manipulations, alginate is coated with de-dusting agents that agglomerate the powder to a denser form. According to Kaur *et al.*, [5], materials used as de-dusting agents include glycerine, glycol, polyethylene glycol, and polypropylene glycol. Other notable de-dusting materials are squalene, decane, dudecane, and isoparaffin [31].

In recent years, attempts have been made to partially substitute diatomaceous earth in the alginate with sepiolite or tetrafluoroethylene. Sepiolite is a natural mineral fiber containing magnesium silicate. Kaur *et al.*, [5] alleged that when 20% of sepiolite was added to alginate, it traps the particles, thereby reducing dust generation. On the other hand, tetrafluoroethylene traps alginate particles by forming a cobweb-like structure due to stresses generated during manipulations [24].

7.3.2.3 Infection-Free Alginates

As a general rule, before impression is sent from the dental office to the laboratory, it is usually disinfected to prevent the transfer of diseases from the clinics to the laboratory [32, 33]. Concerning, however, disinfection of alginates either by immersion or spray techniques was found to cause changes in dimensional stability [5]. In an attempt to prevent dimensional inaccuracies associated with the disinfection process, recent dental alginate compositions have been modified by the incorporation of disinfectant materials. Kaur *et al.*, [5] noted that water-soluble antimicrobial agents such as quaternary ammonium compounds, bisquanidine compounds, chlorhexidine, and didecyldimethyl ammonium chloride are generally employed since they do not alter the inherent properties of the alginates. Another notable advancement in the alginate modification is the incorporation of disinfectants in the form of microcapsules, which will release the disinfectant on mixing with the liquids [9].

7.3.2.4 High Viscosity Alginates

Conventional alginate powder is reported to have slow permeation speed of water, as it takes a prolonged time period to form a wet mass with water during mixing. The modification of alginates by the incorporation of hydrophobic materials such as polyoxyethylene alkyl phenyl ether, polyoxyethylene/polyoxypropylene alkyl ether, and polyoxyethylene alkyl ether reportedly enhances the permeation speed of alginates [34]. In addition, the incorporation of polysaccharide materials such as carrageenan, pullulan, curdlan, xanthan gum, gellan gum, pectin, konjak, glucomannan, xyloglucan, guar gum, gum Arabic, and locust bean gum has been reported to improve alginate viscosity as well as the prevention of its deterioration during storage [9].