

# Addressing the Plastic Pollution Crisis in San Mateo County and Beyond

Midcoast Community Council Meeting  
November 10, 2021



Plastic Free Future

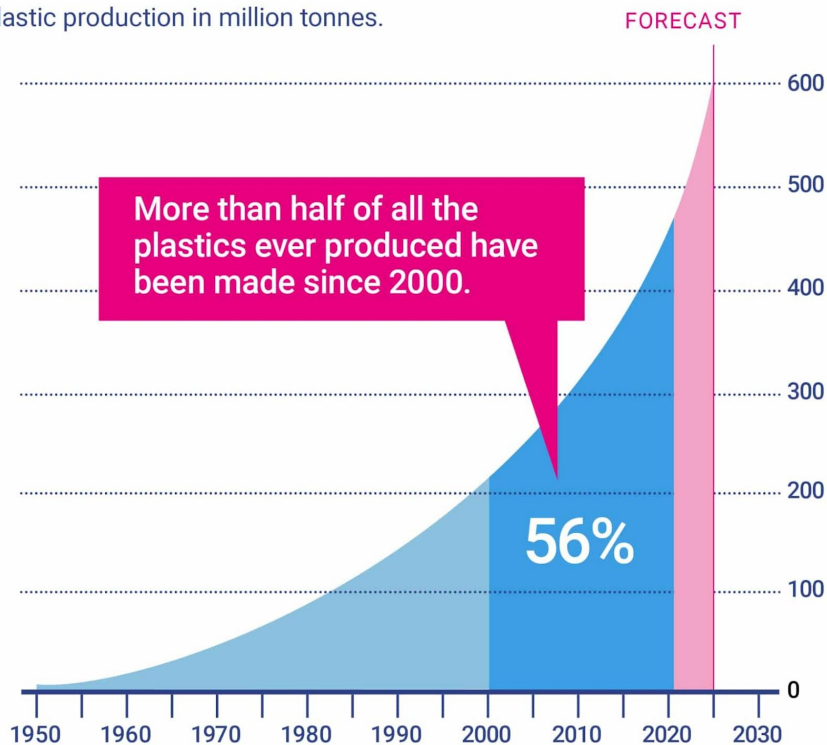
Alejandra Warren, Executive  
Director  
Matt Warren, Science Advisor



[plastic-free-future.org](https://plastic-free-future.org)

# PRODUCTION OF PLASTIC

Global annual plastic production in million tonnes.



SOURCE: PLASTIC ATLAS 2019 | © PLASTIC SOUP FOUNDATION

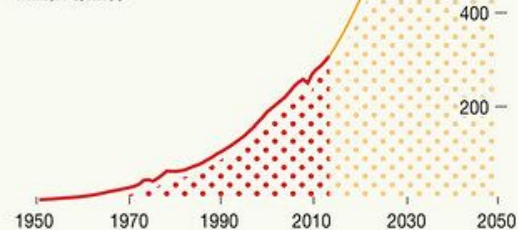
## Global plastic production...

