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Mostafa Nakach, Jean-René Authelin, Marc-Antoine Perrin, Harivardhan Reddy Lakkireddy

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Mostafa Nakach[1,$], Jean-René Authelin[1], Marc-Antoine Perrin[1], Harivardhan Reddy Lakkireddy[1]

[1] Sanofi R&D, 1, Impasse des ateliers 94403 Vitry sur Seine France

[$] Corresponding author: Tel: +33 1 58 93 21 96; Fax: + 33 1 58 93 32 10; email: **mostafa.nakach@sanofi.com**

Email addresses of other authors

Jean-René Authelin: **Jean-Rene.Authelin@sanofi.com**

Marc-Antoine Perrin: **Marc-Antoine.perrin@sanofi.com**

Harivardhan Reddy Lakkireddy: **Harivardhan-Reddy.Lakkireddy@sanofi.com**

Abstract

Currently, the two technologies primarily used for the manufacturing of nano-crystalline suspensions using top down process (i.e. wet milling) are high pressure homogenization (HPH) and stirred bead milling (SBM). These two technologies are based upon different mechanisms, i.e., cavitation forces for HPH and shear forces for stirred bead milling. In this article, the HPH and SBM technologies are compared in terms of the impact of the suspension composition the process parameters and the technological configuration on milling performances and physical quality of the suspensions produced. The data suggested that both HPH and SBM are suitable for producing nano-crystalline suspensions, although SBM appeared more efficient than HPH, since the limit of milling (d_{50}) for SBM was found to be lower than that obtained with HPH (100 nm vs 200 nm). For both these technologies, regardless of the process parameters used for milling and the scale of manufacturing, the