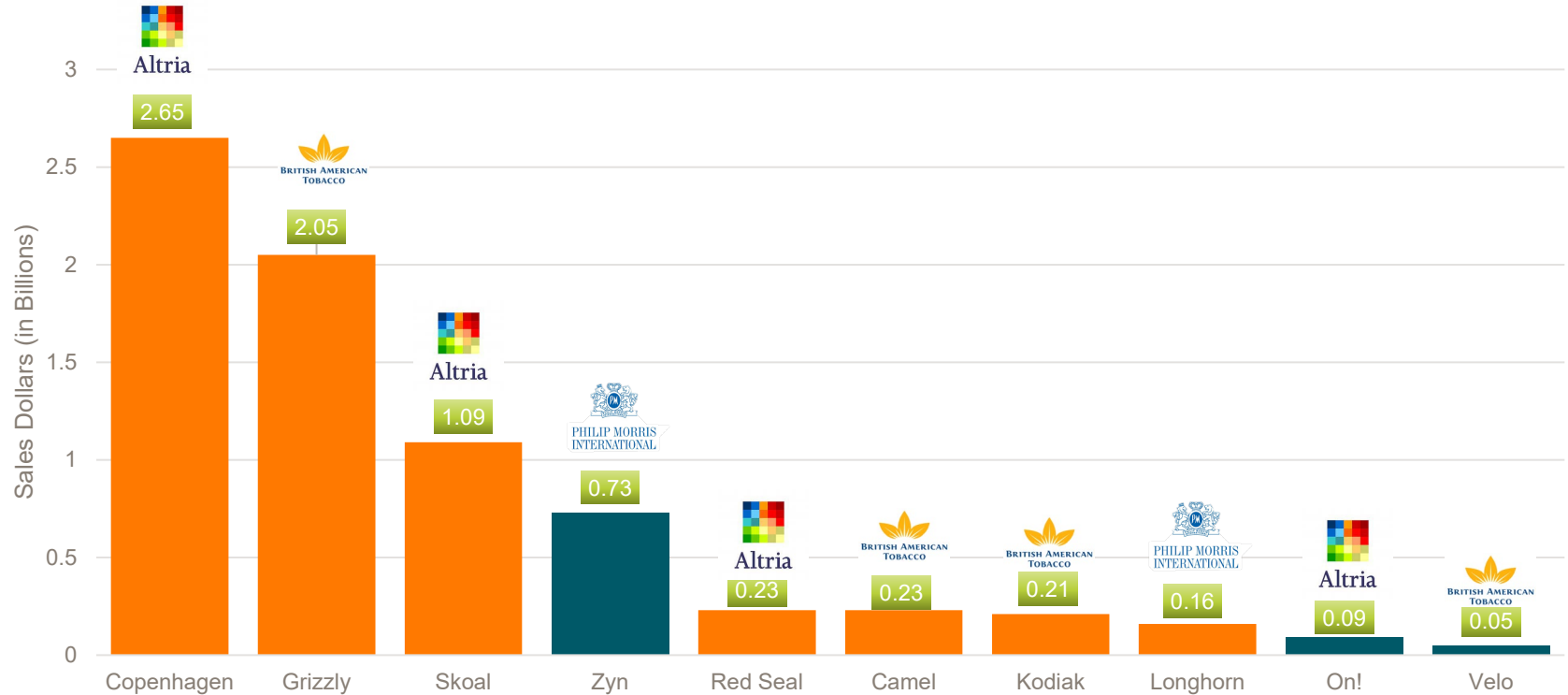


# Retail Sales Data: Smokeless Tobacco & Oral Nicotine Pouches

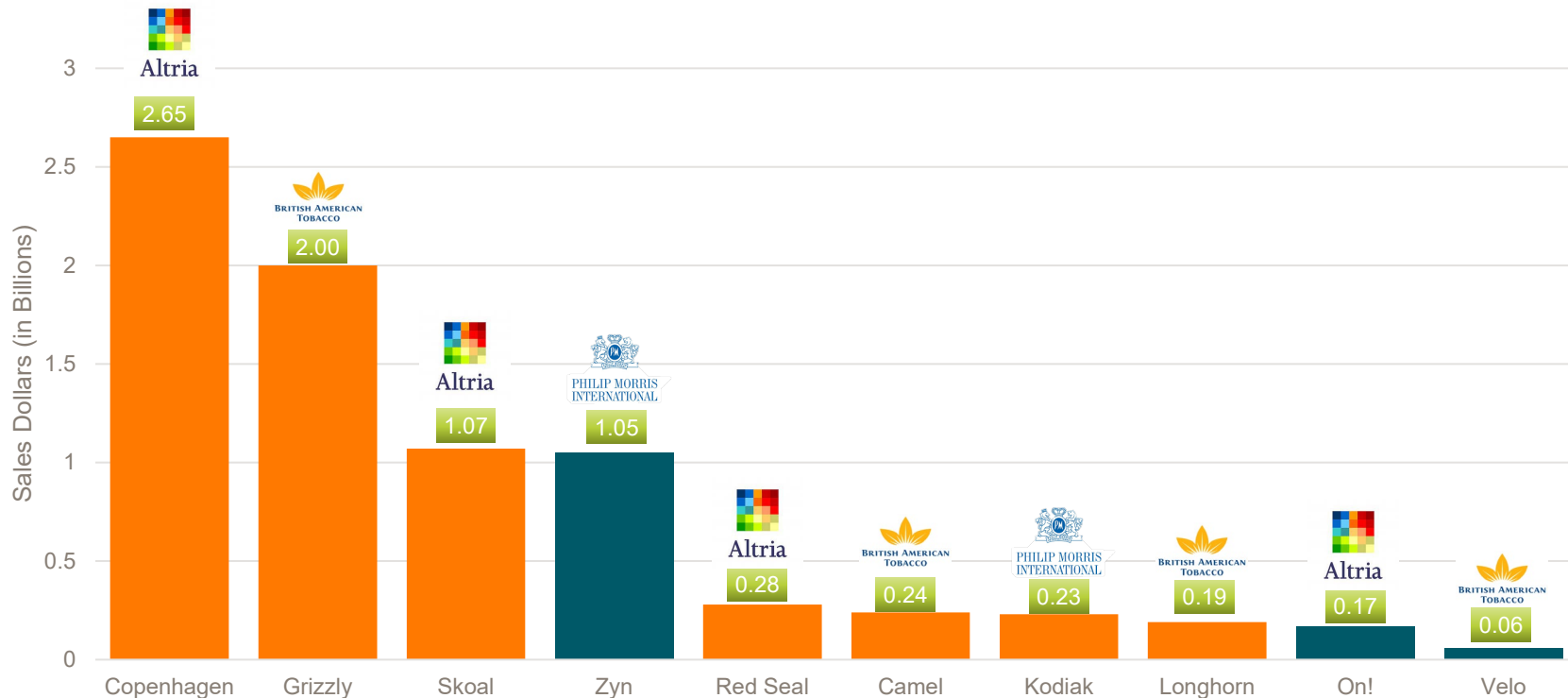
# Oral Nicotine Pouches Have Had Explosive Growth



