VERTICAL MULTISTAGE PNEUMATIC SYSTEM FOR THE CONTINUOUS PROCESSING OF SOLIDS WITH AIR, GAS AND/OR VAPORS	
Offering Organization:	Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.
Type of Organization:	Public Research Center
Development Stage:	Commercial concept tests
Desired Relationship:	– Technological research and development financing (technological partner) – Specialized application tests – Creation of a new company (Joint Venture) for the commercialization of the products outlined herein – Licensing of patents
Sector:	Food
Area of knowledge:	Food Technology
Key words:	Pneumatic system, Processing of solids

DETAILED DESCRIPTION:

Problem to be solved:

A vertical, multistage pneumatic system for the continuous processing of solids is a system for the the the contact of solid particles with air, gases or vapors. One of the major advantages of these fluid-solid contact systems lies in the fact that they are capable of handling solid particles of a large size. Pneumatic systems, originally developed for the transport of solids, are particularly useful in the chemical, pharmaceutical, food and plastics industries as an effective and modern means of transporting material in bulk.

Solution:

The present invention relates to a good control of the fluid-solid contact process. As it is, the high pressure drops of operation, the lack of specific applications and operational problems cause jamming, dead zones and flooding when working continuously. This control allows for a uniform treatment of all solid particles with gases and or vapors, which is very suitable for processes involving mass and heat transfers or chemical reactions.

New and Innovative Aspects:

- Multistage system operating at low pressures.
- Stacks several identical units in a vertical series, one above another to form a column of two or more stages.

TECHNICAL CHARACTERISTICS:

This invention refers in its entirety to the design and operation of a vertical, multistage pneumatic system for the processing of solids with air, gases and/or vapors. It functions as a column with the same novel geometric features of device MX/a/2007/016571. This invention is not limited to drying and roasting seeds and grains, it also works with processes involving the contact of air, gases and/or vapors with a solid, and in operations involving mass or heat transfers or chemical reactions. It is a multistage system that favors the uniform treatment of solid particles, making it different from those that

currently exist in the market with the following advantages: intense fluid-solid contact, no dead zones, and a high level of agitation of the solids to improve the mass or heat transfers and chemical reactions. It operates at low pressures, the loading and unloading of the solid is accomplished very easily without dismantling the equipment, it is easy to scale, hydrodynamically stable, simple to mount a column by interconnecting the devices in MX/a/2007/016571, easy to clean, can be taken apart, and finally the control of the flow of solids is handled through a valve in system MX/a/2008/016567.

Main advantages derived from its utilization:

- Easy operation.
- Intense fluid-solid contact with no dead zones and a high level of agitation of the solids which improves mass and heat transfers and chemical reactions and ensures uniform treatment of solid particles with gases and/or vapors.

Applications:

- In the following industries: chemical, pharmaceutical, foods and plastics

INTELLECTUAL PROPERTY

- Patent applied for in 2013
- MX/a/2013/014478

ABOUT THE OFFERING ORGANIZATION

Presentation:	El Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. (CIATEJ) is a public research center that belongs to the national technology development and innovation network, the National Council for Science and Technology (CONACyT). CIATEJ is focused on the agricultural, food, health, and environmental sectors with an emphasis on the application of innovative biotechnology.
Contact Information:	Mtro. Evaristo Urzúa Esteva - eurzua@ciatej.net.mx