

Flexible method for the joint production of (I) formic acid, (II) a carboxylic acid comprising at least two carbon atoms and/or the derivatives thereof and (III) a carboxylic acid anhydride

Abstract

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Process for the joint preparation of

- (i) formic acid (III);
- 10 (ii) a carboxylic acid having at least two carbon atoms (II) and/or derivatives thereof; and
- (iii) a carboxylic anhydride (VII),

which comprises

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- (a) transesterifying a formic ester (I) with a carboxylic acid having at least two carbon atoms (II) to form formic acid (III) and the corresponding carboxylic ester (IV);
- (b) carbonylating at least part of the carboxylic ester (IV) formed in step (a) to form the
- 20 corresponding carboxylic anhydride (V); and
- (c) transanhydriding at least part of the carboxylic anhydride (V) formed in step (b) with a carboxylic acid (VI) to form a carboxylic anhydride (VII) and the carboxylic acid (II).