

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
22 October 2020 (22.10.2020)



(10) International Publication Number
WO 2020/214912 A1

(51) International Patent Classification:
C09K 5/04 (2006.01) *C07C 17/00* (2006.01)

(21) International Application Number:
PCT/US2020/028675

(22) International Filing Date:
17 April 2020 (17.04.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/835,703 18 April 2019 (18.04.2019) US

(71) Applicant: **THE CHEMOURS COMPANY FC, LLC**
[US/US]; 1007 Market Street, Wilmington, Delaware
19801 (US).

(72) Inventors: **PETROV, Viacheslav A.**; 2 Cappa Court,
Hockessin, Delaware 19707 (US). **KONTOMARIS, Kon-**

stantinos; 702 Abbey Road, Wilmington, Delaware 19808
(US). **SIMONI, Luke David**; 2429 W 18th Street, Wilm-
ington, Delaware 19806 (US).

(74) Agent: **BOYER, Michael**; 1007 Market Street, Patent Le-
gal Group, Wilmington, Delaware 19801 (US).

(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, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, 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.

(54) Title: FLUORINATED ALKENE SYSTEMS

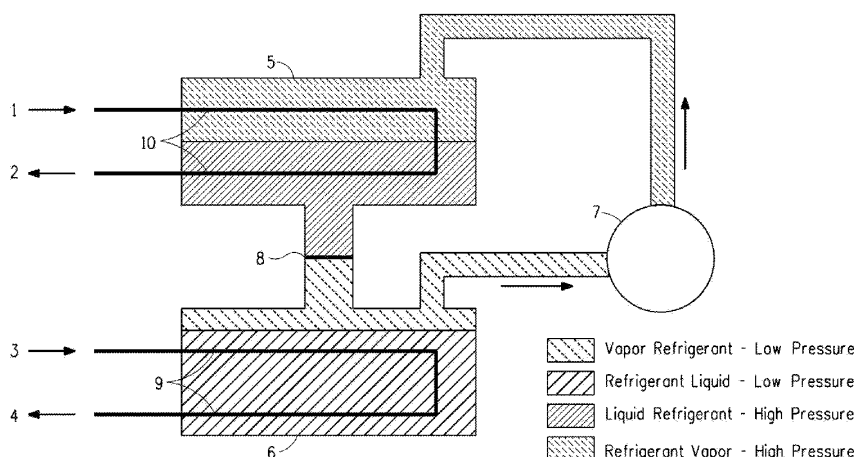


FIG. 1

(57) Abstract: A process for transferring heat including providing an article and contacting the article with a heat transfer media. The heat transfer media includes a composition formed by the process of, contacting a compound of formula (1), $R_fCH=CHF$, with a fluorinated ethylene compound of formula (2), $CX_1X_2=CX_3X_4$ in the presence of a Lewis acid catalyst. In the compound of formula (1) R_f is a C_1 - C_{10} perfluorinated alkyl group. In the compound of formula (2) X_1 , X_2 , X_3 , and X_4 are each independently H, Cl, or F and at least one of X_1 , X_2 , X_3 , and X_4 is F. The resulting composition comprises a compound of formula (3), $R_fCF_3(CX_5X_6CX_7X_8)_nCH=CHCX_9X_{10}CX_{11}X_{12}F$. In the compound of formula (3), X_5 , X_6 , X_7 , X_8 , X_9 , X_{10} , X_{11} , and X_{12} are each independently H, Cl, or F, and n is an integer of 0 or 1.

[Continued on next page]

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, 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, 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).

Published:

— with international search report (Art. 21(3))