

# Introduction: Quaternary Ammonium Compounds as Potential Priority Chemicals

Shoba Iyer, PhD

Office of Environmental Health Hazard Assessment

Presentation to the Scientific Guidance Panel

March 8, 2021



**BIOMONITORING**  
**CALIFORNIA**

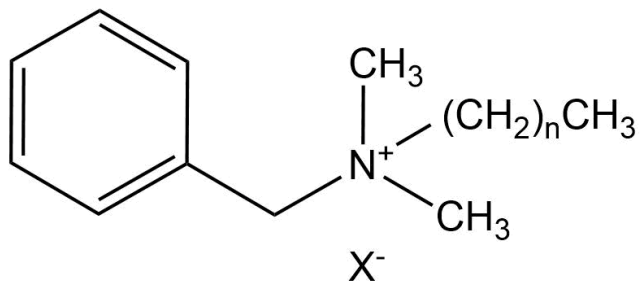
# SGP actions on quaternary ammonium compounds (QACs)

- ▶ March 2019: Panel requested preliminary screening of QACs
- ▶ July 2019: Preliminary screening reviewed by SGP
  - Panel requested that OEHHA prepare a potential designated chemical document on QACs
- ▶ March 2020: SGP considered QACs as potential designated chemicals
  - Panel recommended that the class of QACs be added to the list of designated chemicals
  - Panel requested that OEHHA prepare a potential priority chemical document on QACs

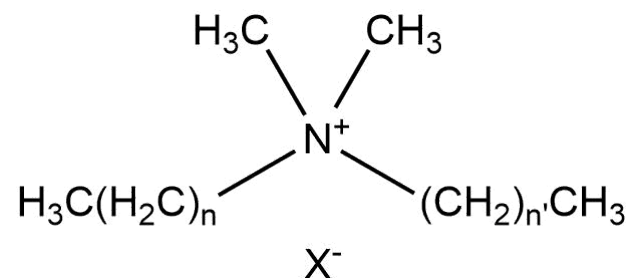
# Criteria for recommending priority chemicals

- ▶ The ***degree of potential exposure*** to the public or specific subgroups
- ▶ The ***likelihood of a chemical being a carcinogen or toxicant*** based on peer-reviewed health data, the chemical structure, or the toxicology of chemically related compounds
- ▶ The ***limits of laboratory detection*** for the chemical, including the ability to detect the chemical at low enough levels that could be expected in the general population
- ▶ Other criteria that the panel may agree to

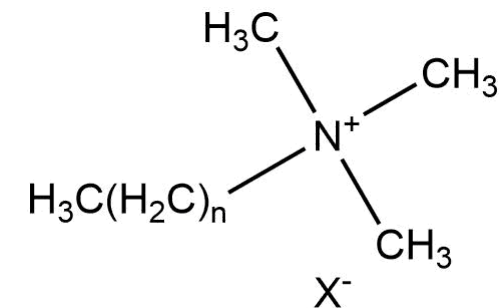
# Chemical structures of selected QACs



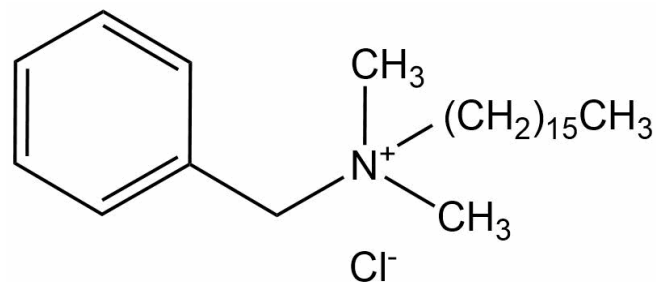
Benzylalkyldimethyl ammonium compounds (BACs)



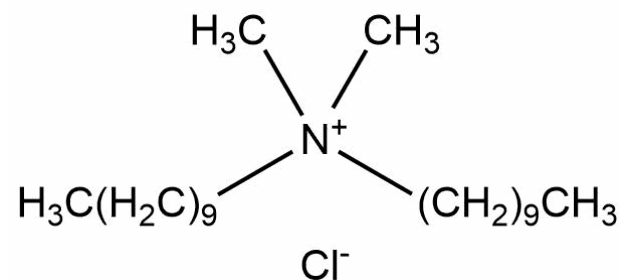
Dialkyldimethyl ammonium compounds (DADMACs)



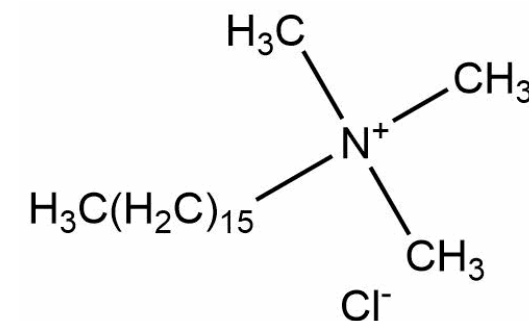
Alkyltrimethyl ammonium compounds (ATMACs)



