7.3.2.1 Extended Pour Time Alginate

The dimensional stability of alginate is an important and well-debated discourse among clinicians. Given credence to the debate, Powers and Sakaguchi [25] and Rosenstiel *et al*., [26] recommend that alginate impression be poured immediately after impression taking. Donovan and Chee [27], in their own view, suggest that alginate impression must be poured within a few minutes after removal from the mouth. They, however, caution against wrapping the impression in a wet paper towel. This, and according to Nassar *et al*., [22], was to prevent inhibition of water, which may later lead to dimensional changes, since it is not possible to determine the amount of water absorbed by the impression. Consequently, Kaur *et al*., [5] proposed that alginate impression should be poured immediately or until 12 minutes in 100% humid environments at room temperature. They maintain that if alginate was poured within 15 minutes, it could still be used as a final impression material; otherwise, if not poured within the time limit, dimensional changes will occur.

Drawing from the above, it is evident that pouring time of alginate is a critical parameter that could influence its dimensional stability as well as the clinical performance. Significantly, Nassar *et al*., [22] reveal that industries have developed an improved alginate material with extended pour time. With this in mind, several other studies [28–30] claimed that alginate impression material can now be left unpoured for a period of time based on the specifications of the manufacturer, wrapped in a damp paper towel or sealed in a plastic bag. Table 7.1 highlights some commercial available alginate impression materials with an improved extended pour time. While noticeable improvement in the extended pouring time has been observed, laboratory studies failed to confirm some of the extraordinary claims made by manufacturers.

7.3.2.2 Dust-Free Alginates

Generally, in clinical practice, alginate is mixed with cold water to extend the manipulation and mixing time. Srivastava *et al*., [9] reported that conventional alginate formulations that contain only soluble alginate and calcium salt produce sticky calcium alginate gel of devoid strength—which is not desirable for dental impression. To overcome this, inert fillers in the form of diatomaceous earth are added to improve its consistency while reducing the tackiness. Concerning, Kaur *et al*., [5] voiced that due to the silica content of diatomaceous earth, prolonged inhalation may cause silicosis. In attempting to minimize the inhalation of diatomaceous dust during