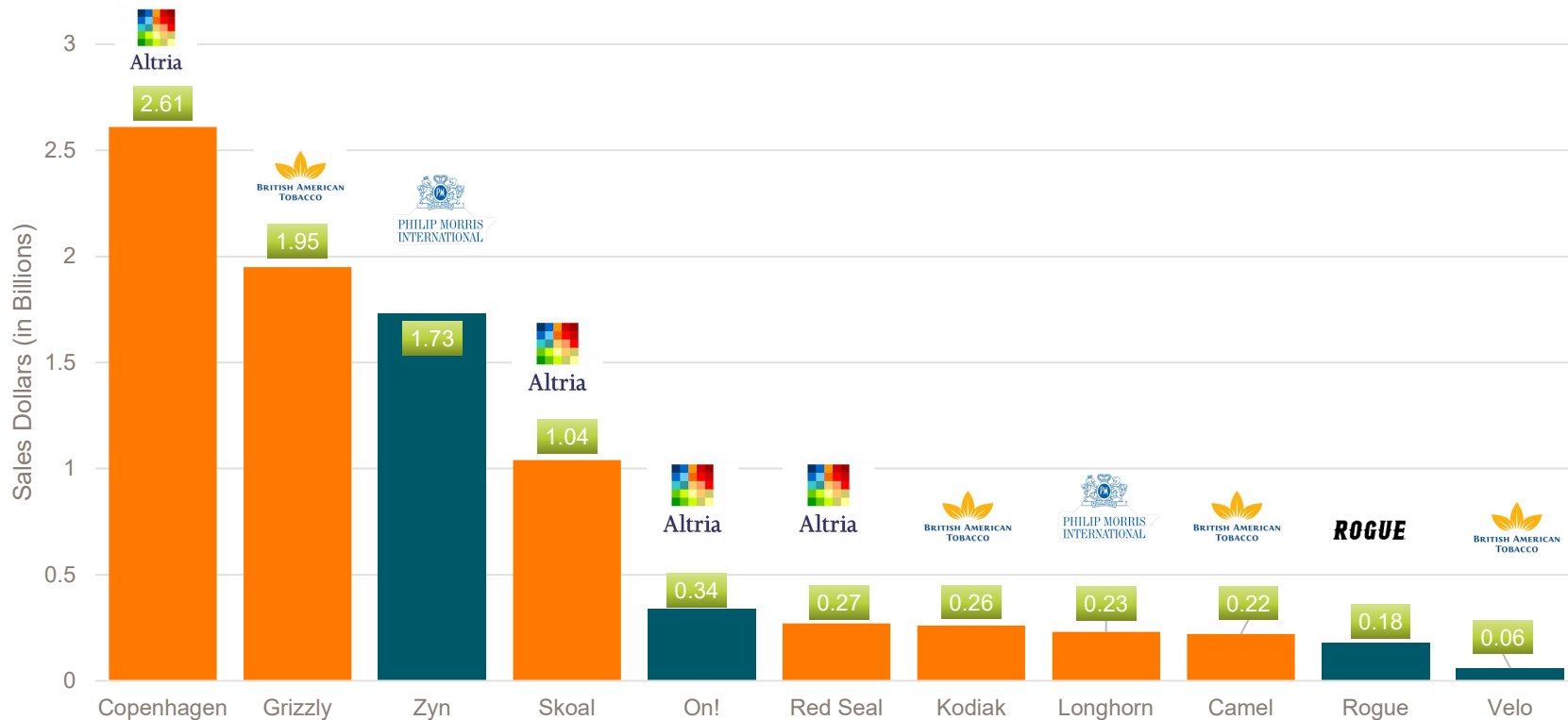
# Nicotine pouches gain market share - December 2021



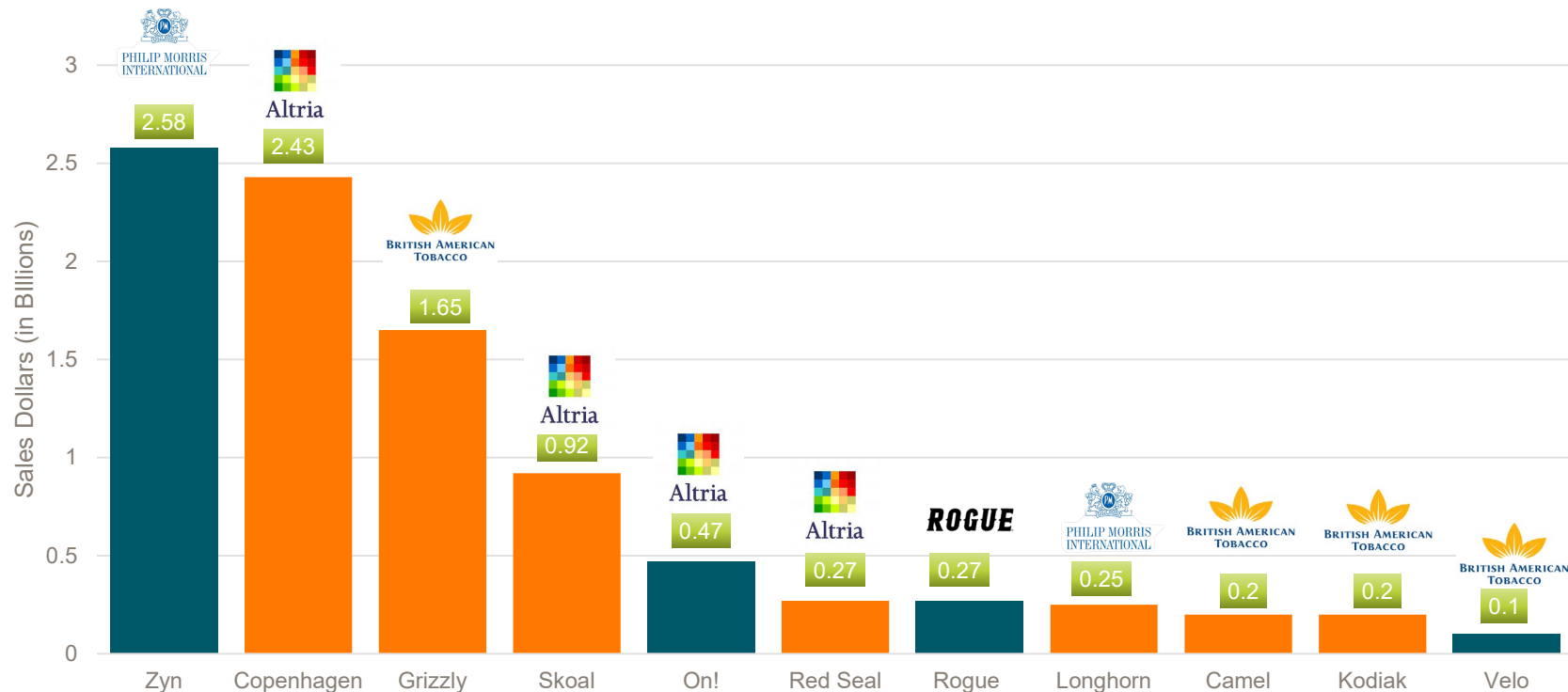
# Nicotine pouches gain market share – December 2022



# Nicotine pouches gain market share – December 2023



# Nicotine pouches gain market share – November 2024



# Oral Nicotine Pouch Market Share



68%



19%



9%



4%



1%

# ZYN's Timeline of Growth



# 2014-2015 Colorado Roll Out

*"It is therefore desirable to provide a nicotine product which rapidly delivers nicotine to the user and thereby provides the user with the desired effect. It is also desirable to provide a nicotine product which gives an almost complete delivery of the nicotine to the user to avoid unnecessary waste"*

**Zyn Patent Application, 2015**

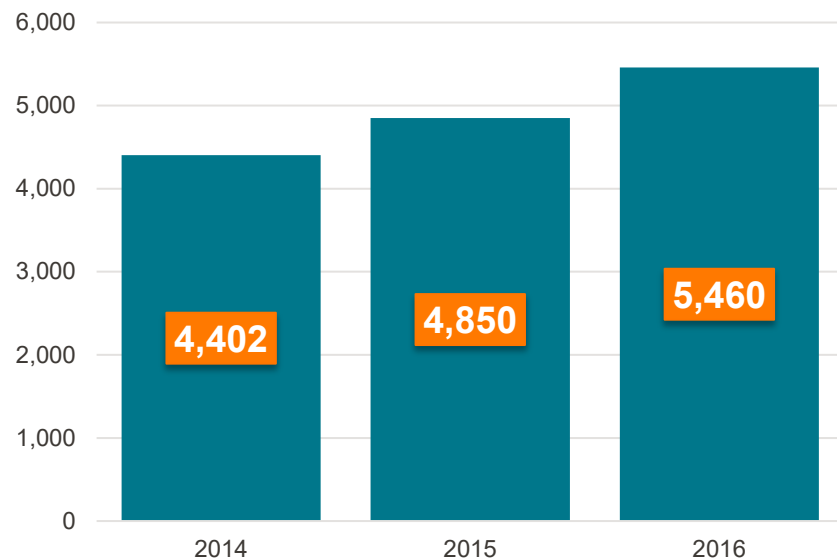


# 2016 Expansion out West

*"Market related costs are expected to increase somewhat primarily related to the expansion of ZYN in the US market."*



