

HUMIDITY MANAGEMENT DEVICE, POTABLE WATER GENERATION SYSTEM AND METHOD

ABSTRACT

A humidity management device and a potable water generation system and method using such a device are provided. The humidity management device includes a chamber having an air inlet disposed adjacent a first end and an air outlet disposed adjacent a second end, and a dispensing mechanism configured to dispense a moisture-regulating substance into a space between the first and second ends. The dispensing mechanism includes a liquid inlet disposed adjacent the second end for supplying a flow of the moisture-regulating substance into the chamber toward the first end and a conveyor configured to transport a portion of the moisture-regulating substance collected adjacent the first end and re-distribute said moisture-regulating substance into the space between the first and second ends. The conveyor includes an Archimedes' screw at least partially enclosed in an elongated sleeve. The air inlet is configured to receive a flow of input air having a first humidity level. The air outlet is configured to draw the input air to contact the moisture-regulating substance to thereby change a moisture content of the input air such that output air exiting the chamber has a second humidity level different from the first humidity level.

FIG. 1