

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2022/132442 A1

(43) International Publication Date
23 June 2022 (23.06.2022)

- (51) International Patent Classification:
C07C 51/25 (2006.01) C07C 57/045 (2006.01)
- (21) International Application Number:
PCT/US2021/061512
- (22) International Filing Date:
02 December 2021 (02.12.2021)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
63/127,652 18 December 2020 (18.12.2020) US
- (71) Applicants: **DOW GLOBAL TECHNOLOGIES LLC** [US/US]; 2211 H.H. Dow Way, Midland, Michigan 48674 (US). **ROHM AND HAAS COMPANY** [US/US]; 400 Arcola Road, Collegeville, Pennsylvania 19426 (US).
- (72) Inventors: **HOUSER, Jing L.**; 1776 Building, 633 Washington Street, Midland, Michigan 48667 (US). **KRAPCHETOV, Dmitry A.**; 400 Arcola Road, Collegeville, Pennsylvania 19426 (US).
- (74) Agent: **MUTSCHLER, Brian**; The Dow Chemical Company, Intellectual Property, P.O. Box 1967, Midland, Michigan 48641-1967 (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).

Published:

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

(54) Title: LIQUID-PHASE OXIDATION OF ACROLEIN WITH GOLD BASED CATALYSTS

(57) Abstract: A method for preparing acrylic acid from acrolein. The method comprises contacting a liquid mixture comprising acrolein and water in the presence of oxygen with a heterogeneous catalyst comprising a support and gold; wherein the support comprises an oxide selected from γ -, δ -, or θ -alumina, magnesia, titania, zirconia, hafnia, vanadia, niobium oxide, tantalum oxide, ceria, yttria, lanthanum oxide, zinc oxide or a combination thereof.



WO 2022/132442 A1