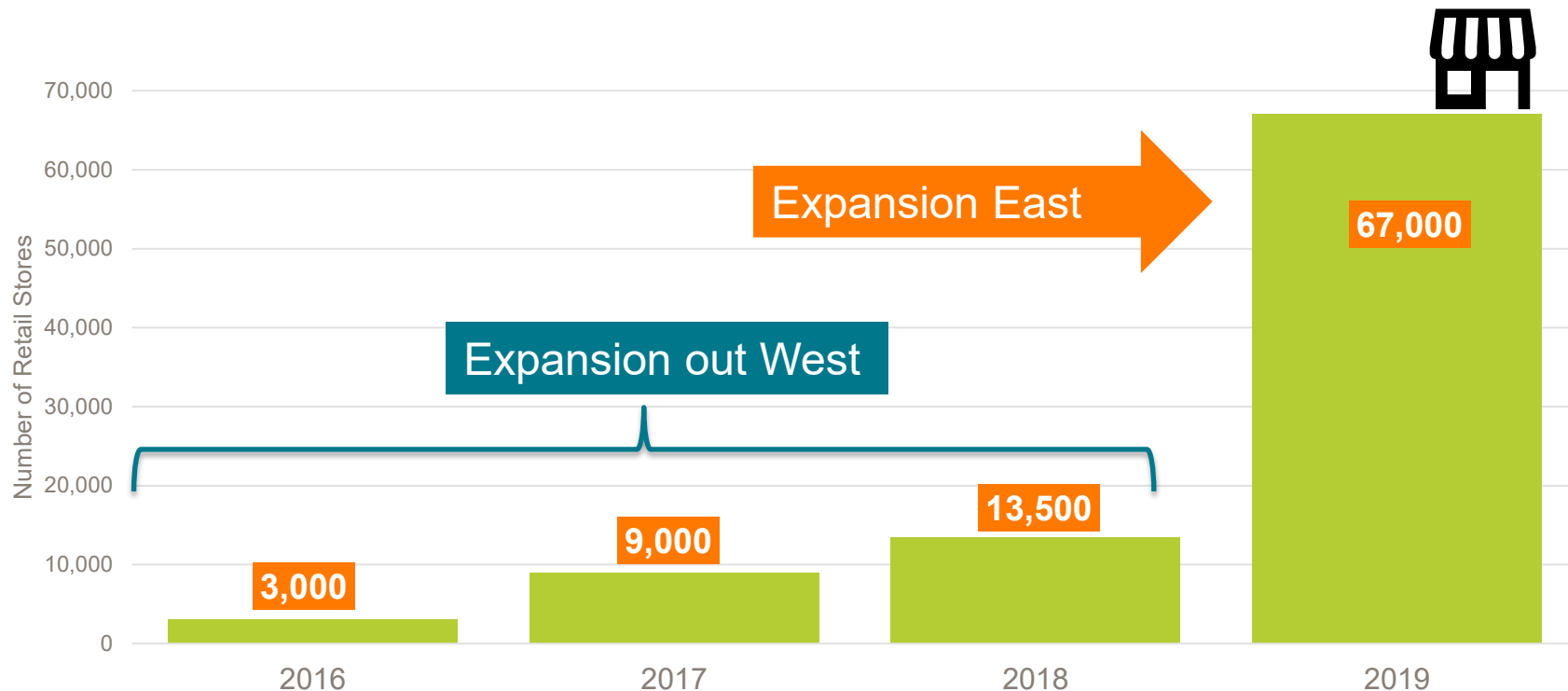
Swedish Match Total Number of Employees\*



Data from: [https://www.swedishmatch.com/globalassets/reports/annual-reports/2016\\_swedishmatchannualreport\\_en.pdf](https://www.swedishmatch.com/globalassets/reports/annual-reports/2016_swedishmatchannualreport_en.pdf)

\*Employees include employees outside of the US

# 2016-2019: ZYN's Continued Expansion and Increasing Availability



# 2022: Success Under Swedish Match

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**Number of  
Employees**

**73%**

**(4,402 – 7,536)**

**2014-2022**

**Number of  
Stores**

**4,500%**

**(3,000 – 138,000)**

**2016-2022**

**Number of  
Cans  
Shipped**

**1,633%**

**(12.7M-220M)**

**2018-2022**

# End 2022: Philip Morris International



World ▾ Business ▾ Markets ▾ Sustainability ▾ Legal ▾ Breakingviews ▾ Technology ▾ Investigations ▾

Reuters E&P World: Is the imitation battle really over? Join Carmel Crimmins for a discussion about possible interest rate

Deals

## Philip Morris to de-list Swedish Match after raising stake to 93%

By Marie Mannes

November 28, 2022 6:58 AM EST • Updated 2 years ago



Philip Morris  
International  
becomes sole  
owner of Swedish  
Match and Zyn



# 2023: ZYN US Goals

## Strong Category Outlook 2024-26

### U.S.:

ZYN driving strong top  
and bottom-line of  
total PMI U.S. business

### International:

Leveraging IQOS infrastructure  
with disciplined investments  
to drive mid-term growth

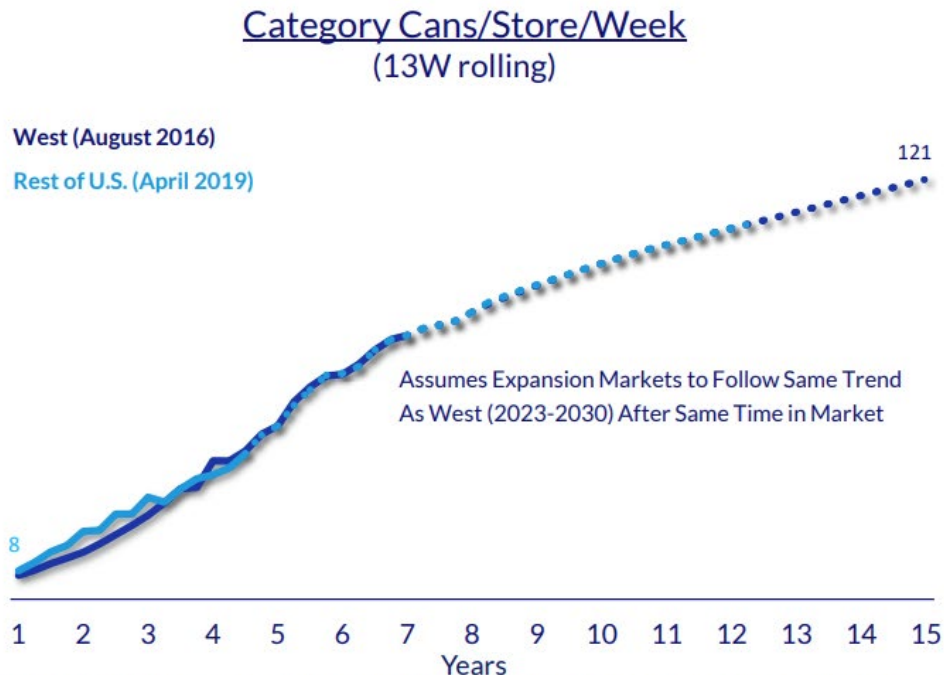
### Overall Oral Smoke-Free:

Continue innovating with high  
quality, serious propositions for  
adult nicotine users

Target  
800m-1bn  
Nicotine Pouch Cans  
by 2026,  
mostly from U.S.



# The Future of ZYN in the US



Potential Scenario  
of Velocity Growth  
Would Imply a  
2030 Category Size of:

~3x

Current Category Size

Note: Expansion of store universe assumed to be 5% per year for modelling purpose; expansion markets assumed to follow same trend as West (2023-2030) after same time in market  
Source: Company illustrative calculations based on IRI Unify



# PMI is investing \$600M to build a new Zyn manufacturing facility

- In summer 2024 numerous nationwide Zyn shortages were reported
- This expansion is in addition to their plan to increase production in Kentucky

6

Source: <https://www.nbcnews.com/business/business-news/zyn-maker-increases-production-capacity-new-600-million-facility-color-rcna162072>





**Who is Using Zyn?**

# 2023 Who is Using ZYN?



## ZYN Consumer Fact Sheet

### Demographics

39yrs

Average Age

33%

Women

### Average Weekly Consumption (cans)

4.2

ZYN Rewards Members

3.2

Total Average

### Split on Flavor & Nicotine Strength

62%

Mint Flavors

70%

6mg Nicotine

Who are the 19% missing?

36%

Traditional Oral

20% 25%

Maybe nicotine naïve users???

