CLAIMS

1. A method of performing a static gel strength test on a composition in subterranean wells,

the method comprising:

placing the composition into a static gel strength test instrument;

stirring the composition with at least one helical blade of the instrument;

measuring resistance to rotation between a stator and a rotor of the instrument;

heating and pressurizing the composition to approximate downhole conditions; and

homogenizing the composition *in situ* by the rotation of the rotor in conjunction with the at least one helical blade thereby obtaining accurate static gel strength measurements.

2. The method of claim 1, wherein the stator comprises the helical blade.

3. The method of claim 1, wherein the rotor comprises the helical blade.

4. The method of claim 1, wherein the at least one helical blade comprises at least one first helical blade on the stator and at least one second helical blade on the rotor.

5. The method of claim 4, wherein the first helical blade is spaced apart from the second helical blade by a substantially consistent gap.

6. The method of claim 1, wherein the at least one helical blade comprises multiple helical blades, and further comprising helically spacing apart the helical blades on a cylindrical surface of the stator.

7. The method of claim 1, wherein the at least one helical blade comprises multiple helical blades, and further comprising axially spacing apart the helical blades on the rotor.

8. A static gel strength test instrument, comprising:

a rotor;

a heater for heating a composition;

a pump for pressurizing the composition;

a stator having at least one first helical blade, wherein the static gel strength test instrument characterizes gelation of a composition; and

wherein the rotation of the rotor in conjunction with the at least one helical blade homogenizes the composition *in situ* thereby obtaining accurate static gel strength measurements.

9. The static gel strength test instrument of claim 8, wherein the at least one helical blade comprises multiple first helical blades, and wherein the first helical blades are helically spaced apart from each other on the stator.

10. The static gel strength test instrument of claim 8, wherein the rotor includes at least one second helical blade.

11. The static gel strength test instrument of claim 10, wherein the first and second helical blades are spaced apart from each other by a substantially consistent gap.

12. The static gel strength test instrument of claim 10, wherein the first and second helical blades substantially have the same pitch.

13. The static gel strength test instrument of claim 10, wherein the first and second helical blades have a substantially same curvature.

14. A static gel strength test instrument, comprising:

a stator having at least one first helical blade;

a heater and/or pump for heating and/or pressurizing a composition respectively;

a rotor having at least one second helical blade; and

wherein the rotation of the rotor in conjunction with the at least one helical blade homogenizes the composition *in situ* thereby obtaining accurate static gel strength measurements.

15. The static gel strength test instrument of claim 14, wherein the first and second helical blades have a substantially same pitch.

16. The static gel strength test instrument of claim 14, wherein the first and second helical blades have a substantially same curvature.

17. The static gel strength test instrument of claim 14, wherein the first helical blade comprises a portion of a helix.

18. The static gel strength test instrument of claim 14, wherein the first helical blade is spaced apart from the second helical blade by a substantially consistent gap.

19. The static gel strength test instrument of claim 14, wherein the at least one first helical blade comprises multiple first helical blades, and wherein the first helical blades are helically spaced apart from each other on a cylindrical surface of the stator.

20. The static gel strength test instrument of claim 14, wherein the at least one second helical blade comprises multiple second helical blades, and wherein the second helical blades are axially spaced apart from each other on the rotor.