

Title (en)

PROCESS FOR PRODUCTION OF HYDROCARBON MATERIALS FROM PLASTIC WASTE

Title (de)

VERFAHREN ZUR HERSTELLUNG VON KOHLENWASSERSTOFFMATERIALIEN AUS KUNSTSTOFFABFÄLLEN

Title (fr)

PROCÉDÉ DE PRODUCTION DE MATÉRIAUX HYDROCARBONÉS À PARTIR DE DÉCHETS PLASTIQUES

Publication

EP 4321595 A1 20240214 (EN)

Application

EP 22198189 A 20220927

Priority

US 202217818810 A 20220810

Abstract (en)

A process for production of useful hydrocarbon materials from plastic waste and reaction system therefor is provided. The process includes frequently thermolyzing of high molecular weight hydrocarbons such as plastic waste to produce useful medium molecular weight hydrocarbons and low molecular weight hydrocarbons. The process utilizes low molecular weight hydrocarbons as solution reactants which helps in reducing the viscosity of the material for more effective heat transfer. The process also includes addition of one or more low molecular weight olefins and solution reactants to high molecular weight hydrocarbons to augment the free radical environment. The process also includes hydrogenating and oxidizing the high molecular weight hydrocarbons. The process enables production of the useful, predominantly hydrocarbon materials such as waxes, lube oil basestocks, refinery feedstocks, intermediates or fuel additives. The present invention also provides a reaction system comprising thermolysis reactor including a primary zone and an optional secondary zone for production of useful hydrocarbon materials from plastic waste.

IPC 8 full level

C10G 1/00 (2006.01); **C08J 11/12** (2006.01); **C08J 11/20** (2006.01); **C10B 47/18** (2006.01); **C10B 53/07** (2006.01); **C10G 1/02** (2006.01); **C10G 1/10** (2006.01); **C10G 9/02** (2006.01)

CPC (source: EP)

C10G 1/002 (2013.01); **C10G 1/10** (2013.01); **C10G 9/02** (2013.01); **C10G 2300/1003** (2013.01); **C10G 2400/02** (2013.01); **C10G 2400/04** (2013.01); **C10G 2400/06** (2013.01)

Citation (applicant)

- US 2372001 A 19450320 - JOYCE JR ROBERT M
- US 3441628 A 19690429 - RATZSCH MANFRED, et al
- US 8378161 B1 20130219 - HEMMINGS JOHN [US], et al
- US 8446332 B2 20130521 - HOMAN MASATOSHI [JP]
- W. G. OAKES ET AL.: "The thermal degradation of ethylene polymers", J. CHEM. SOC. FARADAY TRANS., 1949
- F.M. RUGG ET AL.: "Bakelite Company (part of Union Carbide)", ANNALS OF THE NEW YORK ACADEMY OF SCIENCE, 1953

Citation (search report)

- [X] EP 3960838 A1 20220302 - RESONANTE LLC [US]
- [A] US 3736271 A 19730529 - SCHUTZE H, et al
- [A] US 2015001061 A1 20150101 - BORDYNUIK JOHN WILLIAM [CA]
- [A] CH 703609 A2 20120229 - KOSIOR EDWARD [AU], et al
- [A] PL 215514 B1 20131231 - RAMA MAN SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA [PL] & WO 2013036151 A2 20130314 - INST NAUKOWO BADAWCZY SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA [PL], et al
- [A] US 6822126 B2 20041123 - MILLER STEPHEN J [US]

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

EP 4321595 A1 20240214

DOCDB simple family (application)

EP 22198189 A 20220927