

What's Hiding in E-Cigarettes?

Instructor Directions: Cut each set into individual cards. Each pair of students will need one complete set.

Substance:

Acetaldehyde (ac·et·al·de·hyde)

Notes:

- Used to produce disinfectants, drugs, and perfumes
- Extremely flammable liquid or vapor
- Has been linked to lung, liver, kidney, and nervous system damage as well as cancer

Substance:

Nicotine (nic·o·tine)

Notes:

- Highly addictive
- Very toxic if inhaled or swallowed
- Causes an increase in heart rate and blood pressure, dizziness, nausea, stomach pain

Substance:

Acrolein (acro·le·in)

Notes:

- Is used as a pesticide to control algae, weeds, bacteria, and mollusks
- May be fatal if inhaled or swallowed
- When inhaled, may cause sore throat, coughing, shortness of breath

Substance:

Propylene glycol (pro·pyl·ene gly·col)

Notes:

- Used in fog machines
- Hazardous if ingested, is an irritant if it comes in contact with skin, eyes, or is inhaled
- May be toxic to the nervous system and cause damage to organs

Substance:

Diacetyl (di·ace·tyl)

Notes:

- Used by manufacturers to give foods a buttery taste
- Vapors can cause damage to airways and abnormal lung function
- When inhaled can cause “popcorn lung,” a scarring of the air sacs in the lungs

Substance:

Various Flavor Chemicals

Notes:

- Generally considered safe for ingestion
- Have not been tested for toxic or irritating characteristics when inhaled

Substance:**2,3-Pentanedione** (pen·tane·dione)**Notes:**

- Used as a food flavoring
- Causes skin, eye, and respiratory irritation
- Linked to “popcorn lung,” a scarring of the air sacs in the lungs

Substance:**Glycerine** (glyc·er·in)**Notes:**

- Added to food, cosmetics, and pharmaceuticals
- Can cause severe lung damage when inhaled
- Inhalation is linked to asthma and lung cancer

Substance:**Cadmium** (cad·mi·um)**Notes:**

- Used in electroplating and batteries
- Is a toxic heavy metal
- Inhalation can cause damage to kidneys, lungs, bones, and can be fatal

Substance:**Formaldehyde** (form·al·de·hyde)**Notes:**

- Used in manufacturing building materials, as a preservative in medical labs, and in some glues
- Main ingredient in embalming fluid (used to preserve dead bodies)
- Has been linked to cancer, birth defects, damage to kidneys, liver, and nervous system

Substance:**Benzene** (ben·zene)**Notes:**

- Found in gasoline
- Inhalation can irritate the respiratory tract and damage the nervous system
- Linked to diseases such as Leukemia and bone marrow failure

Substance:**Water****Notes:**

- Found in the fluids of most living organisms
- Main component of streams, lakes, and oceans
- Necessary for all known forms of life

What's Hiding in E-Cigarettes?

Directions: As the answers are revealed to the card-sorting activity, record the substances that ARE found in e-cigarettes and notes about each in the table below:

Name of Substance	Notes

What is your reaction to the information you've learned about what's hiding in e-cigarettes?