

(12) **UK Patent Application** (19) **GB** (11) **2472721** (13) **A**

(43) Date of Reproduction by UK Office **16.02.2011**

(21) Application No: **1019393.6**

(22) Date of Filing: **21.04.2009**

(30) Priority Data:
(31) **61046723** (32) **21.04.2008** (33) **US**
(31) **12426569** (32) **20.04.2009** (33) **US**

(86) International Application Data:
PCT/US2009/041189 En 21.04.2009

(87) International Publication Data:
WO2009/131967 En 29.10.2009

(51) INT CL:
C09K 8/508 (2006.01) **C09K 8/588** (2006.01)

(56) Documents Cited by ISA:
WO 2001/096707 A **WO 2000/057433 A**
US 4852652 A **US 4836282 A**
US 4148746 A

(58) Field of Search by ISA:
INT CL **C09K**
Other: **EPO-Internal**

(71) Applicant(s):
Nalco Company
1601 West Diehl Road, Naperville,
Illinois 60563-1198, United States of America

(72) Inventor(s):
John D Morris
Kin-Tai Chang

(74) Agent and/or Address for Service:
Harrison Goddard Foote
Belgrave Hall, Belgrave Street, LEEDS, LS2 8DD,
United Kingdom

(54) Title of the Invention: **Composition and method for recovering hydrocarbon fluids from a subterranean reservoir**
Abstract Title: **Composition and method for recovering hydrocarbon fluids from a subterranean reservoir**

(57) This invention is directed to a composition comprising expandable polymeric microparticles comprising hydrophobic polymers having a backbone with labile pendant groups, the microparticles having an unexpanded volume average particle size diameter of from about 0.05 to about 50 microns. The starting configuration of the hydrophobic polymers constrains the microparticle to an unexpanded volume average particle size diameter of from about 0.05 to about 50 microns. Labile pendant groups on the backbone are subject to hydrolysis under a change in environmental conditions that results in release of the expandable microparticle so that the microparticle expands. The invention is further directed to the use of the composition for modifying the permeability of subterranean formations and increasing the mobilization and/or recovery rate of hydrocarbon fluids present in the formations.

GB 2472721 A