

as a percentage of the wet weight of the material; in the dry-weight method, it is expressed as a percentage of the dry weight of the material. The wet-weight method is used most commonly in the field of solid waste management. In equation form, the wet-weight moisture content is expressed as follows:

$$M = \left( \frac{w - d}{w} \right) 100 \quad (4-1)$$

where  $M$  = moisture content, %

$w$  = initial weight of sample as delivered, lb (kg)

$d$  = weight of sample after drying at 105°C, lb (kg)

Typical data on the moisture content for the solid waste components given in Table 3-3 as well as other materials are given in Table 4-1. For most MSW in the United States, the moisture content will vary from 15 to 40 percent, depending on the composition of the wastes, the season of the year, and the humidity and weather conditions, particularly rain. The use of data in Table 4-1 to estimate the overall moisture content of solid wastes is illustrated in Example 4-1.

**EXAMPLE 4-1 Estimation of moisture content of typical residential MSW.** Estimate the overall moisture content of a sample of *as collected* residential MSW with the typical composition given in Table 3-4.

#### Solution

1. Set up the computation table to determine dry weights of the solid waste components using the data given in Table 4-1.

Component	Percent by weight	Moisture content, %	Dry weight, <sup>a</sup> lb
Organic			
Food wastes	9.0	70	2.7
Paper	34.0	6	32.0
Cardboard	6.0	5	5.7
Plastics	7.0	2	6.9
Textiles	2.0	10	1.8
Rubber	0.5	2	0.5
Leather	0.5	10	0.4
Yard wastes	18.5	60	7.4
Wood	2.0	20	1.6
Misc. organics	—	—	—
Inorganic			
Glass	8.0	2	7.8
Tin cans	6.0	3	5.8
Aluminum	0.5	2	0.5
Other metal	3.0	3	2.9
Dirt, ash, etc.	3.0	8	2.8
Total	100.0		78.8

$$\begin{aligned} \text{Moisture} &= \\ 100 - \% \text{ dry} & \\ &= \\ 100 - 78.8 &= 21.2\% \end{aligned}$$

<sup>a</sup>Based on an *as delivered* sample weight of 100 lb.