The United States of America



The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

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If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number of timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.



(12) United States Patent Dietrich et al.

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(54) AGENT FOR REMOVING SOLID PARTICLES

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 136 days.

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(56) References Cited

U.S. PATENT DOCUMENTS

3,903,889	Α	*	9/1975	Torr 604/365
4,654,158	Α	*	3/1987	Shepherd, Jr 510/158
6,336,977	B1	*	1/2002	Menke et al 134/42
6.342.472	B1	*	1/2002	Legel et al. 510/345

FOREIGN PATENT DOCUMENTS

WO WO98/46712 * 10/1998 WO WO 99/06512 2/1999

* cited by examiner

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57) ABSTRACT

The invention relates to an agent for removing solid particles form surfaces, containing polymers, surfactants and other constituents. The above-mentioned polymers are naturally polygalactomanans. The agent exists in the form of a gel and runs together or can be mixed together so that the contaminated particles are embedded in the material and new surfaces are formed for receiving other contaminated particles. The invention also relates to the use of agents such as gel cleaners, cold cleaners, neutral cleaners, textile cleaners, disinfectives and/or technical cleaners.

12 Claims, No Drawings