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(54) **HYDROCARBON DECOMPOSITION FOR SOIL AND WATER REMEDIATION**

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A62D 3/30 (2007.01)

(52) **U.S. Cl.**
USPC 588/313; 588/405

(58) **Field of Classification Search** 588/313, 588/318, 405; 423/245.1
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,612,190	A	9/1986	Sato et al.	
4,666,677	A	5/1987	Ramus et al.	
5,250,197	A	10/1993	Marcel	
5,252,138	A	10/1993	Guyonon	
5,472,638	A	* 12/1995	McLaughlin et al. 252/391
5,671,762	A	9/1997	Hancock, Jr. et al.	

OTHER PUBLICATIONS

"Extraction and Purification of Nondihydroguaiaretic Acid"; by J. O. Page; 23 Anal. Chem; 1951; pp. 296-298.

* cited by examiner

Primary Examiner — Edward Johnson
(74) *Attorney, Agent, or Firm* — St. Orge Steward Johnston & Reens, LLC

(57) **ABSTRACT**

Presented herein are compositions including a linear tensoactive surfactant which, upon contact and mechanical stirring of a hydrocarbon body, induces emulsification, resulting in oxidation of fatty acid aliphatic bodies. The compositions solve the problem of hydrocarbon pollution. The hydrocarbon decomposer and its by-products dissolve hydrocarbons present in polluted bodies such as clays, soils, water and sand. Methods of the invention create a residue that is a fertilizer, at room temperature and with no need for high pressure.

9 Claims, No Drawings