### Income & Education

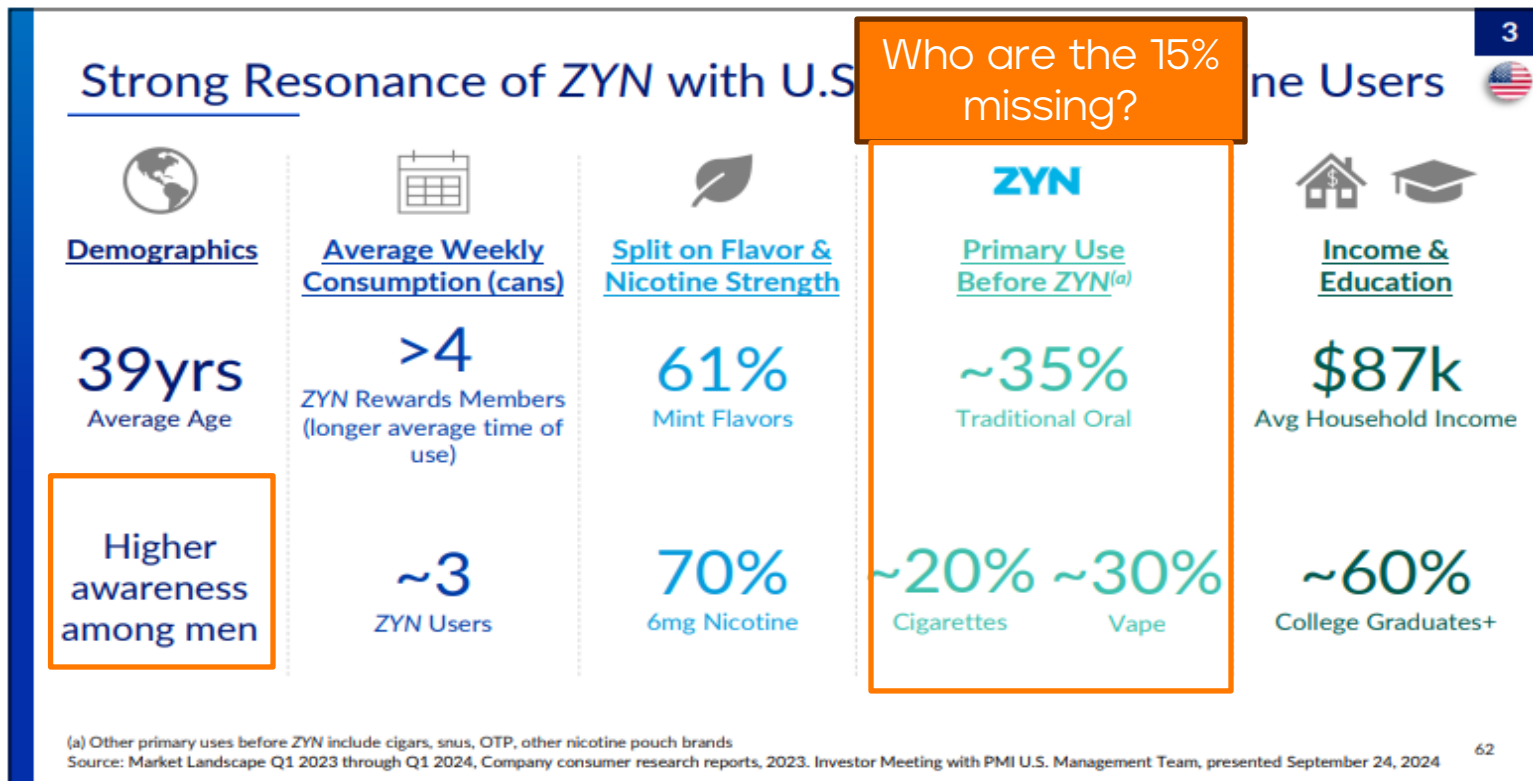
\$89k

Avg Household Income

60%

Graduates

# 2024 Who is Using ZYN?

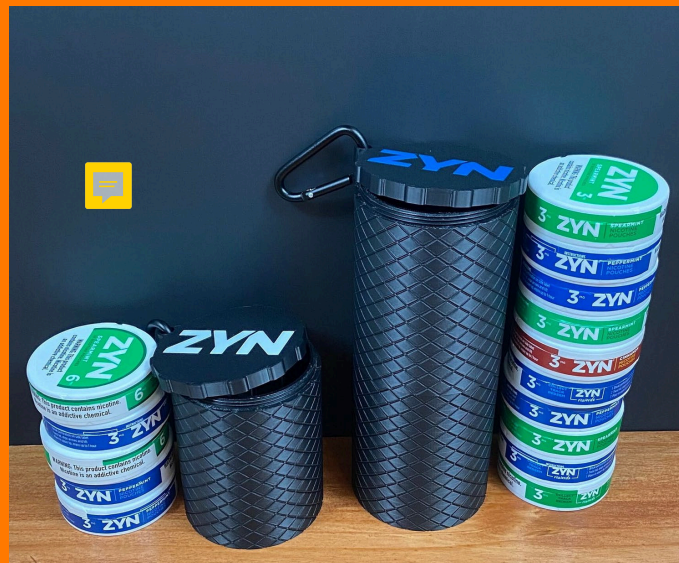


# A Few Use a Lot

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*So we -- a little bit of caution there to say exactly what the average consumption is. What we can say definitively is that if you look in -- among those consumers that are registered in the ZYN loyalty program, the average consumption is higher, around 4 or north of 4 cans per consumer in a week..."*

65% of sales are driven by  
20% of users

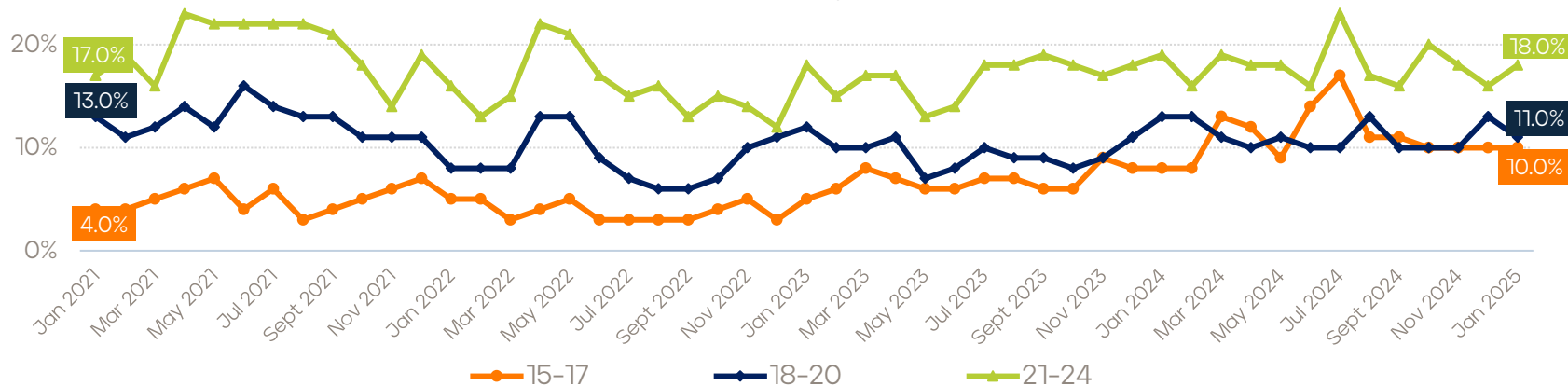


Quote from: [https://www.swedishmatch.com/globalassets/reports/annual-reports/2022\\_swedishmatchannualreport\\_en.pdf](https://www.swedishmatch.com/globalassets/reports/annual-reports/2022_swedishmatchannualreport_en.pdf)

Image: ZYN Travel Tube from: <https://tifablab.com/products/zyn-can-travel-tube-holds-5-cans-with-33665>

# Monitoring Use

- Surveillance systems have been slow to include Nicotine Pouches in the products being monitored.
  - Adults - 2022 **CPS-TUS data** reported **2.9%** of US adults had ever used nicotine pouches
  - Youth - 2024 **NYTS** reported **3.5%** of Middle and High School students had ever used nicotine pouches
  - **Truth Continuous Tracker Online** shows higher rates in online convenience samples:



# ZYN & FDA regulations

# ZYN's PMTA Submission

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- In March 2020, Swedish Match submitted PMTA applications to the FDA for 20 different Zyn products

3mg Products		6mg Products	
Cool Mint	Coffee	Cool Mint	Coffee
Peppermint	Cinnamon	Peppermint	Cinnamon
Spearmint	Smooth	Spearmint	Smooth
Wintergreen	Chill	Wintergreen	Chill
Citrus	Menthol	Citrus	Menthol

# Zyn receives PMTA Authorization



U.S. FOOD & DRUG  
ADMINISTRATION

January 15, 2025

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FDA NEWS RELEASE

## FDA Authorizes Marketing of 20 ZYN Nicotine Pouch Products after Extensive Scientific Review

*Agency Will Closely Monitor Youth Use and Company's Compliance with  
Marketing Restrictions*

