

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
13 January 2022 (13.01.2022)



(10) International Publication Number
WO 2022/008505 A1

(51) International Patent Classification:
C07C 319/18 (2006.01) C07C 323/22 (2006.01)

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).

(21) International Application Number:
PCT/EP2021/068650

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

(22) International Filing Date:
06 July 2021 (06.07.2021)

(25) Filing Language: English

Published:

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

(26) Publication Language: English

(30) Priority Data:
20184707.6 08 July 2020 (08.07.2020) EP

(71) Applicant: **EVONIK OPERATIONS GMBH** [DE/DE];
Rellinghauser Strasse 1-11, 45128 Essen (DE).

(72) Inventors: **RAUTENBERG, Stephan**; Steinacker
21, 53332 Bornheim (DE). **MERKER, Thorsten**;
Georgstrasse 28, 50374 Erftstadt (DE). **EICKER, Michael**;
Im Wiedenhof 9, 51429 Bergisch Gladbach (DE).
KRUDEWIG, Bruno; Kölnstr. 242, 53117 Bonn (DE).
ZHU, Haohao; Bendengasse 16, 53879 Euskirchen (DE).
CHEUNG, Chiu Kee; Beim Klostergut 3, 63755 Alzenau
(DE).

(74) Agent: **EVONIK PATENT ASSOCIATION**; c/o Evonik
Industries AG, IP Management, Bau 1042A, PB15, Paul-
Baumann-Strasse 1, 45772 Marl (DE).

(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,

(54) Title: PROCESS FOR PREPARING 3-METHYLTHIOPROPIONALDEHYDE

(57) Abstract: The present invention relates to a process for preparing 3-methylthiopropionaldehyde, comprising the steps of a) providing a liquid stream (1) comprising methyl mercaptan and/or the hemi thioacetal formed from 3-methylthiopropionaldehyde and methyl mercaptan, b) providing an acrolein comprising vapor stream (2), wherein the major part of said stream is acrolein, and the pressure of said stream is lower than atmospheric pressure, c) introducing the liquid stream comprising methyl mercaptan and/or the hemi thioacetal formed from 3-methylthiopropionaldehyde and methyl mercaptan of step a) and the acrolein comprising vapor stream of step b) into a reaction unit (4) by means of a vapor-liquid mixing device (3), and d) reacting acrolein with methyl mercaptan and/or the hemi thioacetal formed from 3-methylthiopropionaldehyde and methyl mercaptan in the reaction unit (4) of step c) to give a 3-methylthiopropionaldehyde comprising product mixture.



WO 2022/008505 A1