Claims

1. A fill sheet for assembly into a fill pack for cooling a cooling medium in an evaporative cooling tower, the fill sheet comprising:
a first end;
a second end extending substantially parallel to the first end and generally perpendicularly relative to a vertical axis, the first and second ends extending substantially parallel to a lateral axis of the fill sheet;
a plurality of flutes extending generally toward the second end at a first flute angle relative to the vertical axis; and
microstructure defined on the plurality of flutes,
said plurality of flutes comprising a plurality of alternating diagonal flute segments having a diagonal flute segment length and vertical flute segments having a vertical flute segment length, said diagonal flute segments having a diagonal flute segment length aligned parallel to said first flute angle and said vertical flute segments aligned parallel to said vertical axis, whereas said diagonal flute segment length is greater than said vertical flute segment length;
the microstructure comprising a plurality of alternating rounded mounds and rounded depressions extending between flat ridge edges and flat valley edges of said flutes.

2. The fill sheet of claim 1, wherein the microstructure extends substantially parallel to the lateral axis.

3. The fill sheet of claim 1, wherein the first flute angle is approximately 12 to 22 degrees.

4. The fill sheet of claim 1, wherein the plurality of flutes define a flute height, the flute height being approximately 1.44 inches.

5. The fill sheet of claim 1, wherein said rounded mounds of the microstructure have a height of 0.05 inches and a spacing of 0.11 to 0.12 inches along said flutes.

6. A cross corrugated fill pack assembly for cooling a fluid flowing through the pack with a gas flowing through the pack in a substantially opposing direction, the fill pack assembly comprising a plurality of identical fill sheets according to claim 1, wherein said plurality of fill sheets are arranged so that adjacent sheets are oriented 180 degrees relative to one-another and are attached to each other at corresponding attachment notches located on flute ridges of adjacent fill sheets.

7. A cross corrugated fill pack assembly for cooling a fluid flowing through the pack with a gas flowing through the pack in a substantially opposing direction, the fill pack assembly comprising a plurality of identical fill sheets according to claim 2, wherein said plurality of fill sheets are arranged so that adjacent sheets are oriented 180 degrees relative to one-another and are attached to each other at corresponding attachment notches located on flute ridges of adjacent fill sheets.

8. A cross corrugated fill pack assembly for cooling a fluid flowing through the pack with a gas flowing through the pack in a substantially opposing direction, the fill pack assembly comprising a plurality of identical fill sheets according to claim 3, wherein said plurality of fill sheets are arranged so that adjacent sheets are oriented 180 degrees relative to one-another and are attached to each other at corresponding attachment notches located on flute ridges of adjacent fill sheets.

9. A cross corrugated fill pack assembly for cooling a fluid flowing through the pack with a gas flowing through the pack in a substantially opposing direction, the fill pack assembly comprising a plurality of identical fill sheets according to claim 4, wherein said plurality of fill sheets are arranged so that adjacent sheets are oriented 180 degrees relative to one-another and are attached to each other at corresponding attachment notches located on flute ridges of adjacent fill sheets.

10. A cross corrugated fill pack assembly for cooling a fluid flowing through the pack with a gas flowing through the pack in a substantially opposing direction, the fill pack assembly comprising a plurality of identical fill sheets according to claim 5, wherein said plurality of fill sheets are arranged so that adjacent sheets are oriented 180 degrees relative to one-another and

are attached to each other at corresponding attachment notches located on flute ridges of adjacent fill sheets.