\_\_\_\_\_



# PMTA Restrictions

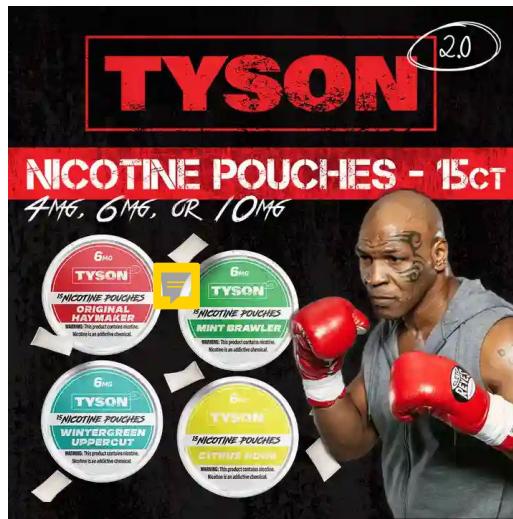
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- Imposes stringent marketing restrictions for **digital, TV and radio**, including measures to ensure ads **are carefully targeted to adults ages 21 and older** and the demographics of the audiences reached by the ads are tracked and measured by the manufacturer.
- PMI also intends to implement additional measures to **restrict youth access, reduce youth appeal and limit youth exposure to their labeling and advertising**:
  - Not using mass-market advertising on radio and TV
  - Employing actors/models for marketing that are no younger than 35 years old, or styled to appear under 35
  - Avoiding any content designed to target youth, including characters, images or themes.
- The agency may suspend or withdraw a marketing granted order ... [if] continued marketing of a product no longer meets the necessary public health standard, such as if there is a notable increase in youth initiation.

# ZYN: Inspiring Competitors



# Celebrity Owned or Endorsed Brands



Does this feel familiar?



# Remember JUUL?

HEALTH AND SCIENCE

## Tobacco giant Altria takes 35% stake in Juul, valuing e-cigarette company at \$38 billion

PUBLISHED THU, DEC 20 2018-7:04 AM EST | UPDATED THU, DEC 20 2018-4:43 PM EST



Angelica Peebles  
@IN/ANGELICAPEEBLES/  
@ANGELICAPEEBLES

SHARE f X in ✉

### KEY POINTS

- Altria has taken a 35 percent stake in Juul, the companies announce.
- Juul represents about 75 percent of the e-cigarette market.



# Disposable Vape Proliferation



# The E-Cigarette Evolution



# E-cigarette Technology Continues to Evolve

2007- Cig-a-like (Reusables and "Try a New Product" Disposables)



2010 Mods and Tanks



2015-2016 Pod Based



2018 Disposables



2020-2021 New-Gen Disposables



2023: New  
Smart Vapes



"We are becoming a tech company"

# From Disposables to Disposable-Rechargeables

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- Key Characteristics:
  - Rechargeable battery with a USB charger that allows for even larger liquid capacity, though products are still one-time use products
  - In March 2021, Schroeder Institute researchers noticed "new" products, marketed as Disposable Rechargeables – currently 1065 documented products
  - This represents 20% of our ENDS consumable products



