

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2019/022884 A1

(43) International Publication Date
31 January 2019 (31.01.2019)

(51) International Patent Classification:

C07C 67/39 (2006.01) *B01J 35/00* (2006.01)
C07C 69/54 (2006.01) *B01J 23/52* (2006.01)

(21) International Application Number:

PCT/US2018/039229

(22) International Filing Date:

25 June 2018 (25.06.2018)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/538,254 28 July 2017 (28.07.2017) US

(71) Applicants: **ROHM AND HAAS COMPANY** [US/US];
400 Arcola Road, Collegeville, PA 19426 (US). **DOW
GLOBAL TECHNOLOGIES LLC** [US/US]; 2040 Dow
Center, Midland, MI 48674 (US).

(72) Inventors: **LIMBACH, Kirk W.**; 400 Arcola Road, Col-
legeville, PA 19426 (US). **FRICK, Christopher D.**; 400
Arcola Road, Collegeville, PA 19426 (US). **SUSSMAN,
Victor J.**; 1776 Building, Midland, MI 48674 (US). **LEE,
Wen-Sheng**; 1776 Building, Midland, MI 48674 (US).

(74) Agent: **CRIMALDI, Kenneth**; Dow Global Technologies
LLC, 2040 Dow Center, Midland, Michigan 48674 (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, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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: A METHOD FOR PRODUCTION OF METHYL METHACRYLATE BY OXIDATIVE ESTERIFICATION USING A HETEROGENEOUS CATALYST

(57) Abstract: A method for preparing methyl methacrylate from methacrolein and methanol. The method comprises contacting a mixture comprising methacrolein, methanol and oxygen with a heterogeneous catalyst comprising a support and a noble metal, wherein said catalyst has an average diameter of at least 200 microns and at least 90 wt% of the noble metal is in the outer 50% of catalyst volume.



WO 2019/022884 A1