Overview of Potential Priority Chemicals Document on Quaternary Ammonium Compounds

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OEHHA

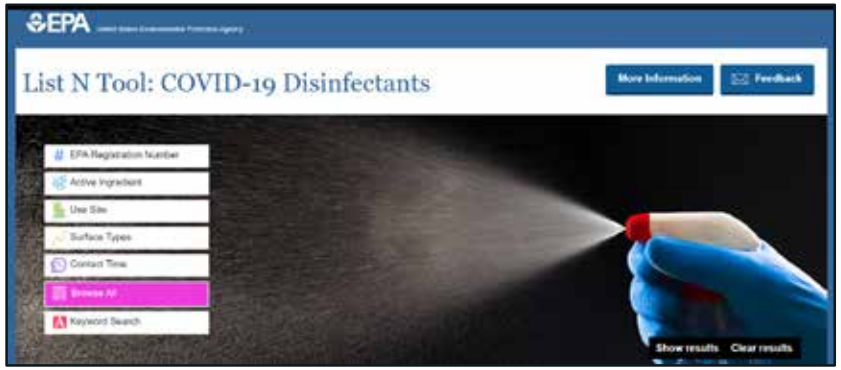
BIOMONITORING CALIFORNIA

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

Exposure potential

- Significant exposure potential for QACs:
  - National aggregate production volumes
  - Use in a wide variety of applications, including as antimicrobials and disinfectants
  - Detections in indoor air and dust
  - Environmental detections
- Global QACs market forecasted to grow by >60% from 2019 to 2027



Possible health concerns

- Dermal irritation
- Respiratory effects
- Nervous system effects
- Reproductive and developmental effects
- Immunological effects
- Altered cellular function and effects on metabolism

Potential for antimicrobial resistance

Maertens *et al. BMC Microbiology* (2020) 20:155
https://doi.org/10.1186/s12866-020-01818-3

BMC Microbiology

RESEARCH ARTICLE Open Access

Effect of subinhibitory exposure to quaternary ammonium compounds on the ciprofloxacin susceptibility of *Escherichia coli* strains in animal husbandry

H. Maertens[1], K. Demeyere[2], K. De Reu[1], J. Dewulf[3], D. Vanhauteghem[2], E. Van Coillie[1] and E. Meyer[2*]

...rnal of Food Microbiology 325 (2020) 108643

...ts lists available at ScienceDirect

...Journal of Food Microbiology

ELSEVIER journal homepage: www.elsevier.com/locate/ijfoodmicro

Stress response and survival of *Salmonella* Enteritidis in single and dual species biofilms with *Pseudomonas fluorescens* following repeated exposure to quaternary ammonium compounds

Xinyi Pang[a,b], Lin Chen[b], Hyun-Gyun Yuk[c,*]

Volume 26, Number 6, 2020

DOI: 10.1089/mdr.2019.0064

Adaptation Response Mechanisms of *Staphylococcus epidermidis* Strains Exposed to Increasing Concentrations of Didecyldimethylammonium Chloride

Urška Ribič, Tomaž Polak, Mateja Lušnic Polak, Anja Klančnik, and Barbara Jeršek

Options for the Panel

- 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?