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(54) Title: METHODS AND SYSTEMS OF PFAS DESTRUCTION USING UV IRRADIATION AT 222 NANOMETERS

AROMATIC COMPOUND (ArC) + ELECTRON → AROMATIC ANION (ArC⁻)
ArC⁻ + LIGHT → AROMATIC ANION EXCITED STATE (ArC^{-*})

AROMATIC COMPOUND (ArC) - ELECTRON → AROMATIC CATION (ArC⁺)
ArC⁺ + LIGHT → AROMATIC CATION EXCITED STATE (ArC⁺*)

Figure 25

(57) Abstract: Methods, systems and devices for PFAS destruction including adding a sulfite salt to an aqueous solution containing PFAS and then irradiating the aqueous solution with light at 222 nm. The method may include adding a base to the aqueous solution in an amount sufficient to raise a pH of the aqueous solution including PFAS to about 10 or more. It may also include adding a halide salt such as a bromide salt or an iodine salt, and further adding a carbonate. Greater than 90%, or greater than 99%, of the PFAS in the solution may be destroyed by irradiating the aqueous solution in this way.

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