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(54) Title: PROCESS FOR PREPARATION OF METHACRYLIC ACID AND METHACRYLIC ACID ESTERS

(57) Abstract: The invention relates to a process for preparation of at least one of methacrylic acid and a methacrylic acid ester, comprising process steps: a1) gas phase oxidation of at least one C₄ compound to obtain a reaction phase comprising methacrylic acid; a2) quenching of the reaction phase to obtain a crude aqueous phase comprising methacrylic acid; a3) extraction of at least a part of the methacrylic acid from the crude aqueous phase comprising methacrylic acid into an organic solvent to obtain a crude organic phase comprising methacrylic acid and a first aqueous phase, wherein the first aqueous phase comprises components i. at least 65 wt.%, preferably in the range of from 65 wt.% to 99.9 wt.%, more preferably in the range of from 70 wt.% to 99.8 wt.% water, yet more preferably in the range of from 75 wt.% to 99 wt.%, more preferably in the range of from 76 wt.% to 98.5 wt.%, more preferably in the range of from 77 wt.% to 98 wt.%, even more preferably in the range of from 78 wt.% to 97.5 wt.%, even more preferably in the range of from 79 wt.% to 95 wt.%, yet more preferably in the range of from 80 wt.% to 90 wt.% water, based on the total weight of the first aqueous phase, and ii. not more than 35 wt.%, preferably in the range of from 0.1 wt.% to 35 wt.%, preferably in the range of from 0.2 wt.% to 30 wt.%, more preferably in the range of from 1 wt.% to 25 wt.%, yet more preferably in the range of from 1. wt.% to 24 wt.%, more preferably in the range of from 2 wt.% to 23 wt.%, even more preferably in the range of from 2.5 wt.% to 22 wt.%, even more preferably in the range of from 5 wt.% to 21 wt.%, yet more preferably in the range of from wt.% to 20 wt.% of at least one organic compound, based on the total weight of the first aqueous phase, wherein the sum of the weight amounts of i. and ii. is 100 wt.%; a4) separation and optionally purification of at least a part of the methacrylic acid from the crude organic phase comprising methacrylic acid; 200700658 55 a5) optionally, esterification of at least a part of the methacrylic acid obtained in step a4); b) separation of at least a part of the water comprised in the first aqueous phase obtained in step a3) from at least a part of at least one component ii. to obtain a second aqueous phase and an organic phase, wherein the organic phase comprises at least one component ii., and wherein the second aqueous phase is depleted in at least one component ii. compared to the first aqueous phase; c) optionally, separation of at least a part of at least one organic compound from the second aqueous phase obtained in process step b) to obtain a third aqueous phase; d) optionally, separation of at least a part of at least one component ii from the organic phase obtained in process step b), to a process for treatment of an aqueous phase comprising at least one organic compound, and a device for production of at least one of methacrylic acid and a methacrylic ester.