Million tonnes, 2013



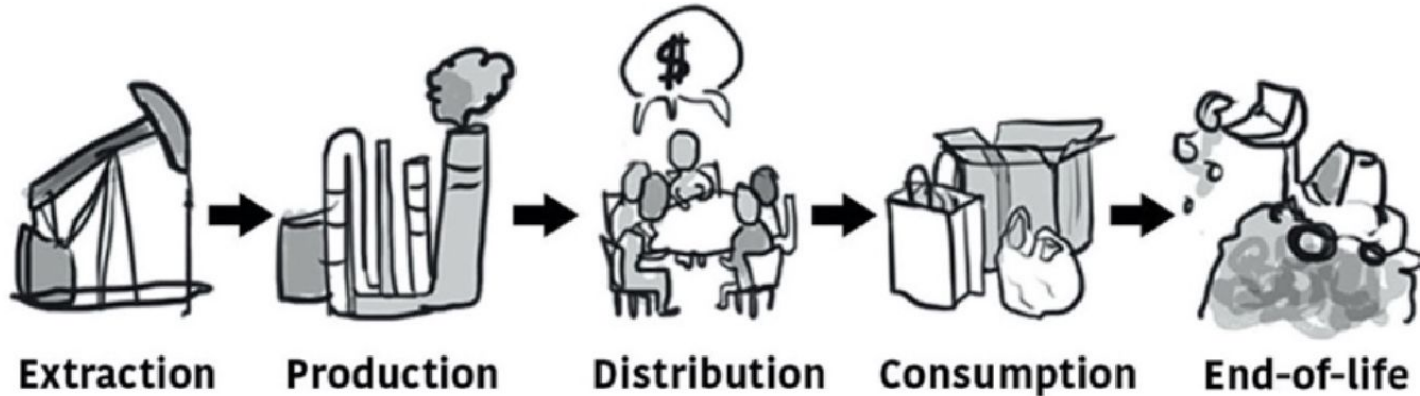
## ...and future trends

Million tonnes



Source: Ryan, A Brief History of Marine Litter Research, in M. Bergmann, L. Gutow, M. Klages (Eds.), Marine Anthropogenic Litter, Berlin Springer, 2015; Plastics Europe

