

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 August 2023 (24.08.2023)



(10) International Publication Number
WO 2023/156430 A1

(51) International Patent Classification:
C07C 303/16 (2006.01) C07C 309/04 (2006.01)

(21) International Application Number:
PCT/EP2023/053713

(22) International Filing Date:
15 February 2023 (15.02.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
22157498.1 18 February 2022 (18.02.2022) EP

(71) Applicant: **BASF SE** [DE/DE]; Carl-Bosch-Str. 38, 67056 Ludwigshafen am Rhein (DE).

(72) Inventors: **ZEPP, Brigitte**; Carl-Bosch-Strasse 38, 67056 Ludwigshafen (DE). **DIENES, Christian**; Carl-Bosch-Strasse 38, 67056 Ludwigshafen (DE). **BORGMEIER, Frieder**; Carl-Bosch-Strasse 38, 67056 Ludwigshafen (DE). **REIFEGERSTE, Simon**; Carl-Bosch-Strasse 38,

67056 Ludwigshafen (DE). **SPIELMANN, Jan**; Carl-Bosch-Strasse 38, 67056 Ludwigshafen (DE).

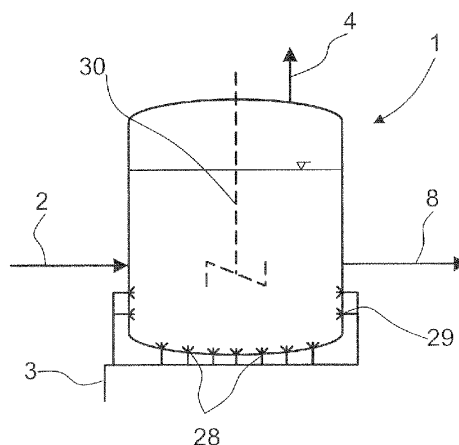
(74) Agent: **KUDLA, Karsten**; Patentanwälte Isenbruck Bösl Hörschler PartG mbB, Seckenheimer Landstraße 4, 68163 Mannheim (DE).

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,

(54) Title: PROCESS FOR PRODUCING ALKYL SULFONIC ACID

FIG.2



(57) Abstract: The invention relates to a process for producing alkyl sulfonic acid in a reaction apparatus (41) which contains a liquid phase comprising aqueous nitric acid, wherein dialkyl disulfide is fed into the liquid phase in the reaction apparatus (41) and a crude reaction product is formed in the reaction apparatus (41) by chemical reaction of the dialkyl disulfide with the nitric acid, wherein feeding the dialkyl disulfide comprises at least one of: - the liquid dialkyl disulfide is fed into the reaction apparatus (41) through an orifice (28, 29; 33) having a hydraulic diameter of less than 5 mm; - the liquid dialkyl disulfide is fed into the reaction apparatus (41) with an inlet velocity of at least 0.6 m/s.

[Continued on next page]

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, ME, 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))*

Published:

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