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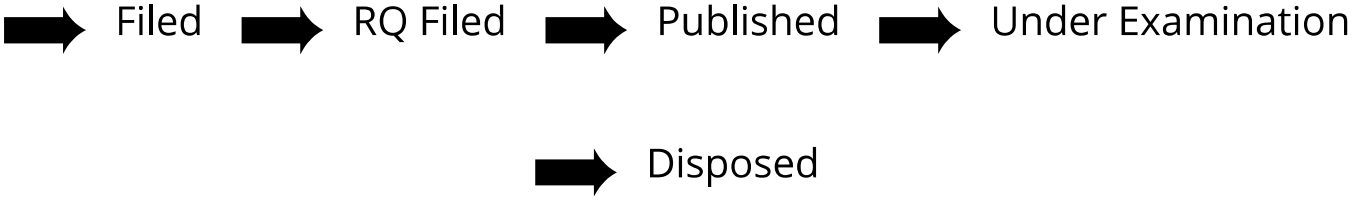
Application Details	
APPLICATION NUMBER	704/KOL/2010
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	30/06/2010
APPLICANT NAME	1 . DUTTA, ROBIN KUMAR 2 . BORDOLOI, SHREEMOYEE 3 . NATH, SURESH KUMAR
TITLE OF INVENTION	ARSENIC REMOVAL FROM GROUNDWATER BY OXIDATION-COAGULATION AT CONTROLLED PH FOR DOMESTIC AND COMMUNITY APPLICATIONS
FIELD OF INVENTION	CHEMICAL
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	robind@tezu.ernet.in
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	14/06/2011
PUBLICATION DATE (U/S 11A)	29/07/2011
FIRST EXAMINATION REPORT DATE	27/03/2015
Date Of Certificate Issue	27/02/2017
POST GRANT JOURNAL DATE	03/03/2017
REPLY TO FER DATE	04/06/2015

Application Status	
APPLICATION STATUS	**Granted Application, Patent Number :280737**

E-Register | View Examination Report(s) | Order(s)/Decision(s) | View Documents



Patent Search

Invention Title	ARSENIC REMOVAL FROM GROUNDWATER BY OXIDATION-COAGULATION AT CONTROLLED PH FOR DOMESTIC AND COMMUNITY APPLICATI
Publication Number	30/2011
Publication Date	29/07/2011
Publication Type	INA
Application Number	704/KOL/2010
Application Filing Date	30/06/2010
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	CHEMICAL
Classification (IPC)	C02F1/00

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Abstract:

The present invention is a process for removal of arsenic by oxidation of arsenite to arsenate by an oxidizing agent and subsequent precipitation by coagulation with an iro based coagulant in the presence of a common chemical which maintains optimum pH of the water during the treatment and in the treated water. The method can remove much below the maximum contamination level of 0.01 mg/L from an initial concentration up to 0.5 mg/L using only very small quantities of the chemicals. If the water con dissolved iron then an additional quantity of the oxidant has to be added to the water. The pH of water remains within acceptable range for drinking. The present method very low cost method. The method does not add any contaminants to water. Instead, this method lowers the concentration of unwanted heavy metals present in the wate as one of the chemical is a mild disinfectant and as coagulation takes place during the separation, the water is safe from any bacteriological contamination.

Complete Specification

pH remains in the suitable range for drinking.
3. Removal of both arsenic and iron along with some other heavy metals like Mn, Cu and Cd from groundwater by this oxidation coagulation at controlled pH using baking soda, KMnO4 and FeCl3 is a novel technology.

The method:

The method that we have developed is a simple method which needs only a container as treatment tank, a sand-gravel filter and another container to collect the arsenic free water. A flow diagram of the simple process has been shown in Drawing 1.

The materials used in this method of arsenic removal are

i. Sodium bicarbonate or Baking soda ($NaHCO_3$)
ii. Potassium permanganate or potash ($KMnO_4$) and
iii. ferric chloride ($FeCl_3$)

For large scale community application it needs a treatment chamber, a sard-gravel filter and a storage tank. Our method involves a three step chemical treatment and subsequent filtration. The steps involved for the addition of three chemicals are as follows:

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Page last updated on: 26/06/2019

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PATENT OFFICE

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GEOGRAPHICAL INDICATIONS

No. 280737

Dated the:28/02/2017

To

DR. ROBIN KUMAR DUTTA,
DEPARTMENT OF
CHEMICAL SCIENCES,
TEZPUR UNIVERSITY,
NAPAAM, TEZPUR,
ASSAM, INDIA, PIN 784 028

BY REGISTERED A.D

REF :- Patent No.280737 (704/KOL/2010), Dated 30/06/2010 Granted On Dated 27/02/2017

This is to state that a patent has been granted on the above-mentioned application and that the grant of the patent has been recorded in the Register of Patents on the 27/02/2017. The said patent is enclosed herewith.

The payment of renewal fee is required to be made at this office within three(3) months from the aforesaid date of recording according to the proviso in sub-section(4) of Section 142 of the Patents Act,1970, as Amended by the Patent(Amendment)Act,2005/ Patent Rule, 2003 as Amended by Patent(Amendment) Rules,2006.

The renewal fee schedule has been given at the back of the Letter of Patent

S. Chattopadhyay

Encl: As above

(Dr. Sukanya Chattopadhyay)
Dy. Controller of Patents & Designs

Note: "Renewal fees have changed in accordance with the Patent Amendment Rules 2014. Kindly refer to the First Schedule (fees) of the Patent Amendment Rules 2014 available on the official website of Controller General of Patents Designs and Trade Marks www.ipindia.gov.in"

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GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
Patent Certificate
(Rule 74 of Patents Rules)

Patent Number	:	**280737**
Application Number	:	**704/KOL/2010**
Date of Filing	:	**30/06/2010**
Patentee	:	**1.DUTTA, ROBIN KUMAR** **2. BORDOLOI, SHREEMOYEE** **3. NATH, SURESH KUMAR**

It is hereby certified that a patent has been granted to the patentee for an invention entitled ARSENIC REMOVAL FROM GROUNDWATER BY OXIDATION-COAGULATION AT CONTROLLED PH FOR DOMESTIC AND COMMUNITY APPLICATIONS as disclosed in the above mentioned application for the term of 20 years from the 30 day of JUNE 2010 in accordance with the provisions of the Patents Act, 1970.

Controller of Patents

Controller General of Patents,
Designs & Trademarks

Date of Grant:27/02/2017

Note: The fees for renewal of this patent, if it is to be maintained will fall/has fallen due on 30 day of JUNE 2012 and on the same day in every year thereafter.