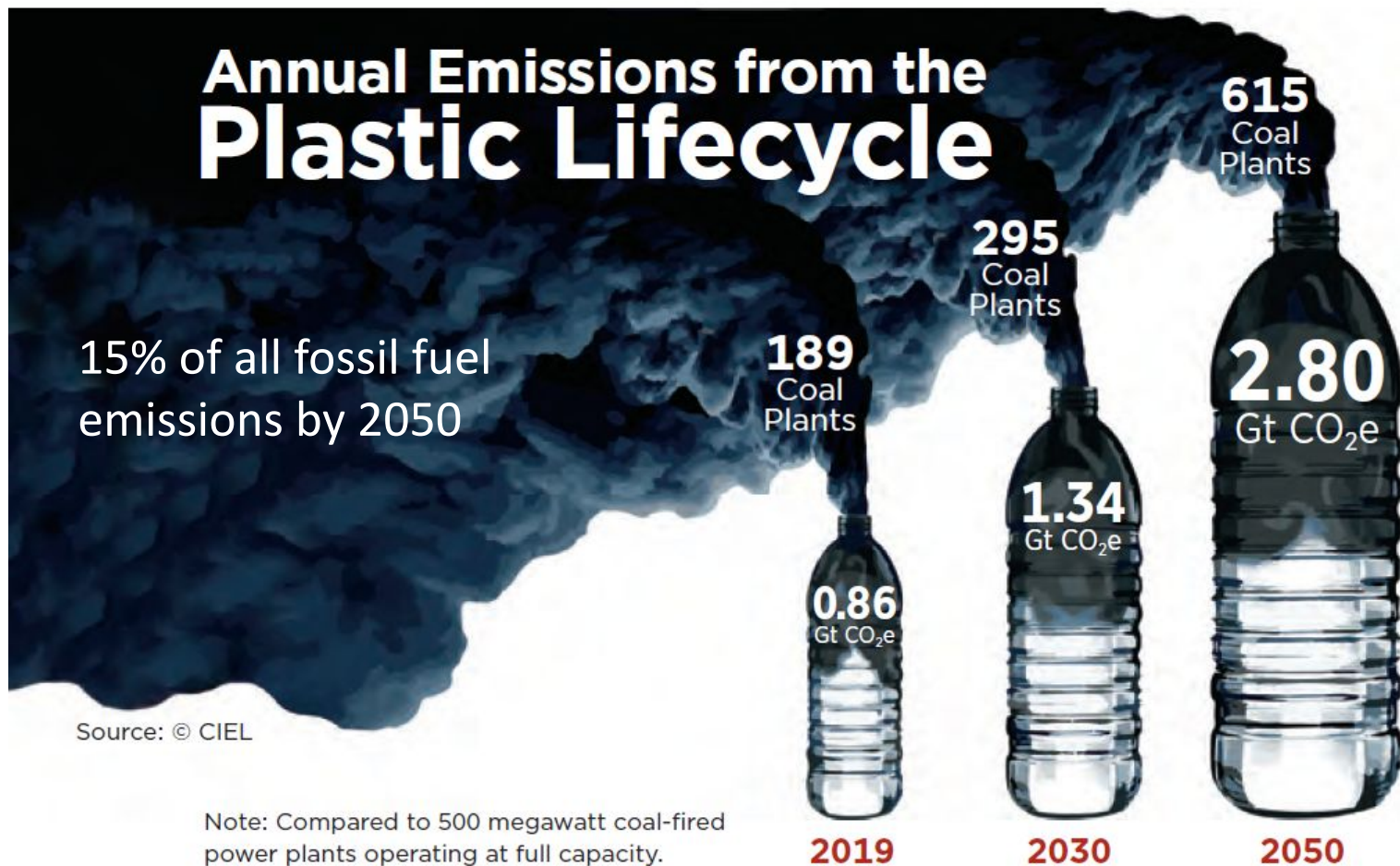
# Plastic Product Lifecycle



Source: The Story of Plastic

FIGURE 1

## Emissions from the Plastic Lifecycle



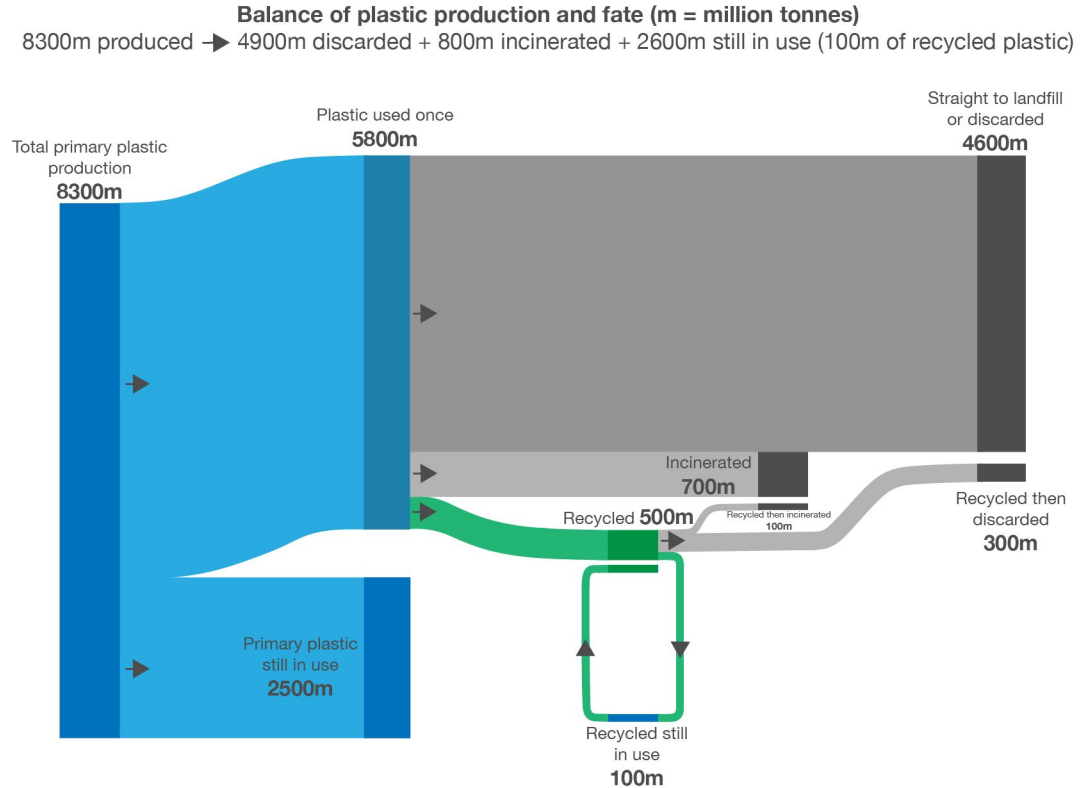
Only **9%** of all plastics every made have been recycled. In the USA, recycling rates are **8.7%** and decreasing.

