extracting liquid stream, the hydrocarbon product stream comprising at least a portion of the hydrocarbon-containing organic matter from the coal ; and

recycling at least a portion of the hydrocarbon-extracting liquid stream to the contacting step, wherein said first liquid contains no water or essentially no water.

46. A method for increasing recovery of hydrocarbon-containing organic matter from a production well coupled to a hydrocarbon-containing sub-surface formation, the subsurface formation comprising hydrocarbon-containing material, the method comprising the steps of extracting the hydrocarbon-containing organic matter by a process consisting essentially of:

providing an injection well, said injection being in fluid communication with the sub-surface formation;

providing a substantially surfactant-free first liquid comprising a non-aqueous hydrocarbon-extracting liquid consisting essentially of a turpentine liquid comprising terpineol;

injecting the hydrocarbon-extracting liquid through the injection well and into the formation, wherein the hydrocarbon-extracting liquid and the hydrocarbon-containing organic matter from the hydrocarbon containing sub-surface formation form an extraction mixture comprising at least a portion of the extraction mixture hydrocarbon-containing organic matter in at least a portion of the hydrocarbon-extracting liquid;

recovering the extraction mixture from the formation through the production well; and

separating the extraction mixture to produce a hydrocarbon product stream and a hydrocarbon-extracting liquid stream.

~~47. A method of modifying sulfur compounds in a sulfur-containing hydrocarbon-containing material from a natural geological formation comprising the steps of:~~

~~providing a substantially surfactant-free first liquid comprising a non-aqueous hydrocarbon-extracting liquid consisting essentially of a turpentine liquid selected from the group consisting of natural turpentine, synthetic turpentine, mineral turpentine, pine oil, α-pinene, β-pinene, α-terpineol, β-terpineol, γ-terpineol, terpene resins, α-terpene, β-terpene, γ-terpene, geraniol, 3-carene, dipentene (p-mentha-1,8-diene), nopol, pinane, 2-pinane hydroperoxide, terpin hydrate, 2-pinanol, dihydromycenol, isoborneol, p-menthan-8-ol, α-terpinyl acetate, citronellol, p-menthan-8-yl acetate, 7-hydroxydihydrocitronellal, menthol, anethole, camphene; p-cymene, anisaldeyde, 3,7-dimethyl-1,6-octadiene, isobornyl acetate, ocimene, allooeimene, allooeimene alcohols, 2-methoxy-2,6-dimethyl-7,8-epoxyoctane, camphor, citral, 7-methoxydihydro-citronellal, 10-camphorsulphonic acid, cintronellal, menthone, and mixtures thereof, and~~

~~contacting the hydrocarbon-containing material with said hydrocarbon-extracting liquid so as to interact with sulfur in said hydrocarbon-containing material and thereby modify said hydrocarbon-containing material;~~

~~wherein said sulfur-containing hydrocarbon-containing material is selected from the group consisting of natural gas, petroleum gas, crude oil, tar sands, oil shale, and coal.~~

~~48.~~47. The method of claim 46, wherein said contacting comprises mixing.

~~49.~~48. The method of claim 46, wherein said natural gas or petroleum gas is bubbled through said turpentine liquid.

~~50. A method of reducing corrosion of a corrodible surface of transportation, storage, or handling equipment for hydrocarbon-containing material, comprising the steps of~~

~~forming a mixture of a hydrocarbon-containing material with a corrosivity-reducing amount of a non-aqueous corrosivity-reducing liquid consisting essentially of a turpentine liquid selected from the group consisting of natural turpentine, synthetic turpentine, mineral turpentine, pine oil, α-pinene, β-pinene, α-terpineol, β-terpineol, γ-terpineol, terpene resins, α-terpene, β-terpene, γ-terpene, geraniol, 3-carene, dipentene (p-mentha-1,8-diene), nopol, pinane, 2-pinane~~

hydroperoxide, terpin hydrate, 2-pinanol, dihydromycenol, isoborneol, p-menthan-8-ol, α-terpinyl acetate, citronellol, p-menthan-8-yl acetate, 7-hydroxydihydrocitronellal, menthol, anethole, camphene; p-cymene, anisaldeyde, 3,7-dimethyl-1,6-octadiene, isobornyl acetate, ocimene, alloocimene, alloocimene alcohols, 2-methoxy-2,6-dimethyl-7,8-epoxyoctane, camphor, citral, 7-methoxydihydro-citronellal, 10-camphorsulphonic acid, cintronellal, menthone, and mixtures thereof;

contacting said corrodible surface with said mixture, wherein the corrosion rate of said surface is substantially reduced as compared to corrosion of said surface when contacted with said hydrocarbon-containing material in an absence of said corrosivity-reducing liquid.

