MICRO-LAB

"Wet" Dry Ice

OBJECTIVES

- *Interpret* a phase diagram.
- *Observe* the melting of CO_2 while varying pressure.
- *Relate* observations of CO_2 to its phase diagram.

MATERIALS

- 4–5 g CO_2 as dry ice, broken into rice-sized pieces
- forceps
- metric ruler
- plastic pipets, 5 mL, shatterproof
- pliers
- scissors
- transparent plastic cup

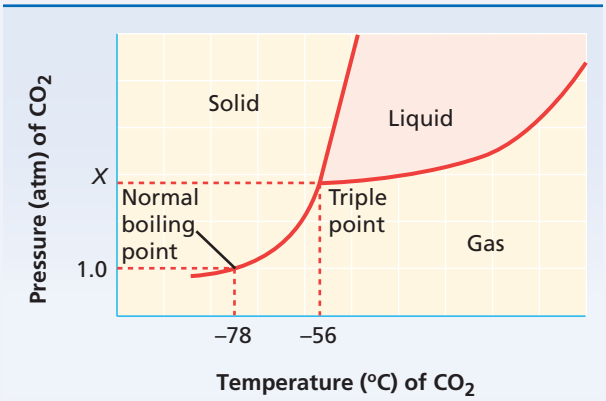

FIGURE A The phase diagram for CO_2 shows the temperatures and pressures at which CO_2 can undergo phase changes.

BACKGROUND

The phase diagram for carbon dioxide in **Figure A** shows that CO_2 can exist only as a gas at ordinary room temperature and pressure. To observe the transition of solid CO_2 to liquid CO_2, you must increase the pressure until it is at or above the triple point pressure, which is labeled *X* in the diagram.

SAFETY

For review of safety, please see **Safety in the Chemistry Laboratory** in the front of your book.

PREPARATION

1. Organize a place in your lab notebook for recording your observations.

PROCEDURE

1. Use forceps to place 2–3 very small pieces of dry ice on the table, and observe them until they have completely sublimed. **Caution:** Dry ice will freeze skin very quickly. Do not attempt to pick up the dry ice with your fingers.