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WHAT IS CLAIMED IS:

1. A method of determining rheological properties of at least one fluid, the method comprising:

5 dispensing the at least one fluid into a rheometer including a stator having at least one helical blade;

measuring torque (T) due to relative rotation between the stator and a rotor of the rheometer at different rotational speeds (RPM's);

10 calculating shear stress (SS) as follows: $SS = T^{\beta}/K$; and

calculating volume averaged shear rate (VASR) as follows: $VASR = k1 \cdot RPM^{\alpha}$,

15 where K, k1, α and β are experimentally-derived coefficients.

2. The method of claim 1, wherein coefficients α and β are independent of a shear thinning index of the fluid.

20 3. The method of claim 1, wherein the rotor is helical shaped.

4. The method of claim 1, wherein $\log(N_{pg})$ vs. $\log(N_{Re})$ is plotted only for a laminar regime to
25 experimentally determine K, k1, α and β .

5. The method of claim 1, wherein K, k1, α and β are determined using a matching viscosity protocol by minimizing

errors between rheograms from two or more different geometries.

6. A rheometer, comprising:

a stator having at least one first helical blade; and
a rotor having at least one second helical blade.

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7. The rheometer of claim 6, wherein the first and
second helical blades have a substantially same pitch.

8. The rheometer of claim 6, wherein the first and
10 second helical blades have a substantially same curvature.

9. The rheometer of claim 6, wherein the first
helical blade comprises a portion of a helix.

10. The rheometer of claim 6, wherein the first
15 helical blade is spaced apart from the second helical blade
by a substantially constant gap.

11. The rheometer of claim 6, wherein the at least one
20 first helical blade comprises multiple first helical blades,
and wherein the first helical blades are helically spaced
apart on a cylindrical surface of the stator.

12. The rheometer of claim 6, wherein the at least one
25 second helical blade comprises multiple second helical
blades, and wherein the second helical blades are axially
spaced apart on the rotor.

13. A method of mixing fluids and performing a rheological test on the admixed fluids, the method comprising:

- 5 dispensing a first fluid into a rheometer;
 then dispensing a second fluid into the rheometer;
 then mixing the first and second fluids with at least one helical blade of the rheometer; and
 then measuring torque due to relative rotation between
10 a stator and a rotor of the rheometer.

14. The method of claim 13, wherein the stator comprises the helical blade.

- 15 15. The method of claim 13, wherein the rotor comprises the helical blade.

16. The method of claim 13, wherein the at least one helical blade comprises at least one first helical blade on
20 the stator and at least one second helical blade on the rotor.

17. The method of claim 16, wherein the first helical blade is spaced apart from the second helical blade by a
25 substantially constant gap.

18. The method of claim 13, wherein the at least one helical blade comprises multiple helical blades, and further

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comprising helically spacing apart the helical blades on a cylindrical surface of the stator.

19. The method of claim 13, wherein the at least one
5 helical blade comprises multiple helical blades, and further comprising axially spacing apart the helical blades on the rotor.

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20. A rotary rheometer, comprising:

a rotor; and

a stator having at least one first helical blade.

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21. The rotary rheometer of claim 20, wherein the at least one helical blade comprises multiple first helical blades, and wherein the first helical blades are helically spaced apart on the stator.

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22. The rotary rheometer of claim 20, wherein the rotor includes at least one second helical blade.

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23. The rotary rheometer of claim 22, wherein the first and second helical blades are spaced apart from each other by a substantially constant gap.

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24. The rotary rheometer of claim 22, wherein the first and second helical blades have a substantially same pitch.

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25. The rotary rheometer of claim 22, wherein the first and second helical blades have a substantially same curvature.

What is claimed is:

1. A method of determining rheological properties of at least one fluid, the method comprising:

dispensing the at least one fluid into a rheometer including a stator having at least one first helical blade and a rotor having at least one second helical blade;

measuring torque (T) due to relative rotation between the stator and the rotor of the rheometer at different rotational speeds (RPM's);

calculating shear stress (SS) as follows: $SS = T^\beta / K$; and calculating volume averaged shear rate (VASR) as follows: $VASR = k1 * RPM^\alpha$,

where K, k1, α and β are experimentally-derived coefficients.

2. The method of claim 1, wherein coefficients α and β are independent of a shear thinning index of the fluid.
3. The method of claim 1, wherein the at least one first helical blade intermeshes with the at least one second helical blade during relative rotation between the stator and the rotor.
4. The method of claim 1, wherein log Power number (N_{Po}) vs. log Reynolds number (N_{Re}) is plotted only for a laminar regime to experimentally determine K, k1, α and β .
5. The method of claim 1, wherein K, k1, α and β are determined using a matching viscosity protocol by minimizing discrepancies between rheograms from two or more different rheometer geometries.
6. A method of mixing fluids and performing a rheological test on the admixed fluids, the method comprising:

dispensing a first fluid into a rheometer including a stator having at least one first helical blade and a rotor having at least one second helical blade;

then dispensing a second fluid into the rheometer;

then mixing the first and second fluids in the rheometer; and

then measuring torque due to relative rotation between the stator and the rotor of the rheometer.

7. The method of claim 6, wherein the at least one first helical blade intermeshes with the at least one second helical blade during relative rotation between the stator and the rotor.

8. The method of claim 6, wherein the first helical blade is spaced apart from the second helical blade by a substantially constant gap.

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

10. The method of claim 6, wherein the at least one second helical blade comprises multiple second helical blades, and further comprising axially spacing apart the second helical blades on the rotor.