

Accepted Manuscript

Dry powder coated osmotic drug delivery system

Qingliang Yang, Yingliang Ma, Jesse Zhu



PII: S0928-0987(17)30545-6
DOI: doi:[10.1016/j.ejps.2017.10.001](https://doi.org/10.1016/j.ejps.2017.10.001)
Reference: PHASCI 4247

To appear in: *European Journal of Pharmaceutical Sciences*

Received date: 13 January 2017
Revised date: 28 September 2017
Accepted date: 1 October 2017

Please cite this article as: Qingliang Yang, Yingliang Ma, Jesse Zhu , Dry powder coated osmotic drug delivery system. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Phasci(2017), doi:[10.1016/j.ejps.2017.10.001](https://doi.org/10.1016/j.ejps.2017.10.001)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Dry powder coated osmotic drug delivery system

Qingliang Yang^{a, b}, Yingliang Ma^a, Jesse Zhu^{a, *}

^a Department of Chemical and Biochemical Engineering, University of Western Ontario, London, Ontario, N6A 5B9, Canada

^b College of Pharmaceutical Science, Zhejiang University of Technology, Hangzhou 310014, China

Abstract: Dry powder coated osmotic drug delivery system (ODDS) were prepared and characterized using an innovative powder coating technology. Coating powder adhesion to the surface of the ODDS core was firstly performed through an electrostatic spray gun, followed by a curing step to allow those electrically deposited particles coalesce and form a continuous, uniform and strong coating film, which is the semipermeable membrane of the ODDS. Triethyl citrate (TEC) was found to be a better liquid plasticizer than PEG 400 both in reducing the glass transition temperature of the coating polymer (cellulose acetate) and in increasing the electrical conductivity of the ODDS cores, both of which led to an enhanced coating powder adhesion and film formation. Results of SEM indicated that the uniformity of the coating film varied significantly with the difference of curing time and temperature. Salbutamol sulfate and ibuprofen were used as the model drugs. Release profiles of both showed that zero-order drug release kinetics was achieved. Release rate of both drugs from powder coated ODDS could be adjusted by changing the coating level but was independent of the agitation speed and of the pH of the release media.

Keywords: Osmotic drug delivery system; dry powder coating; electrostatic coating; liquid plasticizers; controlled drug release

1. Introduction

Conventional delivery cannot control drug release rate, which needs multiple

Download English Version:

<https://daneshyari.com/en/article/8512026>

Download Persian Version:

<https://daneshyari.com/article/8512026>

[Daneshyari.com](https://daneshyari.com)