## Global plastic production and its fate (1950-2015)

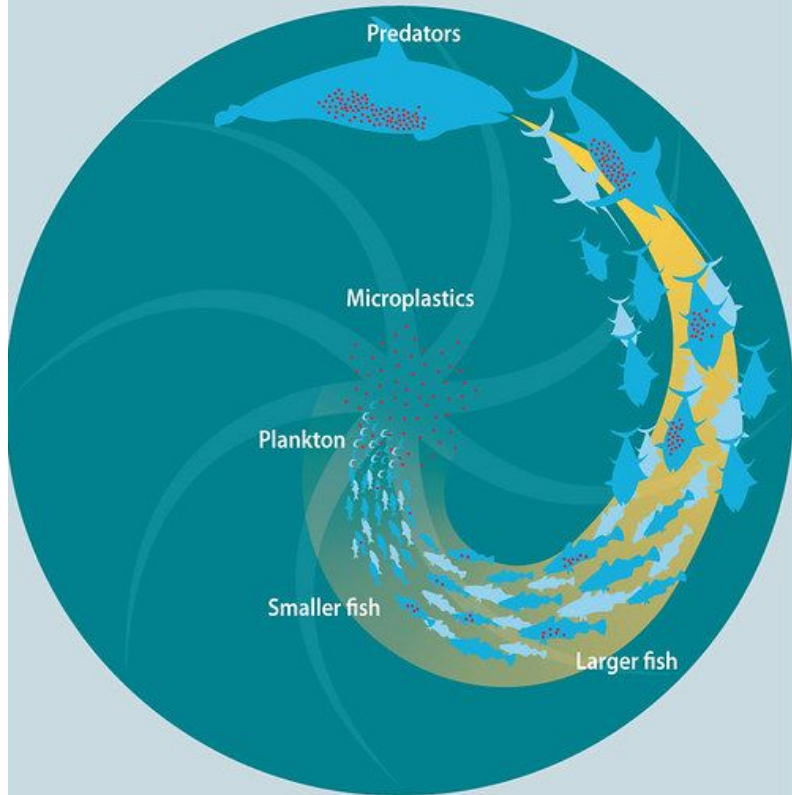


Global production of polymer resins, synthetic fibres and additives, and its journey through to its ultimate fate (still in use, recycled, incinerated or discarded).

Figures below represent the cumulative mass of plastics over the period 1950-2015, measured in million tonnes.



# Plastic bioaccumulation in the food web



Source: Rochman, C., M., The Complex Mixture, Fate and Toxicity of Chemicals Associated with Plastic Debris in the Marine Environment, in Marine Anthropogenic Litter, 2015

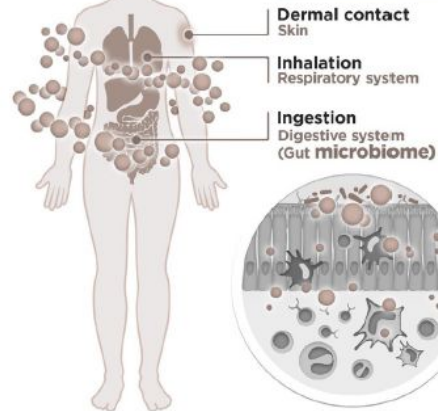
## Sources of nanoplastics

<p><b>Food and beverages</b> (e.g. seafood; canned food; salt)</p> 	<p><b>Water</b> (e.g. tap water, bottled water, bathing, food preparation)</p> 	<p><b>Air</b> (e.g. textiles, abrasion of car tires, buildings and furniture)</p> 	<p><b>Personal care products</b> (e.g. cosmetics, microbeads, toothpaste)</p> 	<p><b>Biomedical treatments and prosthetics</b> (e.g. pharmaceuticals, Polyethylene-based prostheses)</p> 
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Environmental weathering, leaching of synthetic additives, adsorbed contaminants and attached bacteria



