



(51) International Patent Classification:

C02F 1/32 (2023.01) C02F 1/78 (2023.01)
C02F 1/66 (2023.01) C02F 103/06 (2006.01)
C02F 1/72 (2023.01) C02F 1/44 (2023.01)
C02F 1/02 (2023.01) C02F 101/16 (2006.01)

(21) International Application Number:

PCT/US2024/037859

(22) International Filing Date:

12 July 2024 (12.07.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/513,782 14 July 2023 (14.07.2023) US
63/591,040 17 October 2023 (17.10.2023) US
63/635,938 18 April 2024 (18.04.2024) US

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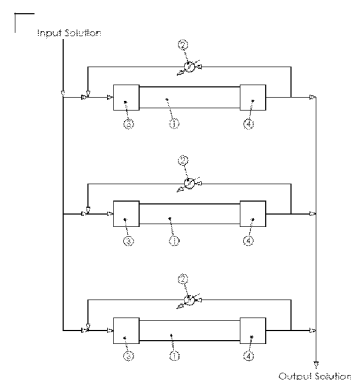
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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, CV,

(54) Title: METHODS AND SYSTEMS OF NITRATE REMOVAL IN AQUEOUS SYSTEMS FOR IMPROVED PFAS DESTRUC-
TION



ITEM NO.	DESCRIPTION
1	Photoreactor
2	Recycling/Cooling
3	Sensor Module
4	Ports For Sampling Or Adding Reagents Or Venting

Figure 1

(57) Abstract: Methods, systems and devices for PFAS destruction including removing nitrate from water containing PFAS, combining the water with a sensitizer and a sufficient quantity of base to create a treatment solution having a pH of about 10 or more, and irradiating the treatment solution with UV light in a photoreactor to destroy a portion of the PFAS. The nitrate may be removed electrolytically such as by electrolytically reducing nitrate to nitrogen gas and/or ammonia. The nitrate may be removed by filtration through a selective membrane, such as by reverse osmosis, forward osmosis, nanofiltration, and/or ultrafiltration. The system may include electrolytic cell system including a first cell with a cathode contacting the water containing PFAS in the first cell, a second cell including an anode in an electrolytic solution, a power source, and a salt brine and/or membrane separating the first and second cells.

[Continued on next page]

GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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