

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
05 May 2022 (05.05.2022)



(10) International Publication Number
WO 2022/094162 A1

(51) International Patent Classification:

B01D 67/00 (2006.01) **C08L 27/16** (2006.01)
B01D 71/32 (2006.01)

(21) International Application Number:

PCT/US2021/057165

(22) International Filing Date:

29 October 2021 (29.10.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/107,467 30 October 2020 (30.10.2020) US

(71) Applicant: **ARKEMA INC.** [US/US]; 900 First Avenue,
King of Prussia, Pennsylvania 19406 (US).

(72) Inventors: **O'BRIEN, Gregory S.**; Arkema Inc., 900
First Avenue, King of Prussia, Pennsylvania 19406 (US).
KOSAR, Walter P.; Arkema Inc., 900 First Avenue, King
of Prussia, Pennsylvania 19406 (US). **ZERAFATI, Saeid**;
Arkema Inc., 900 First Avenue, King of Prussia, Pennsyl-
vania 19406 (US).

(74) Agent: **ROSSI, Joanne** et al.; Arkema Inc., 900 First Av-
enue, King of Prussia, Pennsylvania 19406 (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, IT, 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.

(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).

Declarations under Rule 4.17:

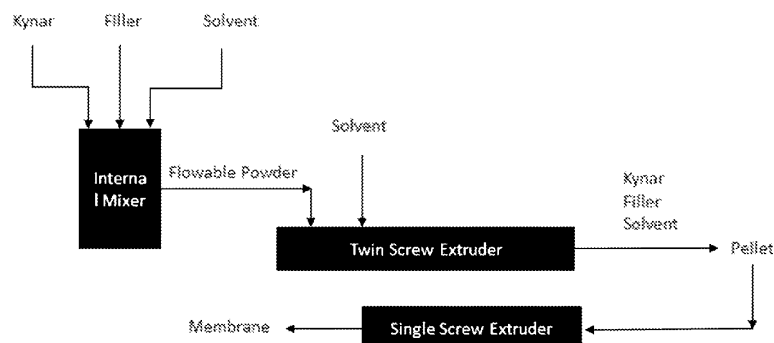
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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

(54) Title: MEMBRANES MADE USING FINE POWDERS

FIG 1



(57) Abstract: This invention allows for the production of high strength and high permeability TIPS membranes using extractable fillers with fine powder PVDF grades.

WO 2022/094162 A1