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(54) **Title:** PROCESS FOR ACRYLATE PRODUCTION

(57) **Abstract:** Disclosed are methods for the continuous flow production of acrylic acid and derivatives thereof from an epoxide feedstock. In one embodiment, the method includes the steps of: contacting a process stream comprising ethylene oxide and an organic solvent with a carbonylation catalyst and carbon monoxide to provide a reaction stream containing beta propiolactone; applying the reaction stream containing the beta propiolactone to a nanofiltration membrane to produce a permeate stream containing beta lactone and a retentate stream containing carbonylation catalyst; and treating the permeate stream under conditions to convert the beta propiolactone into an acrylate ester. In some embodiments, the retentate stream is returned to the first step of the process where it is recharged with additional epoxide and passed through the sequence again.



INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C07C 1/04 (2013.01)

USPC - 585/310

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - C07C 1/00, 1/04, 1/20, 29/00, 29/14 (2013.01)

USPC - 585/310, 350, 932; 568/876, 880, 881

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

CPC - C07C 1/04, 1/0425, 1/0445 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit.com, Google Patents, Public AppFT and PatFT, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2012/0123137 A1 (ALLEN et al) 17 May 2012 (17.05.2012) entire document	1-20
Y	US 2003/0098274 A1 (LEE et al) 29 May 2003 (29.05.2003) entire document	1-20
Y	US 2009/0253934 A1 (HO et al) 08 October 2009 (08.10.2009) entire document	15

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"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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