A large sphere is to be filled with much smaller in-compressible and in-elastic spheres.
The large sphere has a radius R, and the smaller one has a radius r.
Volume of a smaller sphere is,

$$v = \frac{4\pi}{3} r^3$$

Mass of the smaller sphere is,

$m = vd$ where d is the mean density of the smaller sphere.

The total volume of the larger body is,

$$V = \frac{4\pi}{3} R^3$$

The mass of the large object is,

$M = V\rho$ where ρ is the mean density of the large object.

The total number of particles present in the system be N.
So,

$$N = \frac{M}{m}$$

$$M = Nm$$

$$\frac{4\pi}{3} R^3 \rho = \frac{4\pi}{3} N r^3 d$$

$$d = \frac{R^3}{N r^3} \rho$$

The total volume available for the smaller spheres is V
The total volume occupied by the N spheres is Nv

The term $\frac{V_{occupid}}{V_{Total}} = \frac{Nr^3}{R^3}$ is called the packing fraction(P.F).
From KEPLER conjecture we have,
For any natural system P.F = 0.64
For any geometric system P.F = 0.76

$$d = \frac{1}{P.F} \rho$$

$$\frac{\rho}{d} = P.F$$

Therefore,

$$m = vd$$

So the mean atomic mass number can be found as,

$$A = \frac{m}{m_H}$$

So, the total mass of the system is,

$$M = NAm_H$$