



Mount Sinai *Selikoff Centers for Occupational Health*



Bellevue/NYU Occupational & Environmental Medicine Clinic

Quaternary Ammonium Compounds in Cleaning Products: Health & Safety Information for Cleaners and Supervisors

What are QACs?

Quaternary Ammonium Compounds (QACs) are a type of chemical that is used to kill bacteria, viruses, and mold. There are many different types of QACs. They are often found in disinfectants and in cleaning products that are used in places such as hospitals, day care centers, restaurants, and homes.

Can QACs Make You Sick?

Cleaners and disinfectants contain chemicals that may affect your health, including some QACs. Some kinds of QACs can make you sick, and because they are found in so many products and places, you should be aware of how they may affect you.

Most cleaning products, including most QACs, can irritate skin and cause rashes if not used in accordance with the instructions on the container. Some QACs can cause allergic skin rashes even with very limited exposure. Eye contact with QACs can cause burning of the eyes. Splashing concentrated QAC solution in your eye can cause severe injury including blindness. Breathing in QACs can cause irritation of the nose and throat. Some QACs can trigger asthma symptoms if you already have asthma or can even cause asthma in people who have never had it before. Like many chemicals currently in use today, the long-term health effects of QACs have not been fully studied.

The two types of QAC disinfectants that most commonly cause asthma are benzalkonium chlorides and didecyl dimethyl ammonium chloride. There are many forms of benzalkonium chlorides, often with long names that end in "ammonium chloride." As far as we know from medical studies to date, QAC disinfectants other than these two types are very unlikely to cause asthma if you follow the instructions on the container.

Watch out for these words on labels:

Benzalkonium chlorides

Names that end in "ammonium chloride"

Antibacterial

Antimicrobial



Are You Exposed to QACs?

Many common cleaning products and disinfectants that claim to kill germs (often with labels that read "antibacterial" or "antimicrobial") may contain QACs. Manufacturers must include on the label the chemical names of the QACs in a product.

The U.S. Dept. of Health and Human Services maintains a searchable Household Products Database that provides information on chemical ingredients in products, including QACs. It is located at www.householdproducts.nlm.nih.gov

Cleaning products can leave QACs on surfaces that can stay there for a long time. You can breathe in QACs if you spray the product or mix concentrated products and cause foaming or splashing.

What Should You Do if You Get Sick?

In an emergency situation, contact the Poison Control Center at 1.800.222.1222

If a cleaning product containing QACs gets in your eye, immediately rinse out your eye with water and then contact Poison Control. If you develop breathing problems, skin problems, or burning of your mouth after using or being exposed to cleaning products, you should seek medical attention. If you have asthma, many irritating ingredients in cleaning products, dust, and other airborne substances you may breathe in while doing cleaning work can trigger your asthma symptoms.

If you notice you are getting more, or worse, asthma attacks or symptoms when doing cleaning work, you should be evaluated for work-exacerbated asthma or occupational asthma. Bring this information sheet with you to the doctor, along with the product label or its full name and manufacturer's name. A

photo of the label with ingredients (readable size) can also help the doctor.

Further information for your doctor can be found in an information sheet titled “Quaternary Ammonium Compounds in Cleaning Products: Health and Safety Information for Health Professionals” available at:

<http://www.mountsinai.org/patient-care/service-areas/occupational-health/resources>

What are Your Rights?

Under the Occupational Safety and Health Act (OSHA), your employer must train you in the health effects, protective gear, safe work practices, and emergency procedures for the products you use. If you are in a union, your representative may have information about your rights. If your illness is caused or worsened by your job, you may be eligible for treatment under your employer’s Workers’ Compensation insurance.

How Can You Avoid Getting Sick from QACs?

1. Use Safer Products

- Don’t use disinfectants unless necessary. This is very important. Ask your supervisor to contact your local health department, or if you are in a health care setting, your infection control department, to determine if disinfectants are needed and which to use.
- If a disinfectant is necessary, cleaning products containing hydrogen peroxide can be more effective and less toxic alternatives to those containing QACs. Cleaning products containing citric acid, lactic acid, or alcohols are less effective as disinfectants than those containing QACs and may not be adequate substitutes.
- Alcohol wipes or water are useful to clean but do not disinfect surfaces like keyboards or desks. Practicing careful hand hygiene is an important part of preventing contamination of computer keyboards and other objects and surfaces with germs.
- In hospitals, the Centers for Disease Control and Prevention (CDC) states that surfaces such as floors and tables

that do not touch the skin can be cleaned with detergent unless blood, body fluids, or multi-drug resistant germs have contacted them.

2. Use Safer Work Practices

- Carefully read the label and follow the product safe handling and use instructions. These include knowing whether the cleaner must be mixed with water, how much water to use, the types of surfaces that can be cleaned, and whether they need to be rinsed with water after cleaning.
- If possible, avoid using spray products when cleaning. Instead, pour cleaner onto a cloth or use a disinfecting wipe to clean the surface. If spray products are needed, use the stream instead of mist mode on adjustable spray bottles.
- Use as much ventilation as possible, opening doors and windows as needed.
- If spraying in poorly ventilated areas cannot be avoided, wearing a properly fitted NIOSH-approved N95 respirator or higher level of protection can reduce exposure.
- Wear gloves and chemical-proof safety goggles if skin contact or splashes can occur, for example when handling concentrated QAC solutions or QAC solutions left in buckets, on rags, and on sponges.
- Use closed automated mixers to reduce exposure.
- Dilution according to the label instructions is really important.
- Do not combine cleaning products. Mixing bleach and QACs can form poisonous gases.
- Store cleaners in their original containers. Never put cleaners in a beverage bottle or can.

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This informational sheet is intended for general purposes only and does not address specific medical conditions or provide specific medical advice, and should not be used as a substitute for professional medical advice or a medical exam. This information is to provide users with a better understanding of workplace exposures.

The Mount Sinai Selikoff Centers for Occupational Health developed this information sheet in partnership with the Bellevue/NYU Occupational & Environmental Medicine Clinic. These clinics have expertise in evaluating and treating work-related illnesses and are members of the New York State Occupational Health Clinic Network. You or your doctor can contact a local occupational health clinic throughout the network to make an appointment for an evaluation or referral.

Contact us. We are here to help.

Mount Sinai Selikoff Centers for Occupational Health
(Manhattan–Upper East Side, Staten Island, Monroe, Yonkers locations): **888.702.0630** or www.mountsinai.org/selikoff

Bellevue/NYU Occupational & Environmental Medicine Clinic at Bellevue Hospital Center
462 First Avenue (28th St), New York, NY 10016
212.562.4572 or www.med.nyu.edu/pophealth/bellevue-nyu-occupational-environmental-medicine-clinic

New York State-wide Clinic Directory: www.health.ny.gov/environmental/workplace/clinic
AOEC National Clinic Directory: www.aoec.org/directory