# Disposable Vapes Incorporate "Smart" Features



Digital  
Screen



Adjust Flavor  
And Nicotine  
Levels



Access  
to Apps



Visual  
Notifications

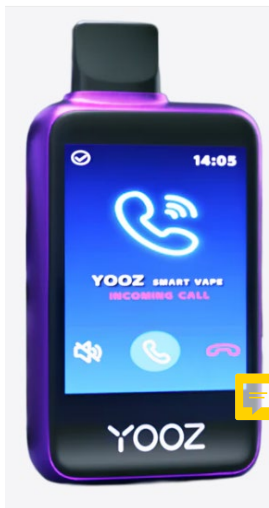


Proximity



Games

# ... and More Features



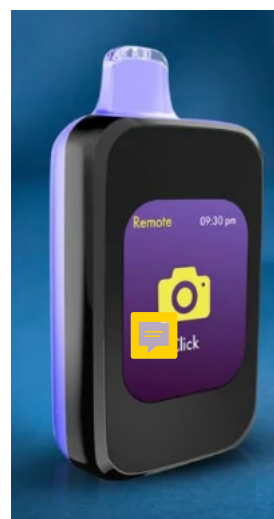
Answer  
you phone



Provides  
Time



Fitness  
Tracker



Selfie  
Mode



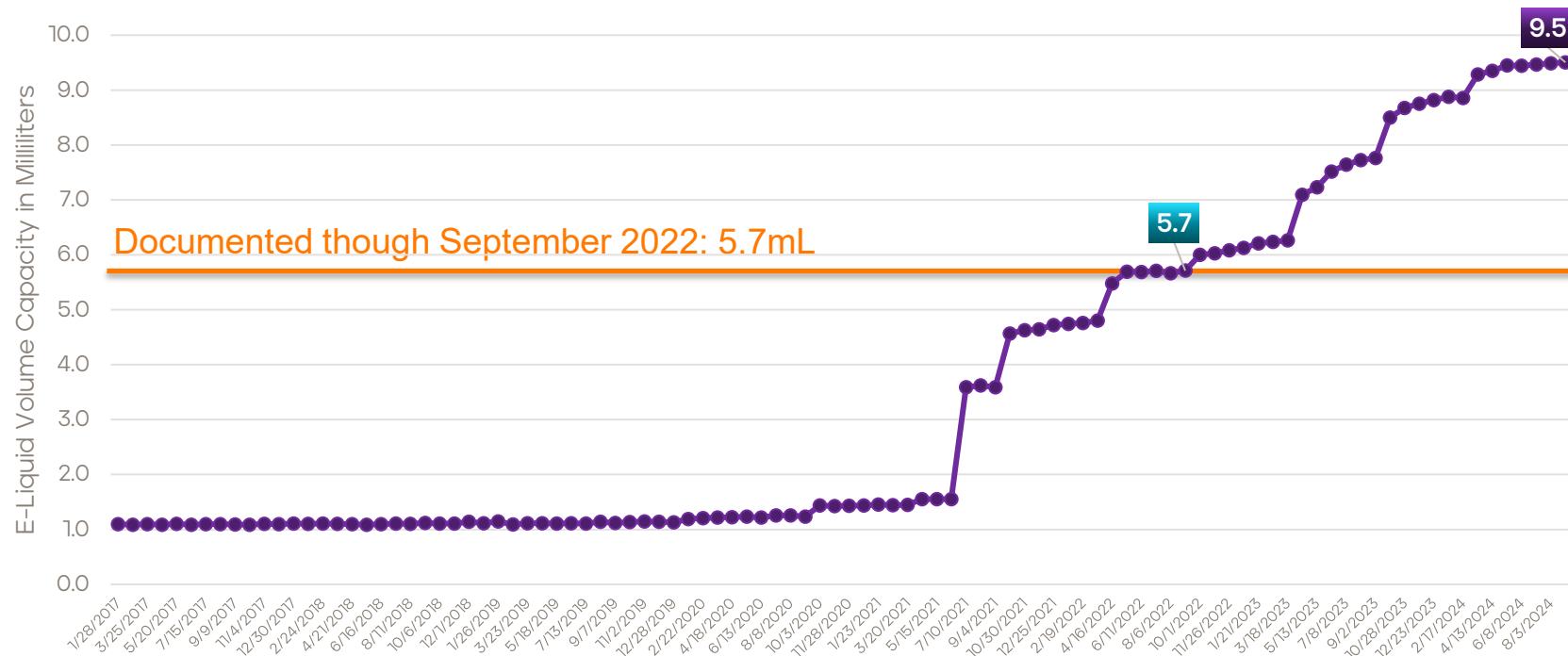
AI  
powered



Smart and  
Discrete



# Disposable E-cigarettes Getting Even Bigger



# The Extra-Large Group



20 mL  
26.7 JUUL  
Pods



26 mL  
34.7 JUUL  
Pods



28 mL  
37.3 JUUL  
Pods



40 mL  
53.3 JUUL Pods

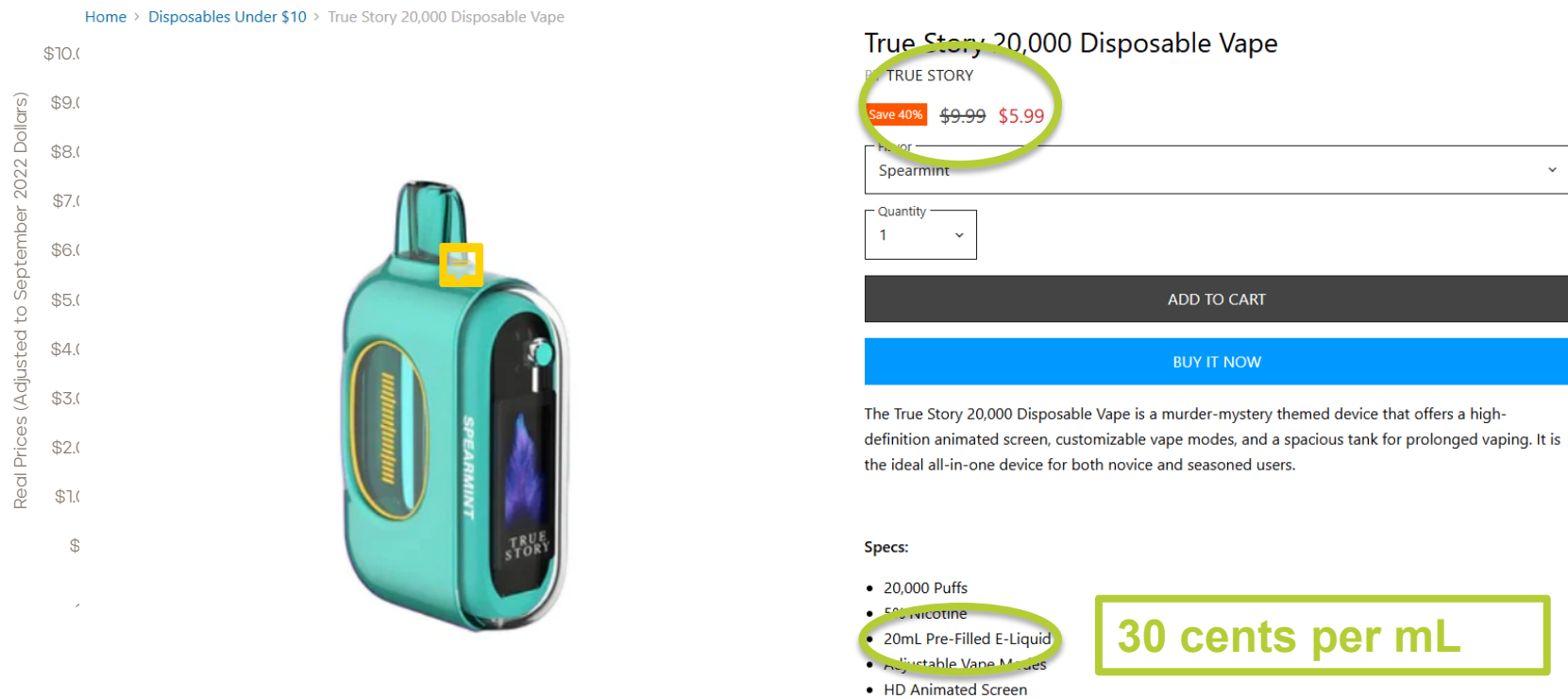




# Disposable E-cigarettes Nicotine Strength Has Increased



# Disposable E-cigarettes Are Getting Cheaper



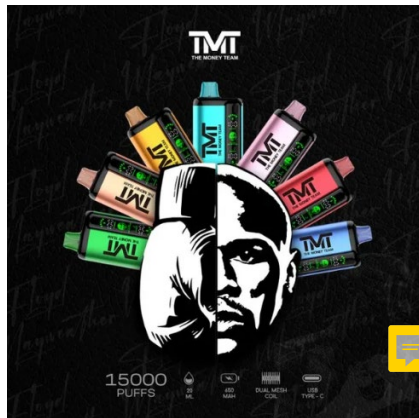


# Disposable E-cigarette May Be Sweeter?

- Research by Erythropel and colleagues finds the **presence** of **neotame** in **57 of 73 tested e-cigarettes**
- Found in disposables, zero-nicotine, and nicotine analogue product
- Neotame is 7,000 to 13,000 times sweeter than table sugar
- Mean neotame content approximately 4.6x than mint candy
- \*\* No FDA authorized cartridge nor JUUL contained neotame



# Celebrity Owned or Endorsed Brands

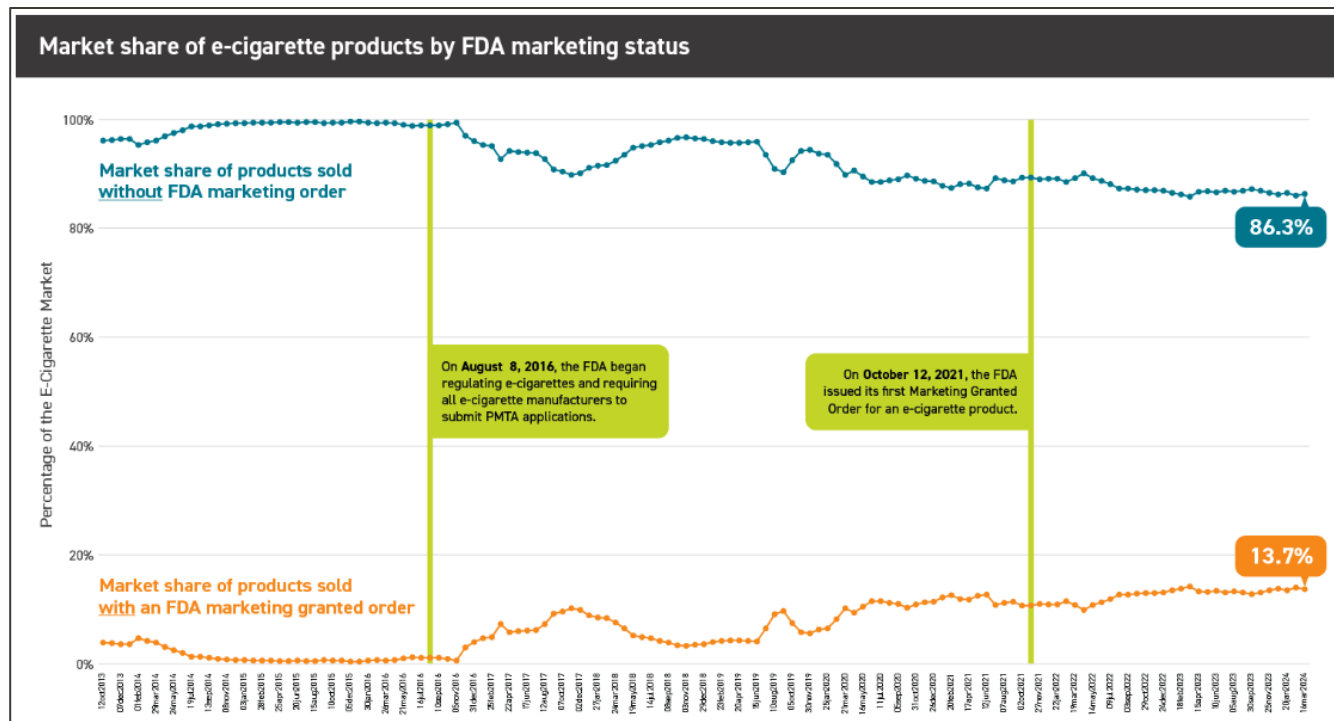


# Agile e-cigarette industry creates regulatory challenges

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- Chinese companies are the source of nearly all disposable e-cigarettes
  - Very effective in producing highly attractive and potent products, with high rates of innovation
  - Can move far more quickly than regulators can
  - They can thwart regulations on product design and features, unclear if they have applied for PMTAs
  - Very extensive supply chain and distribution channels
- Illegal products have multiple methods for gaining entry to the US:
  - Typical methods of deception in container shipping
  - Different countries of origin to get around heightened focus on Chinese goods
  - Air cargo
  - Impossible challenges to effective interdiction strategies

# 86% Of E-cigarette Retail Sales Dollars Are For Illegal Products



Delta-8



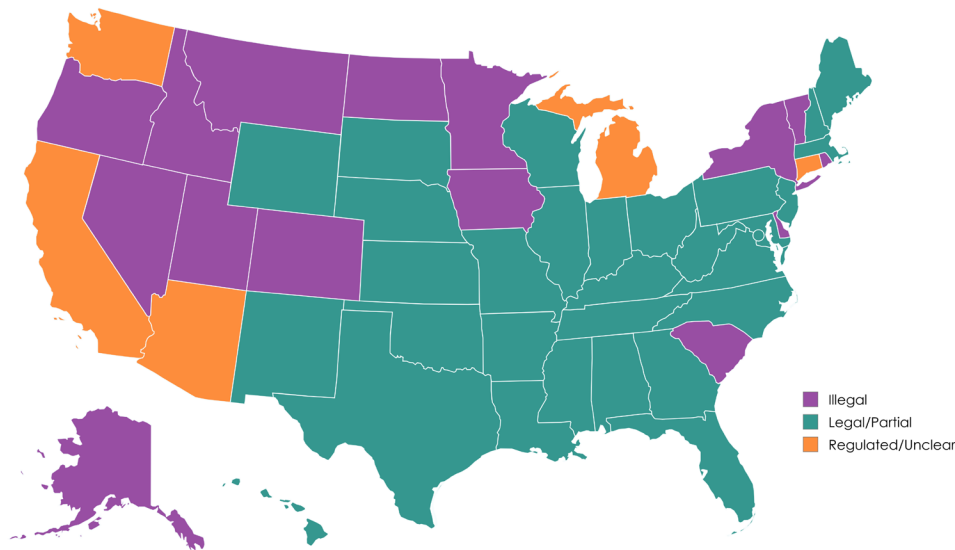
# What is Delta-8 THC?

