

Title (en)
REINFORCED POLYMER CONCRETE AND METHOD FOR FABRICATING THE SAME

Title (de)
VERSTÄRKTER POLYMERBETON UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)
BÉTON DE POLYMÈRE RENFORCÉ ET PROCÉDÉ POUR LA FABRICATION DE CELUI-CI

Publication
EP 4121399 A4 20240522 (EN)

Application
EP 21772087 A 20210311

Priority
• US 202016821600 A 20200317
• US 2021021814 W 20210311

Abstract (en)
[origin: WO2021188345A1] Described herein is a reinforced polymer concrete composition that includes a polymer concrete cured while in contact with reinforcing material with a polymer that has a backbone containing cyclohexane dimethanol ("CHDM"). The polymer concrete can include an unsaturated polymer resin ("UPR") as a binding agent. The reinforcing material and polymer concrete mixture can be brought in contact with each other prior to the polymer concrete curing. A cross-linking agent and a free radical initiator can be inserted for triggering a reaction between the CHDM-containing polymer and the UPR. The polymer can be a polyurethane or copolyester, such as polyethylene terephthalate glycol ("PETG").

IPC 8 full level
C04B 26/18 (2006.01); **C04B 24/28** (2006.01)

CPC (source: EP KR)
C04B 16/0675 (2013.01 - KR); **C04B 16/0683** (2013.01 - KR); **C04B 24/282** (2013.01 - KR); **C04B 24/283** (2013.01 - KR);
C04B 26/18 (2013.01 - EP KR); **C04B 32/02** (2013.01 - KR); **C04B 40/0071** (2013.01 - KR); **C04B 40/0082** (2013.01 - KR);
C04B 2111/00379 (2013.01 - EP KR)

C-Set (source: EP)
1. **C04B 26/18 + C04B 16/0675 + C04B 16/0683 + C04B 24/282 + C04B 24/283 + C04B 40/0071 + C04B 40/0082**
2. **C04B 26/18 + C04B 24/282 + C04B 24/283 + C04B 32/02 + C04B 40/0071 + C04B 40/0082**

Citation (search report)
• [Y] EP 1094171 B1 20040121 - TECHFAB LLC [US]
• [Y] EP 0062373 B1 19860910
• [Y] US 5519094 A 19960521 - TSENG HSIUNGTO S [US], et al
• [Y] US 6046267 A 20000404 - VIDAURRE-HEIREMANS VICTOR [CL], et al
• [Y] SAN-JOSE J T ET AL: "Structural analysis of FRP reinforced polymer concrete material", CONSTRUCTION AND BUILDING MATERIALS, ELSEVIER, NETHERLANDS, vol. 20, no. 10, 15 September 2005 (2005-09-15), pages 971 - 981, XP027933744, ISSN: 0950-0618, [retrieved on 20061201]
• [Y] MARTINEZ DE ILARDUYA AND S MUNOZ GUERRA A ED - SABU THOMAS ET AL: "6. Polyesters Based on Cyclohexanedimethanol", 1 January 2011, HANDBOOK OF ENGINEERING AND SPECIALITY THERMOPLASTICS: POLYETHERS AND POLYESTERS, VOLUME 3, WILEY, US, PAGE(S) 161 - 220, ISBN: 978-0-470-63926-9, XP008168573
• [Y] "KIRK-OTHMER ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY (4th edition)", 25 September 2015, WILEY-INTERSCIENCE, Hoboken, NJ, USA, ISBN: 978-0-471-48494-3, article HILDEBERTO NAVA: "Polyesters, Unsaturated", pages: 1 - 24, XP055578680, DOI: 10.1002/0471238961.1615122519051212.a01.pub3
• [Y] EL-TAHAN MOSSAB ET AL: "New thermoplastic CFRP bendable rebars for reinforcing structural concrete elements", COMPOSITES PART B, vol. 45, no. 1, 25 September 2012 (2012-09-25), AMSTERDAM, NL, pages 1207 - 1215, XP093150653, ISSN: 1359-8368, DOI: 10.1016/j.compositesb.2012.09.025
• See also references of WO 2021188345A1

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KR 20220151180 A 20221114

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