[0084] ~~All cited patents, patent applications, and other references are incorporated herein by reference in their entirety. However, if~~If a term in the present application contradicts or conflicts with a term in any of the above cited patents, patent applications, and other references~~the incorporated reference~~, the term from the present application takes precedence over the conflicting term ~~from the incorporated reference~~.

[0085] All ranges disclosed herein are inclusive of the endpoints, and the endpoints are independently combinable with each other.

[0086] The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. Further, it should further be noted that the terms "first," "second," and the like herein do not denote any order, quantity, or importance, but rather are used to distinguish one element from another. The modifier "about" used in connection with a quantity is inclusive of the stated value and has the meaning dictated by the context (e.g., it includes the degree of error associated with measurement of the particular quantity).

wherein the oxidative polymerizing comprises initiating oxidative polymerization in the presence of 1 to 3 weight percent of the 2,6-dimethylphenol;

wherein at least 97 weight percent of the 2,6-dimethylphenol is added to the reaction mixture after the initiation of oxidative polymerization and over the course of 55 to 65 minutes;

wherein the oxidatively polymerizing comprises adding molecular oxygen and 2,6-dimethylphenol to the reaction mixture in a mole ratio of 0.3:1 to 0.5:1;

wherein the oxidatively polymerizing 2,6-dimethylphenol comprises a first stage in which the reaction mixture is cooled to maintain a temperature of 20 to 30°C, and a second stage in which the reaction mixture is heated to maintain a temperature of 30 to 40°C;

wherein the method excludes a solvent removal step between the terminating the oxidative polymerization and the isolating the poly(2,6-dimethyl-1,4-phenylene ether);

wherein the chelation mixture is maintained at a temperature of 45 to 55°C for 40 to 70 minutes;

wherein the separating the aqueous phase and the organic phase is conducted at a temperature of 45 to 55°C;

wherein time elapsed between termination of the oxidative polymerization and isolating the poly(2,6-dimethyl-1,4-phenylene ether) is 30 to 60 minutes;

wherein the isolated poly(2,6-dimethyl-1,4-phenylene ether) has a number average molecular weight of 20,000 to 35,000 atomic mass units and 16 to 20 weight percent of molecules having a molecular weight less than 30,000 atomic mass units; and

wherein the isolated poly(2,6-dimethyl-1,4-phenylene ether) has a copper concentration of 0.5 to 5 parts per million by weight.

26. A poly(2,6-dimethyl-1,4-phenylene ether) made by the method of claim 25 and having a weight average molecular weight of 150,000 to 400,000 atomic mass units.

27. A fiber comprising the poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 26.

28. An article comprising the poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 26.

29. A poly(2,6-dimethyl-1,4-phenylene ether) solid having

a number average molecular weight of ~~at least 18,000~~ 20,000 to 35,000 atomic mass units,

a weight average molecular weight of 150,000 to 400,000 atomic mass units, and

~~less than~~ 10 to 30 weight percent of molecules having a molecular weight less than 30,000 atomic mass units.

30. The poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 29, having a copper concentration less than or equal to 5 parts per million by weight.

31. The poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 29 or 30, having ~~a number average molecular weight of 20,000 to 35,000 atomic mass units,~~

16 to 20 weight percent of molecules having a molecular weight less than 30,000 atomic mass units, and

a copper concentration of 0.5 to 5 parts per million by weight.

32. A fiber comprising the poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 29.

33. An article comprising the poly(2,6-dimethyl-1,4-phenylene ether) solid of claim 29.

34. The article of claim 33, wherein the article is an asymmetric hollow fiber membrane.

35. A fluid separation apparatus comprising the asymmetric hollow fiber membrane of claim 34.