A dry foam consists of thin films and plateau boarders. In foams, each photon is scattered many times and perform a random walk, as experiments show. To better understand the light propagation in foams, we aim to separately estimate the role of films and plateau borders, and then combine the results. To solve such a complicated problem, we start from a simple one dimensional model. We assume two (or more) types of scatterer are periodically arranged on a lattice. If t_i is the intensity transmittance of site "i" then $t_i = t_{i+L}$ where L is the period of the system. We analytically calculate the diffusion constant D. We show that D is independent of the arrangements of the L scatterers in the unit cell. For a medium composed of a fraction φ_a of scatterers with transmission t_a and a fraction φ_b of scatterers with transmission t_b, we find

$$\frac{1}{D} = \frac{\varphi_a}{D_a} + \frac{\varphi_b}{D_b}$$

Where D_a (D_b) is the diffusion constant of the pure medium composed of type a (b) scatterers.