

The electronic balance is available in various sensitivities. The one most commonly used in prescription compounding has a readability of 0.001 mg; consequently, the least amount that can be weighed is 20 times that, or 20 mg. The electronic balance is much faster and easier to use than the prescription balance. The digital readout is easy to read and the balance is quite versatile and easy to clean, and it has a relatively small footprint.

### Weights

Today, most pharmacies have a set of metric weights. Some commercial weight sets contain both the metric and apothecary systems. Prescription weights meet the National Bureau of Standards' specifications for analytical weights. Metric weights of 1 g and more and apothecaries' weights of 1 scruple and more are generally conical, with a narrow neck and head that allow them to be easily picked up with small forceps. Most of these weights are made of polished brass, and some are coated with nickel, chromium, or another material to resist corrosion. Fractional gram weights are made of aluminum and are generally square and flat with one raised end or corner for picking up with the forceps (Figure C.4). Apothecaries' weights of 0.5 scruple are frequently coin-shaped brass, and those of 5 gr and less are usually bent aluminum wires, with each straight side representing 1 gr of weight. The half-grain weight is usually a smaller gauge wire bent in half.

To prevent moisture and oils from the fingertips being deposited on the weights, all

weights should be transferred with the forceps provided in each weight set.

### Care and Use of a Balance

First and foremost, the balance should be kept in a well-lighted location, placed on a firm level counter approximately waist high to the operator. The area should be as free from dust as possible and in an area that is draft-free. There should be no corrosive vapors, high humidity, or vibration. When not in use, the balance should be clean and covered with the balance cover. Any agent spilled on the balance during use should be wiped off immediately with a soft brush or cloth. When not in use, the balance should always be kept with the weights off and the beam in the fixed or locked (arrested) position.

Before weighing an article, the balance must be made level. This is accomplished with the leveling screws on the bottom of the balance, according to the instructions accompanying the balance. The balance should be level both front to back and side to side, as indicated by the leveling bubble.

In using a prescription balance, neither the weights nor the substance to be weighed should be placed on the balance while the beam is free to oscillate. Before weighing, powder papers or weigh boats of equal size should be placed on both pans of the balance and the equilibrium of the balance tested by releasing the arresting knob. If the balance is off because of differences in the weight, additional weight may be added to the light pan by adding small tearings of powder papers. When balanced, the balance is placed in the arrested position, and the desired weight added to the right-hand pan. Then, an amount of substance considered to be approximately the desired weight is carefully placed on the left-hand pan with a spatula. The beam should then be slowly released by means of the locking device in the front of the balance. If the substance is in excess, the beam is fixed again, and a small portion of the substance removed with the spatula. The process is continued until the two pans balance, as indicated by the central position of the balance pointer. If the amount of weight on the balance is initially too little, the reverse process is undertaken. The powder paper used on the left-hand pan, intended



**FIGURE C.4** Set of metric weights. (Courtesy of Mettler-Toledo, Inc.)