

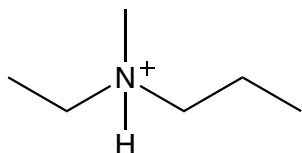
## CONCEPT: NAMING AMMONIUM SALTS

### Common Naming

- Ammonium salts (ions) are compounds with \_\_\_\_ or \_\_\_\_ alkyl groups connected to a \_\_\_\_ charged nitrogen atom.
  - Ammonium salts have a similar naming system to amines.

substituent-ammonium ion

**EXAMPLE:** Write the common name for the following ammonium salt.



**STEP 1:** Identify the \_\_\_\_ groups connected to the nitrogen atom.

**STEP 2:** Name the alkyl groups alphabetically as \_\_\_\_.

- If there are identical alkyl groups, use the numerical prefixes \_\_\_\_ or \_\_\_\_.

**STEP 3:** End the name of the compound with \_\_\_\_.

- Write the name without dashes or spaces.

### Drawing Ammonium Salts

- Recall, nitrogen has a \_\_\_\_ charge whenever it makes 4 bonds.

**EXAMPLE:** Draw structure for isopropylphenylammonium ion.

**STEP 1:** Based on the name, add the \_\_\_\_ groups to the nitrogen atom.

**STEP 2:** If the nitrogen atom isn't making 4 bonds add enough \_\_\_\_ atoms until it does.

**STEP 3:** Add a \_\_\_\_ charge to the nitrogen atom.

## CONCEPT: NAMING AMMONIUM SALTS

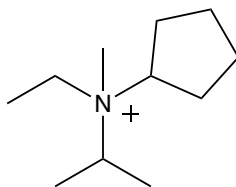
### IUPAC Naming

- Set of rules for naming ammonium salts are similar to amines + modifier ending.

□ Modify the ending from - \_\_\_\_\_ to - \_\_\_\_\_.

location-substituent-location-parent-modifier

**EXAMPLE:** Provide the systematic name for the following ammonium salt.



**STEP 0:** If symmetrical, follow steps in Common Naming.

**STEP 1:** If asymmetrical, identify the \_\_\_\_\_ carbon chain connected to nitrogen atom and name as ammonium ion.

□ Use \_\_\_\_\_ location to indicate location of N.

**STEP 2:** Name other alkyl groups alphabetically as *N*-\_\_\_\_\_.

□ If there are identical alkyl groups, use the numerical prefix di-, tri-.

**STEP 3:** Use \_\_\_\_\_ to separate numbers from numbers, and \_\_\_\_\_ to separate letters from numbers.

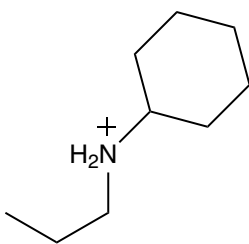
□ Letters are not separated from letters.

**PRACTICE:** Draw structure for *N,N*-diethyl-2-hexanaminium.

**CONCEPT: NAMING AMMONIUM SALTS**

**PRACTICE:** Draw structure for propylammonium ion.

**PRACTICE:** Provide the IUPAC name for the following ammonium salt.



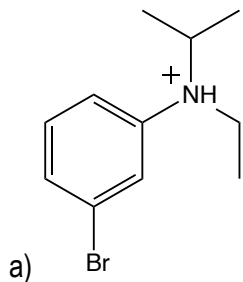
a) sec-butyl cyclohexyl ammonium ion

b) *N*-isopropylcyclohexanaminium

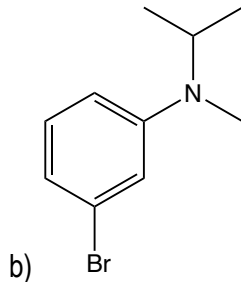
c) *N*-cyclohexyl-2-propanaminium

d) *N*-propylcyclohexanaminium

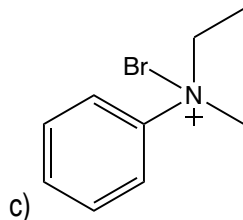
**PRACTICE:** Which of the following represents *m*-bromo-*N*-ethyl-*N*-isopropylbenzenaminium?



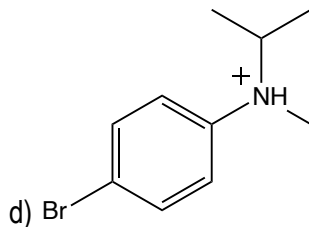
a)



b)



c)



d)