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 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 claim 1, wherein the solvent includes an aromatic solvent.

5. The process of 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 claim 1, wherein the softening point ranges from 270°C to 320°C.

8. The process of 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 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 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.