CLAIMS

We claim:

1. A beverage dispensing system for dispensing beverages with low solubility ingredients, comprising:

a sweetener flow;

a first diluent flow;

a low solubility ingredient premixing system;

wherein the low solubility ingredient premixing system mixes a low solubility ingredient having a solubility of three percent by weight or less with a second diluent flow to create a mixed flow; and

a nozzle to mix the sweetener flow, the first diluent flow, and the mixed flow.

2. The beverage dispensing system of claim 1, further comprising a plurality of micro-ingredient flows.

3. The beverage dispensing system of claim 2, wherein the plurality of micro-ingredient flows are mixed with the sweetener flow, the first diluent flow, and the mixed flow at the nozzle.

4. The beverage dispensing system of claim 1, wherein the low solubility ingredient premixing system comprise a low solubility ingredient storage chamber with a volume of the low solubility ingredient therein.

5. The beverage dispensing system of claim 1, wherein the low solubility ingredient premixing system comprises a low solubility ingredient mixing chamber.

6. The beverage dispensing system of claim 5, wherein the low solubility ingredient mixing chamber is in communication with one or more diluent sources.

7. The beverage dispensing system of claim 5, wherein the low solubility ingredient mixing chamber is in communication with one or more diluent additive sources.

8. The beverage dispensing system of claim 5, wherein the low solubility ingredient mixing chamber is in communication with one or more storage containers.

9. The beverage dispensing system of claim 5, wherein the low solubility ingredient mixing chamber comprises a low solubility ingredient mixing device.

10. The beverage dispensing system of claim 9, wherein the low solubility ingredient mixing device comprises a static mixer.

11. The beverage dispensing system of claim 9, wherein the low solubility ingredient mixing device comprises a mechanical mixer.

12. The beverage dispensing system of claim 9, wherein the low solubility ingredient mixing device comprises a heating device.

13. The beverage dispensing system of claim 12, further comprising a cold plate downstream of the heating device.

14. The beverage dispensing system of claim 1, further comprising a flush system in communication with the nozzle.

15. A method of producing a beverage with low solubility ingredients, comprising:

flowing a first diluent to a nozzle;

flowing a sweetener to the nozzle;

flowing a low solubility ingredient having a solubility of three percent by weight or less to a low solubility ingredient mixing chamber;

flowing a second diluent to the low solubility ingredient mixing chamber;

mixing the low solubility ingredient and the second diluent to create a mixed flow;

flowing the mixed flow to the nozzle; and

mixing the first diluent, the sweetener, and the mixed flow about the nozzle to create the beverage.