

Title (en)  
METHOD FOR PRODUCING HIGHLY FUNCTIONAL, HYPER BRANCHED POLYESTER BY MEANS OF ENZYMATIC ESTERIFICATION

Title (de)  
VERFAHREN ZUR HERSTELLUNG HOCHFUNKTIONELLER, HYPERVERZWEIGTER POLYESTER DURCH ENZYMATISCHE VERESTERUNG

Title (fr)  
PROCEDE POUR PRODUIRE DES POLYESTERS HYPER-RAMIFIES A FONCTIONNALITE ELEVEE PAR ESTERIFICATION ENZYMATIQUE

Publication  
**EP 1458881 A1 20040922 (DE)**

Application  
**EP 02805334 A 20021218**

Priority

- DE 10163163 A 20011220
- EP 0214454 W 20021218

Abstract (en)  
[origin: WO03054204A1] The invention relates to a method for producing highly functional, hyper branched polyester, characterised by the reaction of a reaction solution containing solvent and (a) one or more dicarboxylic acids or one or more derivatives thereof with one or more at least trifunctional alcohols, (b) or one or more tricarboxylic acids or high polycarboxylic acids or one or more derivatives thereof with one or more diols, (c) or one or more tricarboxylic acids or higher polycarboxylic acids or one or more derivatives thereof with one or more trifunctional alcohols, (d) or one or more di- or polyhydroxycarboxylic acids, (e) or one or more hydroxydicarboxylic acids or hydroxypolycarboxylic acids, or a mixture of at least two of the above-mentioned reaction solutions in the presence of an enzyme at temperatures greater than 60 DEG C and at a pressure which is greater than 500mbar.

IPC 1-7  
**C12P 7/62**

IPC 8 full level  
**C08G 63/06** (2006.01); **C08G 63/12** (2006.01); **C08G 63/60** (2006.01); **C08G 83/00** (2006.01); **C12P 7/62** (2006.01); **C12R 1/72** (2006.01)

CPC (source: EP US)  
**C08G 63/06** (2013.01 - EP US); **C08G 63/12** (2013.01 - EP US); **C08G 63/60** (2013.01 - EP US); **C08G 83/005** (2013.01 - EP US); **C12P 7/62** (2013.01 - EP US); **C12P 7/625** (2013.01 - EP US); **Y10T 428/28** (2015.01 - EP US); **Y10T 428/2848** (2015.01 - EP US)

Citation (search report)  
See references of WO 03054204A1

Citation (examination)

- WO 9946397 A1 19990916 - HENKEL KGAA [DE], et al
- WADA ET AL: "Synthesis of hyperbranched polyesters by enzymatic polymerization", POLYMER PREPRINTS. JAPAN, SOCIETY OF POLYMER SCIENCE, JP, vol. 49, 1 January 2000 (2000-01-01), pages 1790 - 1791, XP009154334
- WADA ET AL: "Synthesis of hyperbranched polyesters by enzymatic polymerization", POLYMER PREPRINTS. JAPAN,, vol. 49, 1 January 2000 (2000-01-01), pages 1790 - 1791, XP009154401
- DANIELA MARUTZKY: "Radikalische Copolymerisation eines Glucose-Derivats mit Vinylfettsäureestern und Vinylethern", DISSERTATION VON DER GEMEINSAMEN NATURWISSENSCHAFTLICHEN FAKULTÄT DER TECHNISCHEN UNIVERSITÄT CAROLO-WILHELMINA ZU BRAUNSCHWEIG, 5 May 2004 (2004-05-05), pages 1 - 154, XP055034374, Retrieved from the Internet <URL:http://rzbl04.biblio.etc.tu-bs.de:8080/docportal/servlets/MCRFileNodeServlet/DocPortal\_derivate\_00001629/Document.pdf?hosts=local> [retrieved on 20120731]

DOCDB simple family (publication)  
**WO 03054204 A1 20030703**; AU 2002356670 A1 20030709; DE 10163163 A1 20030703; EP 1458881 A1 20040922; JP 2005512571 A 20050512; US 2005054812 A1 20050310; US 2006211842 A1 20060921; US 7081509 B2 20060725; US 7317065 B2 20080108

DOCDB simple family (application)  
**EP 0214454 W 20021218**; AU 2002356670 A 20021218; DE 10163163 A 20011220; EP 02805334 A 20021218; JP 2003554905 A 20021218; US 40542606 A 20060418; US 49753504 A 20041012