CLAIMS;

What is claimed is:

1. A process for producing mesophase pitch, the process comprising:

contacting an isotropic pitch with a solvent under conditions sufficient to produce a solvent fraction comprising the solvent and an insoluble fraction comprising mesophase pitch; and

recovering the mesophase pitch,

wherein the contacting includes the solvent having a Solubility Blending number (S_{BN}) that causes the mesophase pitch to have a softening point ranging from 270°C to 350°, as measured in accordance with ASTM D3104-14.

2. The process of claim 1, wherein the solvent has a Solubility Blending number (S_{BN}) ranging from 30-90 SU.

3. The process of ~~any preceding~~ claim 1, wherein the contacting includes introducing the solvent in a ratio of 3-8 ml per 1 gram of isotropic pitch.

4. The process of ~~any preceding~~ claim 1, wherein the solvent includes an aromatic solvent.

5. The process of ~~any preceding~~ claim 1, wherein the solvent includes heptane and toluene.

6. The process of claim 5, further comprising controlling a ratio of heptane to toluene.

7. The process of ~~any preceding~~ claim 1, wherein the softening point ranges from 270°C to 320°C.

8. The process of ~~any preceding~~ claim 1, further comprising lowering the SBN of the solvent to increase recovery yield of a mesophase precursor, and lower the softening point.

9. The process of ~~any preceding~~ claim 1, wherein the isotropic pitch is made by steps including,

providing a feedstock having a T5 ≥ 400°F (204°C) and a T95 ≤ 1,400°F (760°C), and

heating the feedstock at a temperature ranging from about 420°C to about 520°C to produce a heat treated product including the isotropic pitch, wherein the heating is conducted under conditions sufficient to satisfy the relationship [X*Y] ≥ 20,000 seconds,

wherein X is the equivalent reaction time (ERT) of the heating, and wherein Y is the

bromine number of the feedstock as measured in accordance with ASTM D1159.

10. The process of ~~any preceding~~ claim 1, wherein the isotropic pitch has at least one of the following properties:

(a) a micro carbon residue (MCR) as measured in accordance with ASTM D4530-15 ranging from about 30% to about 90%;

(b) a softening point as measured in accordance with ASTM D3104-14 ranging from about 80°C to about 250°C;

(c) a mesophase pitch content as measured in accordance with ASTM D4616-95(2018) of greater than about 0.5 vol%; and

(d) a quinoline insoluble content as measured in accordance with ASTM D2318-15 of greater than about 1 wt%.

11. The process of claim 8, wherein the method includes adjusting SBN to maintain a softening point of the mesophase precursor below 350°C.