



US 20100210871A1

(19) **United States**(12) **Patent Application Publication****Kobler et al.**(10) **Pub. No.: US 2010/0210871 A1**(43) **Pub. Date: Aug. 19, 2010**(54) **REACTIVE EXTRACTION OF FREE ORGANIC ACIDS FROM THE AMMONIUM SALTS THEREOF**(75) Inventors: **Christoph Kobler**, Alzenau (DE);
Dieter Buss, Aschaffenburg (DE);
Axel Ronneburg, Erlensee (DE);
Christoph Weckbecker,
Grundau-Lieblos (DE)

Correspondence Address:

LAW OFFICE OF MICHAEL A. SANZO, LLC
15400 CALHOUN DR., SUITE 125
ROCKVILLE, MD 20855 (US)(73) Assignee: **EVONIK DEGUSSA GMBH**,
Essen (DE)(21) Appl. No.: **12/706,512**(22) Filed: **Feb. 16, 2010****Related U.S. Application Data**

(60) Provisional application No. 61/239,634, filed on Sep. 3, 2009.

Foreign Application Priority Data

Feb. 19, 2009 (DE) 102009001008.4

Publication Classification(51) **Int. Cl.**
C07F 9/535 (2006.01)
C07C 61/00 (2006.01)
C07C 59/01 (2006.01)
C07C 59/10 (2006.01)
C07C 53/126 (2006.01)
C07C 309/25 (2006.01)
(52) **U.S. Cl. 562/8; 562/400; 562/579; 562/587;**
562/512; 562/100(57) **ABSTRACT**

The invention relates to a process for converting ammonium salts of organic acids to the particular free organic acid, wherein an aqueous solution of the ammonium salt is contacted with an organic extractant and the salt is dissociated at temperatures and pressures at which the aqueous solution and the extractant are in the liquid state, and a stripping medium or entraining gas is introduced in order to remove NH_3 from the aqueous solution and transfer at least a portion of the free organic acid formed to the organic extractant. The invention described here thus provides an improved process for releasing an organic acid, preferably a carboxylic, sulphonic or phosphonic acid, especially an α -hydroxycarboxylic acid or β -hydroxycarboxylic acid, from the ammonium salt thereof by release and removal of ammonia and simultaneous extraction of the acid released with a suitable extractant from the aqueous phase. This process corresponds to a reactive extraction. The reactive extraction of an organic acid from the aqueous ammonium salt solution thereof can be improved significantly by the use of a stripping medium or entraining gas, for example nitrogen, air, steam or inert gases, for example argon. The ammonia released is removed from the aqueous solution by the continuous gas stream and can be fed back into a production process. The free acid can be obtained from the extractant by a process such as distillation, rectification, crystallization, re-extraction, chromatography, adsorption, or by a membrane process.