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- Delta-8 THC is a psychotropic cannabis-derived compound (**cannabinoid**) found naturally in cannabis in very little quantities.
  - Traditionally, similar to Delta-9 THC found in marijuana but produces less of a high
  - However, Delta-8 is now synthesized to produce euphoric states similar to Delta-9
- How is it different from **cannabidiol** (CBD)?
  - CBD does not produce the "high" or euphoric state that THC (Delta 8 or 9) does
- Delta 8 found
  - Vape liquids
  - Edibles (e.g., chocolate & gummies)
  - Cannabis oils
  - Capsules

# Is Delta-8 legal?

- **Delta-8 products are federally legal**
  - AK Futures v. Boyd Street Distro
    - Courts ruled in favor of AK Futures, and said that the 2018 Farm Bill was straightforward and unambiguous regarding hemp, making Delta-8 THC federally legal
- States are taking action to regulate it or make it illegal



Created with mapchart.net

# Agencies At Play in Regulating Delta-8

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Federal Agency	Role
United States Department of Agriculture (USDA)	<ul style="list-style-type: none"><li>Regulates hemp production in the U.S. under the 2018 Farm</li></ul>
United States Food and Drug Administration (FDA)	<ul style="list-style-type: none"><li><b>Does not regulate it</b></li><li>However, has some regulation under the Federal Food, Drug, and Cosmetic (FD&amp;C) Act if false advertisements are made</li></ul>
Federal Trade Commission (FTC)	<ul style="list-style-type: none"><li>Shares jurisdiction with FDA for false advertisements under the Federal Trade Commission Act (FTCA)</li></ul>
Drug Enforcement Agency (DEA)	<ul style="list-style-type: none"><li>Regulates marijuana/cannabis and synthetically derived THC under the Controlled Substances Act (CSA)</li></ul>



# Miami High Disposable Vape Cartridges

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- Company – Diamond CBD
- 900 mg of Delta-8 THC
- Design similar to popular video game Grand Theft Auto
- Flavors – Skywalker OG, Pineapple Express, Wedding Cake, Maui Wowie, Blue Dream



# JustDelta Delta-8 Disposable Vapes

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- 1000 mg of Delta-8 THC
- Colorful cosmic design
- Flavors – Bubble Gum Galaxy, Pineapple Express, Strawberry Cough, Zkittlez
  - Example description: "Zkittlez is an Indica Dominant Strain. It has **berry** and herbal **candy fruity** flavor."



# TRĒ House Hybrid Vape Pen

- Contains:
  - 1250 mg of delta-8 THC
  - 5 mg of delta-9 THC
  - 500 mg of delta-10 THC
  - 60 mg of THC-O
- Colorful packaging
- Flavors – Rainbow Sherbet, Wedding Cake, Lemon Jack, Watermelon ZKIT, Blue Milk, Lemon Slushie

Home / Delta 8 Vape Pen + D9 + D10 + THCO – Rainbow Sherbet – Hybrid 2g



## Delta 8 Vape Pen + D9 + D10 + THCO – Rainbow Sherbet – Hybrid 2g

★★★★★ 448 Reviews

\$39.99



- 1250mg of Delta 8 per pen
- 5mg of Delta-9 per pen
- 500mg of Delta-10 per pen
- 60mg of THC-O per pen
- Tastes like the popular Rainbow Sherbet Cannabis Strain
- Rechargeable for maximum enjoyment (Approx. 800 puffs!)
- Disposable

- Can get you lifted AF
- Warning: May cause psychotropic effect

### Effects

- CHILLAXED
- ENERGETIC
- EUPHORIC

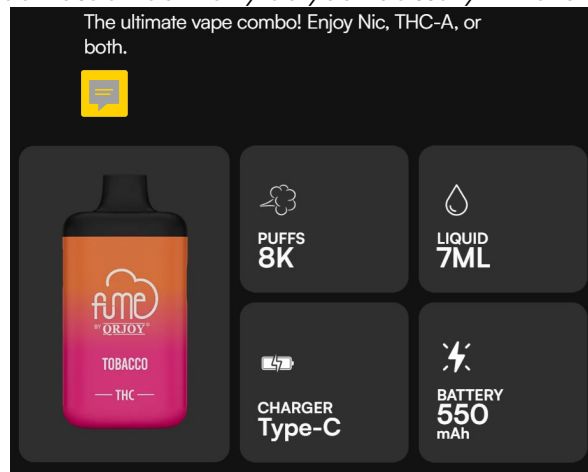
"Remember, start with just one puff! You can always puff more later. Our vape pens are very potent and we don't want you to get too ripped or feel overwhelmed. Start small and work your way up. **Trust us, we were surprised by how powerful our own products are.**"

# Dual Cannabis and Nicotine Devices



.... ExStax, a cannabis technology and extraction company from Arizona...told High Times that every cartridge they sell comes with a removable mouthpiece, allowing the user to either use the cartridge as is or to essentially stack vaporizer chambers on top of one another and hit them at the same time.

"You can stack as many as your battery will allow,"



Sources: <https://hightimes.com/products/spliff-vape-new-tech-allows-cannabis-nicotine-to-be-vaped-simultaneously/>;  
<https://www.fumevapors.com/products/spliffboyz>

# Nicotine Analogs

# Nicotine Analogs

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US

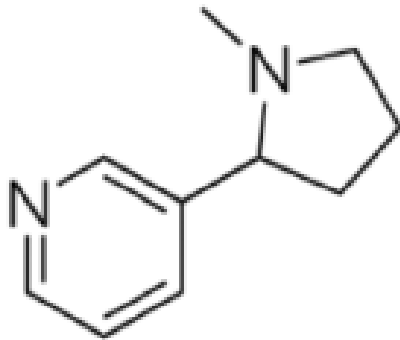
## **FDA warns that nicotine-like chemicals in vapes may be more potent than nicotine**

Synthetic substances are not regulated by US tobacco and vaping laws that control traditional nicotine

· Reuters

# Nicotine Analogs

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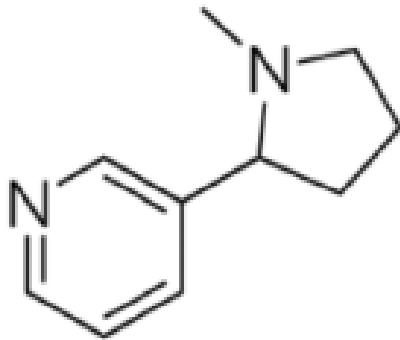


Nicotine

Derived from the tobacco leaf or  
lab-created (i.e., synthetic)

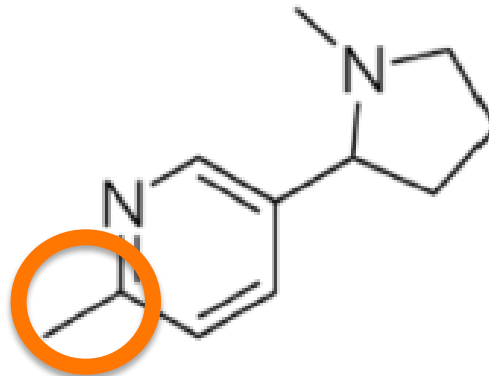
# Nicotine Analogs

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Nicotine

Derived from the tobacco leaf or lab-created (i.e., synthetic)



6-methylnicotine

Has a similar structure and binds to nicotinic receptors in the brain

*\*One example of a nicotine analog*



# Nicotine Analogs

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- ...“compounds which are structurally similar or related to nicotine, including enantiomers, nicotine derivatives, metabolites and salts.”
- Throughout the 1970s-1980s, cigarette makers studied nicotine analogs:
  - Replacing nicotine to make more desirable/safer products
  - Evade nicotine regulations
  - Pharmaceutical development

**so where are we now...?**

# E-cigarettes and E-liquids With Nicotine Analogs

## Devices



## E-liquids



# Pouches with Nicotine Analogs



**PMTA EXEMPT** **TOBACCO TAX EXEMPT**

# STR8UP™

Oral Novatine™ Pouches

20 POUCHES 4mg: COOL MINT, WINTERGREEN, COOL GUM, STRAWBERRY COOL

20 POUCHES 4mg: WARNING: This product is intended only for adults. This product may be addictive.

20 POUCHES 4mg: WARNING: This product is intended only for adults. This product may be addictive.

20 POUCHES 4mg: WARNING: This product is intended only for adults. This product may be addictive.

20 POUCHES 8mg: MANGO

WARNING: This product is intended only for adults. This product may be addictive.