## Portals of entry



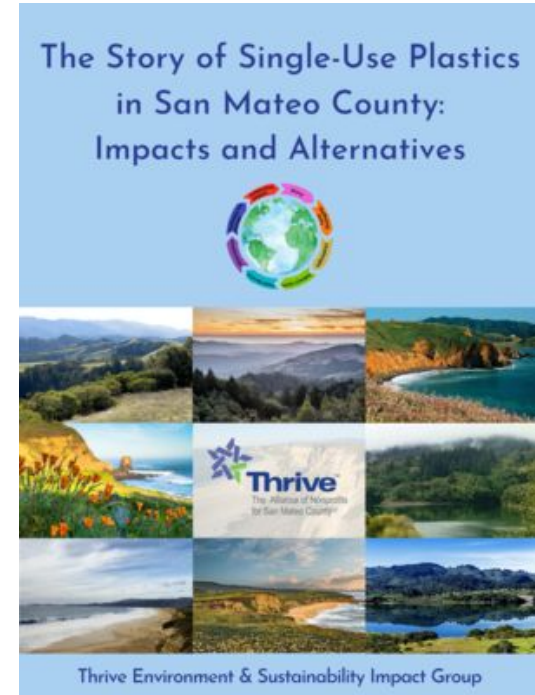
- Dermal contact**  
Skin
- Inhalation**  
Respiratory system
- Ingestion**  
Digestive system  
(Gut microbiome)

## Effects of nanoplastic exposure

Xenobiotic metabolism • Nutrient absorption • Energy metabolism  
Immune responses • Cytotoxicity • Behaviour (brain-gut axis)

# San Mateo County & Ox Mountain

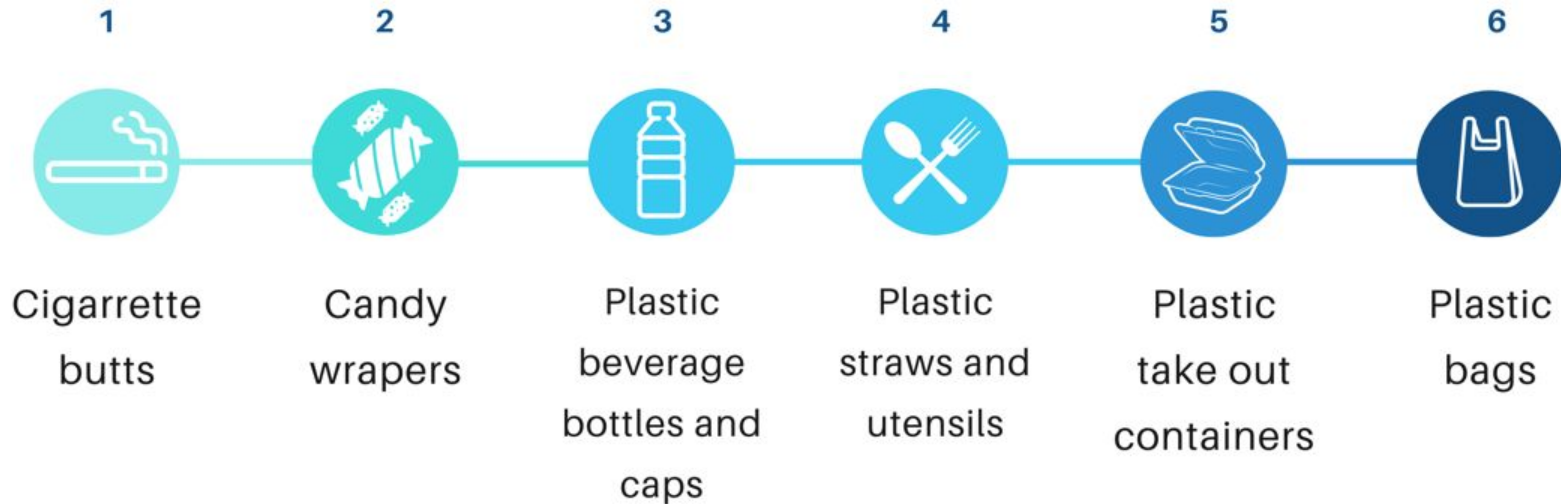
- SMC generated approximately 57,000 tons of single use plastic waste in 2018.
- 75% of San Mateo County's single use plastic waste is NOT RECYCLEABLE
- 87% is dumped in Ox Mountain Landfill near Half Moon Bay
- 574 tons end up in the Pacific Ocean and SF Bay
- Costs about \$500 million per year