51. The method of claim 49, wherein said mixture comprises greater than about 0.0005% of said corrosivity-reducing liquid.

52. The method of claim 50, wherein said mixture comprises greater than about 0.001% of said corrosivity-reducing liquid.

53. The method of claim 51, wherein said mixture comprises about 0.0015% of said corrosivity-reducing liquid.

54. The method of claim 49, wherein said corrosivity-reducing liquid is in an amount that corresponds to an amount of at least about 0.001% to 0.002% of said hydrocarbon-containing material.

55. The method of claim 49, wherein the rate of said corrosion is reduced by at least about 2-fold as compared to corrosion of said surface when contacted with said hydrocarbon-containing material in an absence of said corrosivity-reducing liquid.

56. The method of claim 49, wherein the rate of said corrosion is reduced by at least about 3-fold as compared to corrosion of said surface when contacted with said hydrocarbon-containing material in an absence of said corrosivity-reducing liquid.

57. The method of claim 49, wherein the rate of said corrosion is reduced by at least about 4-fold as compared to corrosion of said surface when contacted with said hydrocarbon-containing material in an absence of said corrosivity-reducing liquid.

58. The method of claim 49, wherein said corrosivity-reducing liquid comprises α-terpineol, β-terpineol, β-pinene, and p-cymene.

59. The method of claim 49, wherein said corrosivity-reducing liquid comprises

about 40 to 60% α-terpineol,

about 30 to 40% β-terpineol,

about 5 to 20% β-pinene, and

about 0 to 10% p-cymene.

60. The method of claim 49, wherein said hydrocarbon-containing material is selected from the group consisting of crude oil, heavy crude oil, tar sands, oil sands, oil shale, natural gas, petroleum gas, and combinations thereof.

61. A method of preparing a hydrocarbon-containing gas, comprising the steps of:

contacting a hydrocarbon-containing material with a substantially surfactant-free first liquid to form a mixture, the first liquid comprising a non-aqueous hydrocarbon-extracting liquid consisting essentially of a turpentine liquid material selected from the group consisting of natural turpentine, synthetic turpentine, mineral turpentine, pine oil, α-pinene, β-pinene, α-terpineol, β-terpineol, γ-terpineol, terpene resins, α-terpene, β-terpene, γ-terpene, geraniol, 3-carene, dipentene (p-mentha-1,8-diene), nopol, pinane, 2-pinane hydroperoxide, terpin hydrate, 2-pinanol, dihydromycenol, isoborneol, p-menthan-8-ol, α-terpinyl acetate, citronellol, p-menthan-8-yl acetate, 7-hydroxydihydrocitronellal, menthol, anethole, camphene; p-cymene, anisaldeyde, 3,7-dimethyl-1,6-octadiene, isobornyl acetate, ocimene, alloocimene, alloocimene alcohols, 2-methoxy-2,6-dimethyl-7,8-epoxyoctane, camphor, citral, 7-methoxydihydro-citronellal, 10-camphorsulphonic acid, cintronellal, menthone, and mixtures thereof,

forming a mixture, wherein said mixture comprises at least a portion of said hydrocarbon-containing organic matter extracted into the hydrocarbon-extracting liquid; and

~~heating the mixture to form a gas containing the turpentine material and hydrocarbons from said hydrocarbon-containing material.~~

~~62. The method of claim 60, wherein said hydrocarbon-containing material is selected from the group consisting of crude oil, heavy crude oil, tar sands, oil sands, oil shale, natural gas, petroleum gas, and combinations thereof.~~