Hot melt extrusion

Hot melt extrusion (HME), a technology which mixing the advantages of solid dispersion technology and mechanical preparation, is accepted in varied applications in pharmaceutical formulations. When combined with other techniques, such as nanotechnique, three-dimensional printing, and co-extrusion, HME becomes much more multifunctional in the application of drug delivery. While in most cases, polymers employed in HME are responsible for the final property of products. The process of HME together with the selection of materials employed in HME were described briefly. In addition, the applications of HME in drug delivery and its currently status in the pharmaceutical field were also included. Some commercial products produced by HME have met the approval of FDA, indicating the commercial viability of this technique. Although showing great potential in pharmaceutical manufacturing, HME is still challenged by high temperature, shear force, and high input energy. Development of equipment, modifying the parameters, and optimization of polymeric formulations are needed for a safe, effective, and multifunctional hot melt extrusion drug delivery system. Also, wider range of combinations between HME and other techniques may provide guideline for developing multiple applications in drug delivery [1)].

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Ren Y, Mei L, Zhou L, Guo G. Recent Perspectives in Hot Melt Extrusion-Based Polymeric Formulations for Drug Delivery: Applications and Innovations. AAPS PharmSciTech. 2019 Jan 28;20(3):92. doi: 10.1208/s12249-019-1300-8. PubMed PMID: 30690659.