# MOST COMMON ITEMS FOUND ON COASTSIDE BEACH CLEAN UPS



**Plastic Free Future**

# SAN MATEO DISPOSABLE FOODWARE ORDINANCE



- **Who?** Food facilities providing prepared food to the public.
- **What?** Bans Disposable Single Use Plastics
  - **Conversion to compostable** (e.g., paper, sugarcane, wood, bamboo). Larger items to have little/no harmful fluorinated chemicals
  - **Accessories Only Upon Request:** Unbundled as separate individual units, or at a self-serve area and/or a dispenser (e.g., straws, utensils, stirrers, napkins, condiment packets)
  - **Online Take-out Food Delivery Services** to distribute accessories only if customers opt-in
- **When?** Start October, 2022
- **How?** Food facility education & enforcement by SMC OOS



## USE REUSABLES!

Using reusable instead of disposable foodware is recommended\*.

- Use reusables made from metal, ceramic, and glass for dine-in. Free technical and financial assistance is available to help you switch to reusables for dine-in!
- Encourage consumers to bring their own reusable to-go containers.
- Consider foodware services that provide reusables for dine-in and take-out operations.

*\*Although reusable foodware is not included in the Ordinance, the County of San Mateo encourages the use of reusables.*



## CHOOSE FIBER-BASED!

Natural fiber-based, compostable materials (e.g., paper, sugarcane, bamboo, etc.) are required.

- Required for plates, bowls, cups, food trays, clamshells, boxes, deli containers, and other containers. Compostable plastic lining is ok, but must be approved by Biodegradable Products Institute (BPI) or another approved 3rd party.
- Required for four accessories (and their packaging): straws, stirrers, utensils, cocktail/toothpicks.



## REFUSE PLASTIC!

Plastic is **not** allowed for most disposable foodware.

- Foodware made from traditional plastic (petroleum-based) or compostable plastic (a.k.a. bioplastics, PLA, etc.) are not allowed.
- Polystyrene foodware (all #6 plastics and Styrofoam) is prohibited.
- Accessories cannot be bundled and must be distributed only upon request, at self-serve areas, and/or when consumer accepts an offer by food operator.



In addition to the ban on single use plastics, San Mateo County is encouraging **REUSE** as the most sustainable alternative.



# The new normal

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Almost ALL current California foodware policies include or encourage reuse for onsite dining

Cities that are currently drafting or have introduced reuse policies in the Bay Area and beyond –

Oakland, Petaluma, Palo Alto, Cupertino, San Francisco, Marin County, Burbank, Los Angeles, Santa Rosa.

# Why Reuse?

- Reduces waste and single-use
- Lower carbon emissions and water use
- Saves businesses money
- Improved diner and employee satisfaction
- Reduces impact of migration of harmful chemicals from single use foodware

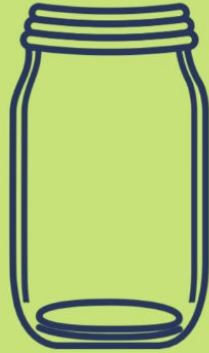




## Reusable Bag Incentive Program

<u>Market</u>	<u># Participants</u>
East Palo Alto	475
Half Moon Bay	240
Pacifica	230

PERFECT POUR CAFE AND PLASTIC FREE FUTURE



## WE ARE ACCEPTING REUSABLE MUGS, JARS AND CONTAINERS

Because we want to help you save  
the planet

—  
Ask about our punch card: bring your  
reusable 10x and receive a free coffee

## Normalizing “Bring Your Own Reusables”



# Why are “Compostable plastics” and “bioplastics” NOT a real solution?

- Compostable plastics generally produce MORE greenhouse gas emissions than single use plastics due to emissions released during the agricultural phase.
- Compostable plastics, lamination and liners can release harmful PFAS chemicals. See: [www.epa.gov/pfas/basic-information-pfas](https://www.epa.gov/pfas/basic-information-pfas)
- Most food service businesses do not have effective composting systems.
- Once in the environment, bioplastics behave identical to those made from fossil fuels.



# Q & A



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