

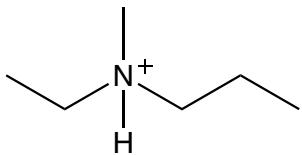
## CONCEPT: NAMING AMMONIUM SALTS

### 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

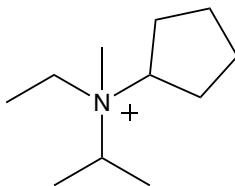
### IUPAC Naming

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

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



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



**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.

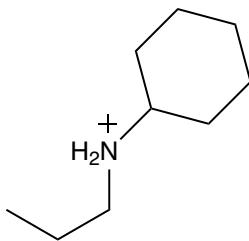
Letters are not separated from letters.

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

**CONCEPT: NAMING AMMONIUM SALTS**

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

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



a) sec-butylcyclohexylammonium ion

b) *N*-isopropylcyclohexanammonium ion

c) *N*-cyclohexyl-2-propanammonium ion

d) *N*-propylcyclohexanammonium ion

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