Benzylhexadecyldimethyl ammonium chloride

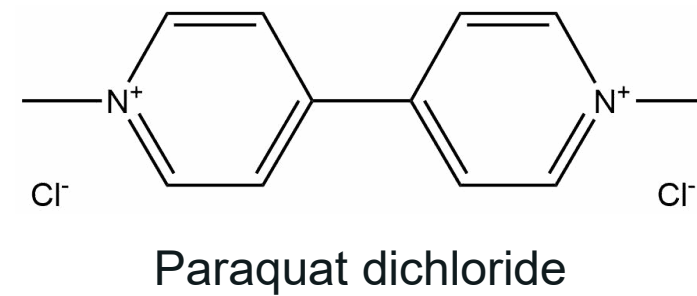
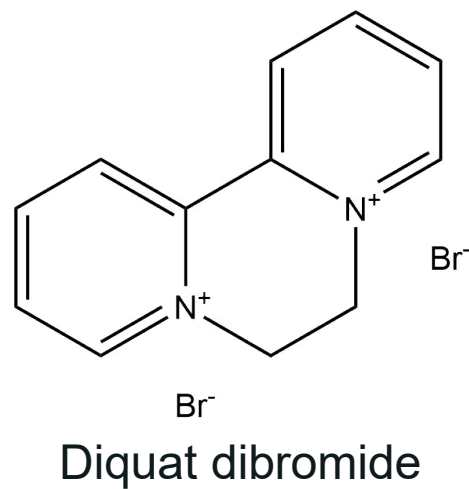
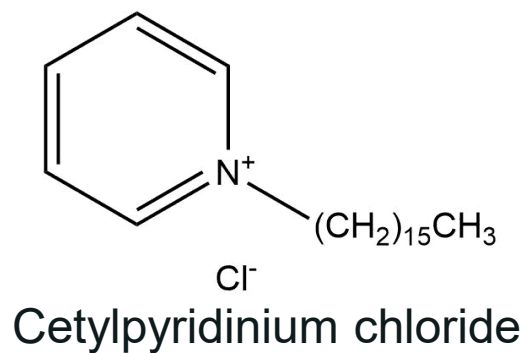
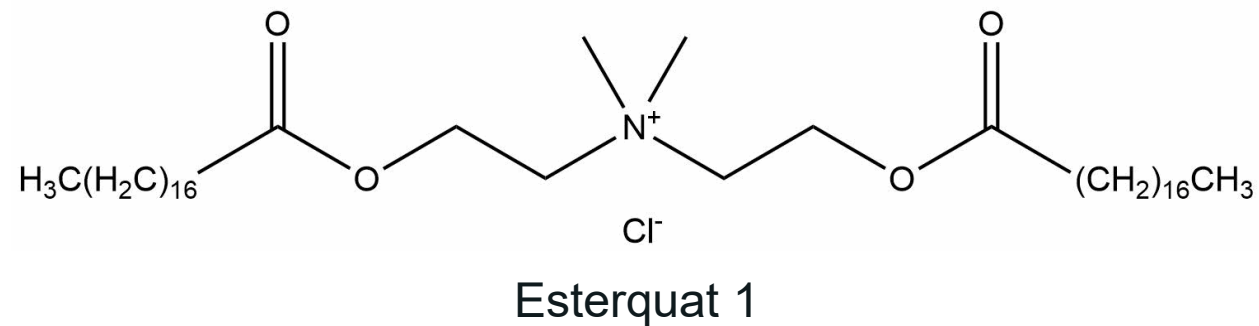
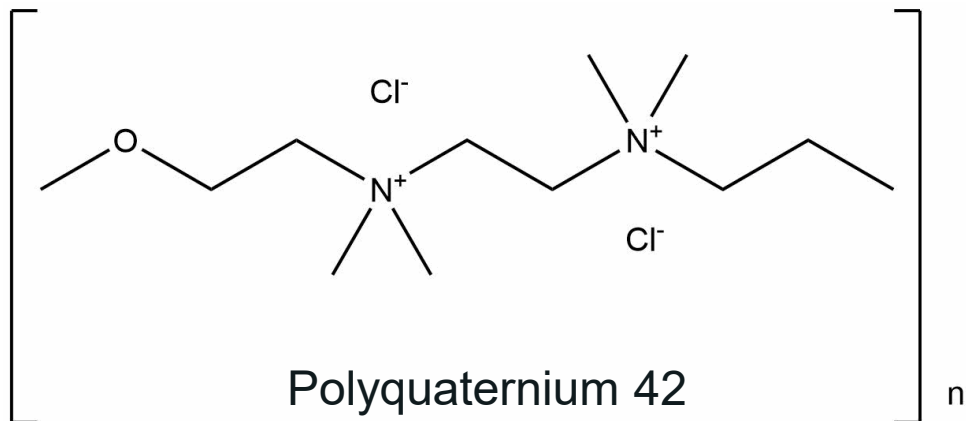


Didecyldimethyl ammonium chloride



Hexadecyltrimethyl ammonium chloride

# Chemical structures of selected QACs (cont.)



## Chemical functions include:

- Antimicrobial
- Preservative
- Antistatic
- Softening
- Surfactant
- Corrosion inhibitor

# QACs are used in a variety of products and applications

7



## Options for the Panel's afternoon deliberations

- Recommend the class “quaternary ammonium compounds (QACs)” be added to the list of priority chemicals
- Defer consideration of QACs
- Decide against adding QACs as priority chemicals





# Questions?