

Title (en)

PROTECTIVE VEST WITH ACTIVE AND PASSIVE COOLING MECHANISMS

Title (de)

SCHUTZWESTE MIT AKTIVEN UND PASSIVEN KÜHLMECHANISMEN

Title (fr)

GILET PROTECTEUR AVEC MÉCANISMES ACTIFS ET PASSIFS DE REFROIDISSEMENT

Publication

**EP 3350537 A1 20180725 (EN)**

Application

**EP 16846975 A 20160919**

Priority

- SG 10201507788X A 20150918
- SG 2016050454 W 20160919

Abstract (en)

[origin: WO2017048198A1] The present invention provides a protective vest (100, 100a, 100b, 100c) with a cool spreader (150), hot spreader (160) and active cooling mechanisms (200). The protective vest may be used with a uniform (1000), which incorporates passive cooling mechanisms (2000). Each active cooling mechanisms (200), including a TEM (210), a heat pipe (230), a heat sink (240), an insulator (250) with plenums (260) and a blower (270), is controlled by a micro-controller (280) and an adaptive algorithm (285) in response to three temperature sensors (290, 292, 294). The passive cooling mechanisms (200) include super absorbent polymer (SAP), phase change materials (PCM), phase change composites (PCC) and thermal conductive fibres (1040); when wetted, the SAP, PCM or PCC expands cyclically and gives rise to cyclical regenerative cooling.

IPC 8 full level

**F41H 1/00** (2006.01); **A41D 13/00** (2006.01); **A41D 29/00** (2006.01)

CPC (source: EP US)

**A41D 13/0005** (2013.01 - EP US); **A41D 13/0025** (2013.01 - EP); **A41D 13/0051** (2013.01 - EP); **A41D 13/0053** (2013.01 - EP); **A41D 13/0056** (2013.01 - EP); **A41D 27/28** (2013.01 - EP); **A41D 31/12** (2019.01 - EP US); **A41D 31/14** (2019.01 - EP US); **F41H 1/02** (2013.01 - EP)

Cited by

CN112169205A

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**WO 2017048198 A1 20170323**; EP 3350537 A1 20180725; EP 3350537 A4 20190306; EP 3350537 B1 20200311

DOCDB simple family (application)

**SG 2016050454 W 20160919**; EP 16846975 A 20160919