

Title (en)

METHOD FOR PRODUCING 3-ALKYL-N-NITRO-4H-1,3,5-OXADIAZINE-4-IMINES

Title (de)

VERFAHREN ZUR HERSTELLUNG VON 3-ALKYL-N-NITRO-4H-1,3,5-OXADIAZIN-4-IMINEN

Title (fr)

PROCEDE DE PREPARATION DE 3-ALKYL-N-NITRO-4H-1,3,5-OXADIAZIN-4-IMINES

Publication

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Application

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Abstract (en)

[origin: DE19947332A1] 3-Alkyl-N-nitro-4H-1,3,5-oxadiazine-4-imines (I) are produced by neutralization of nitric acid with an alkylamine, reaction of the alkylammonium nitrate obtained with cyanamide, dehydration of the resulting alkylguanidine nitrate with nitric acid, removal of excess nitric acid and acid-catalysed reaction of the alkylnitroguanidine obtained with formaldehyde in formic and/or acetic acid. Production of 3-alkyl-N-nitro-4H-1,3,5-oxadiazine-4-imines of formula (I) comprises: (a) neutralization of nitric acid (HNO₃) with an alkylamine R-NH₂ in aqueous solution at -10 deg C to +50 deg C and optional water removal; (b) reaction of the alkylammonium nitrate obtained with cyanamide in an organic solvent at 80-180 deg C under 2-20 bar pressure; (c) dehydration of the resulting alkylguanidine nitrate (after solvent removal) with 92-98% HNO₃ at 20-70 deg C; (d) vacuum distillation of the excess HNO₃ at 30-70 deg C; (e) acid-catalysed reaction of the anhydrous alkylnitroguanidine obtained with formic acid in at least 95% formic and/or acetic acid at 30-100 deg C; and (f) isolation of the compound (I) formed. R = 1-4C alkyl.

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