

# The solution for the continuous production of pharmaceutical solid dispersions containing a porous carrier

**Field of use**  
Pharmaceutical production

**Current state of technology**  
Laboratory tested

**Intellectual property**  
Patent application

**Developed by**  
University of Ljubljana,  
Faculty of Pharmacy

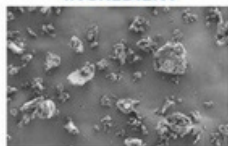
**Reference**  
821-1/2019

**Contact**

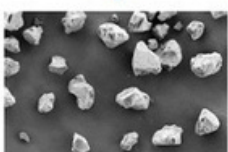
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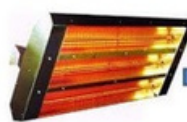
ACTIVE PHARMACEUTICAL  
INGREDIENT



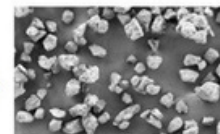
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POROUS SILICA



IR HEATER



IMPREGNATED SILICA

## Background

Solid dispersions are typically produced to provide poorly soluble active pharmaceutical ingredients with a rapid dissolution in water. Solid dispersions can be manufactured also with porous or mesoporous excipients, which are water nonsoluble. The current methods use solutions of organic solvents. Disadvantages of the currently used solutions of organic solvents are toxicity, high price and the negative impact they have on the environment. The most known method for continuous production of solid dispersions is melt extrusion.

## Description of the Invention

Our alternative to melt extrusion is a device for making solid dispersions of one or more active pharmaceutical ingredients and one or more porous excipients with the use of elevated temperature, which is provided by a source of infrared light. Elevated temperature makes the conversion of a pure solid active pharmaceutical ingredient or a combination of more active pharmaceutical ingredients with meltable excipients into the melt and penetration of this melt into the pores of a porous nonmeltable excipient.

## Main Advantages

This method does not use organic solvents, making it less toxic and carrying lower costs.