A heat pack includes a housing, a first phase change material (PCM) that is contained in the housing, and a thermal storage buffer that is contained in the housing. The thermal storage buffer includes a second PCM. An initiator is in operative contact with the first PCM. Activation of the initiator causes crystallization of the first PCM, and the first PCM cooperates with the thermal storage buffer to provide heat at a predetermined temperature range upon crystallization of the first PCM.
INTERNATIONAL SEARCH REPORT

International application No. PCT/US2014/028327

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 7/03 (2014.01)
USPC - 126/263.03

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A61F 7/03, 7/08; C09K 5/00, 5/02, 5/06; F24J 1/00; F28D 20/02 (2014.01)
USPC - 126/264, 206, 263, 263.03, 263.07

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

CPC - A61F 7/03, 7/034; C09K 5/063; F28D 20/02 (2014.06)

Electronically accessible database consulted during the international search (name of database and, where practicable, search terms used)

PatBase, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2009/0036665 A1 (DOMINGO et al) 05 February 2009 (05.02.2009) entire document</td>
<td>1-4, 6-16</td>
</tr>
<tr>
<td>Y</td>
<td>US 4,077,390 A (STANLEY et al) 07 March 1978 (07.03.1978) entire document</td>
<td>5, 17-19</td>
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</tbody>
</table>

Further documents are listed in the continuation of Box C.

- Special categories of cited documents:
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier application or patent but published on or after the international filing date
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  - "P" document published prior to the International filing date but later than the priority date claimed

- Later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- Document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

- Document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

- Member of the same patent family

Date of the actual completion of the international search: 10 July 2014

Date of mailing of the international search report: 17 SEP 2015

Name and mailing address of the ISA/US

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Form PCT/ISA/210 (second sheet) (July 2009)