**NO TOBACCO LICENSE REQUIRED**

- NOVATINE™ IS A COMPOUND SIMILAR TO TOBACCO & SYNTHETIC NICOTINE
- 8 AMAZING FLAVORS IN 4MG, 8MG, & 12MG STRENGTHS
- 100% BIODEGRADABLE POUCHES

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SCAN FOR WEBSITE

[www.GetSTR8UP.com](http://www.GetSTR8UP.com)  
PRODUCT OF JUST GOOD VIBES LLC

# Future Products

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- In addition to pouches and e-cigarettes, a website selling **imotine** (6MN) describes its potential use in lozenges and patches.



Lozenges



Transdermal Patches

PHILIP MORRIS U. S. A.  
INTER-OFFICE CORRESPONDENCE  
RICHMOND, VIRGINIA

To: Dr. J. L. Charles

Date: April 8, 1984

From: E. B. Sanders

Subject: Smoking of Experimental Cigarettes

Hand made cigarettes were constructed by Grover Newell as follows<sup>1</sup>. The tobacco used was denicotinized tobacco X60ZC11 obtained from Frank Gulotta. The tobacco was treated with five solutions as described below:

1. 10 g of tobacco treated with 3 ml 95% ethanol containing 324 mg (S)-nicotine (7566-199c, CR-1290A) and 384 mg citric acid (Fisher).
2. 10 g of tobacco treated with 3 ml 95% ethanol containing 296 mg (R,S)-nornicotine (7471-120, CR-1289) and 384 mg citric acid (Fisher).
3. 10 g of tobacco treated with 3 ml 95% ethanol containing 324 mg (R,S)-3,3'-isonicotine (7733-133c, CR-1766A) and 384 mg citric acid (Fisher).
4. 10 g of tobacco treated with 3 ml 95% ethanol containing 352 mg (R,S)-homonicotine (7957-3A, CR-1890) and 384 mg citric acid (Fisher).
5. 10 g of tobacco treated with 3 ml 95% ethanol containing 316.4 mg nicotine (7957-2c, CR-2289) and 192 mg citric acid (Fisher).

Cigarettes 2-5 were smoked vs. cigarette 1 as a control. Smoking results follow:

Cigarette 2: Sweet, slightly hot, herbaceous, anethole like, sweet warm, smooth (Spielberg); off taste, milder, less harsh than control, less impact than control, mouth coating (Charles); tobacco like, dry, slightly sweet, after taste (Sanders).

Cigarette 3: Amine like, mild, slightly peppery, slight rubbery, flat, metallic, off taste, strong amine (Spielberg); slight metallic, fruity, milder than control, less peppery than control, less choking than control (Ikeda); off taste (Charles); mouth coating, hot, harsh, off taste, less woody than control (Sanders).

Cigarette 4: First puff - sweet, peppery, slightly celery like, slightly hot; second puff - harsh, good impact, slightly astringent; third puff - sweet, clean; fourth puff - slight mouth coating, tingling mouth sensation (Spielberg); musty character, odd off odors, old wash towel, slight fruity aromatic, harsh (Ikeda); less harsh than control, little throat grab, slight off taste (Charles); metallic, bitter, after-taste, off taste (Sanders).

Cigarette 5: Very different first puff, different flavor, aromatic, waxy, fatty, most different (Spielberg); distinct off note, dirty taste (Charles); extreme off taste, hot, sour, musty (Sanders).



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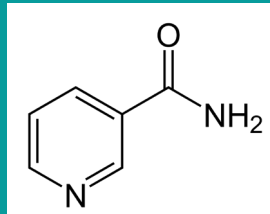
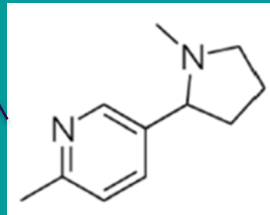
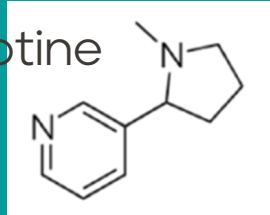
Philip Morris  
conducted research in  
the 1980s on  
cigarettes made with  
analogues

# Current Nicotine Analogs

To date, **2** nicotine analogs are being used (with *many* trademarked names)

- **6-methyl nicotine (6MN)**
- Structurally very similar to nicotine
- Binds to nicotinic receptors

Nicotine

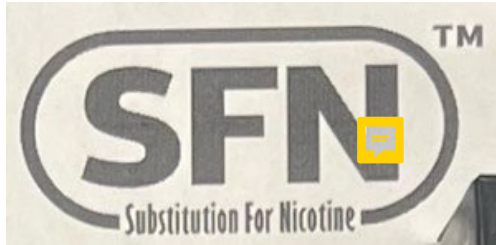


- **Nicotinamide**

- Water-soluble form of vitamin B3
- Not as structurally similar and does not bind to nicotinic receptors

# The *Many* Trademark Names of 6MN

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Metatine™

*imotine*™

Nixodine™

Nixotine® flavored Nixodine®

NoNic®

NONIC6



# Future Analogs

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## Top Chinese vape firms research nicotine alternatives

By Emma Rumney

September 25, 2024 5:37 AM EDT · Updated 5 months ago



- “Three large Chinese vape companies are researching nicotine-like chemicals they think **could serve as a substitute for nicotine** in products like vapes, company officials said, but **the health implications may still need “years”** of investigation”
- “Hangsen International was looking at around **10 nicotine analogs**, including 6-methyl nicotine, she said”

# Potential Health & Addiction Risks

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## 6-methyl nicotine (6MN)

- 1.5–3x lower median LD50 than nicotine  
=> more lethal to lab animals
- 6MN is about twice as toxic to bronchial epithelial cells (*in vitro*) vs. nicotine
- Limited human exposure data, including inhalation data

## Addiction:

- Researchers at Philip Morris found that 6MN exhibited **greater binding to nicotine receptors** in rat brain, compared to nicotine
- Limited human exposure data

\*Animal findings don't always fully translate to humans

# Potential Health & Addiction Risks

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## Nicotinamide

- Designated as GRAS as a food additive
- Inhalation toxicity data is lacking
  - Chemical safety documentation warns that inhaling nicotinamide powder may cause respiratory irritation
- In rodent studies, nicotinamide has sedative effects (nicotine is a stimulant)

## Addiction:

- No evidence that nicotinamide binds to nicotinic receptors

\*Animal findings don't always fully translate to humans

# Federal Regulation

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- Products made with nicotine analogs (and no tobacco/nicotine) do not meet the definition of a tobacco product
  - Not currently regulated by CTP
- However, these products could be classified as drugs and subject to regulation by FDA's Center for Drug Evaluation and Research (CDER)
  - Analogs (especially 6MN) have known pharmacological effects
  - Some companies make drug-like claims
- FDA may be waiting for Congress to act
  - Similar to the experience with synthetic nicotine

# State and Local Regulation

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## January 1, 2025 – California law in effect

(11) "Nicotine" means any form of the chemical nicotine, including any salt or complex, regardless of whether the chemical is naturally or synthetically derived, and includes nicotinic alkaloids and nicotine analogs.

## March 2025 – Denver ordinance in effect

(g) Nicotine means any form of the chemical nicotine, including any salt or complex, regardless of whether the chemical is naturally or synthetically derived, and includes nicotinic alkaloids and nicotine analogs such as metatine.

Several other states have filed bills

# Key Takeaways

# Key Takeaways

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Oral nicotine pouches, with Zyn as the market leader, are a new and rapidly growing product category

Youth use is currently low, BUT nicotine pouches may appeal to youth because they are flavored and can be used discreetly

Nicotine pouches are marketed through a variety of channels (e.g., radio, TV, point of sale)

Long-term health risks are not known

# Key Takeaways

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Disposable e-cigarettes are getting bigger, stronger, cheaper, and some are getting smarter and sweeter

Over 80% of all e-cigarette sales dollars are for illegal products

Delta-8 products produce a light high and are legal at the federal level

A variety of e-cigarettes and pouches are being sold that are made with nicotine analogs; not covered by federal and most state/local tobacco control laws



# Questions?

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