



UNITED STATES PATENT AND TRADEMARK OFFICE

 UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/880,495	05/21/2020	Saad JASIM	Q146 0001/DJM	7685
720 7590 12/20/2021 OYEN, WIGGS, GREEN & MUTALA LLP 480 - THE STATION 601 WEST CORDOVA STREET VANCOUVER, BRITISH COLUMBIA V6B 1G1 CANADA			EXAMINER CECIL, TERRY K	
			ART UNIT 1778	PAPER NUMBER
			NOTIFICATION DATE 12/20/2021	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mail@patentable.com

DETAILED CORRESPONDENCE

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Specification

1. The disclosure is objected to because of the following:
 - The use of the terms “Bayoxide” and “Greensand Plus”, which are a trade name or a mark used in commerce, has been noted in this application. The term should be accompanied by the generic terminology; furthermore the term should be capitalized wherever it appears or, where appropriate, *include a proper symbol indicating use in commerce such as* TM, *SM*, *or* [®] *following each occurrence of the term.* Although the use of trade names and marks used in commerce (i.e., trademarks, service marks, certification marks, and collective marks) are permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as commercial marks.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

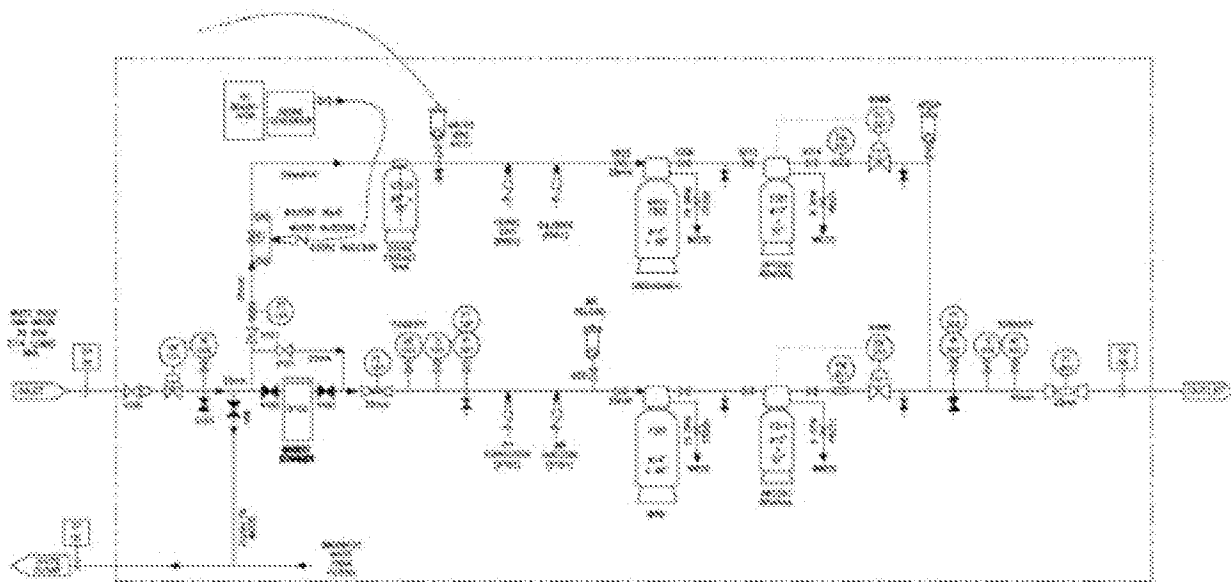
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

3. Claims 1, 4, 7-11, 13-15 and 17 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by RESERVOIR'EAU-WATERNET, A Community Circle Approach to Evaluating Water Treatment Solution for the City of White Rock Canada 2017, hereinafter “the Waternet reference”.



As deduced from e.g. figure 1.2 above, the Waternet reference teaches a method of treating water container arsenic and manganese comprising the steps of adding ozone to the water (e.g. at the Mazzei injector in the top left of the figure) at a concentration in the range of 0.2 to 1.0 (e.g. 0.5 mg/L, see section 2.4.1) to oxidize As(III) to AS(V) and Mn(II) to Mn (IV) (see sections 1.4 and 1.42); adding an iron-based coagulant (top center of the figure), e.g. Ferric Chloride (see section

2.5) ; the first filtering in manganese dioxide-coated silica sand (e.g. Greensand PlusTM, see section 1.6.1) and then filtering in ferric oxide (e.g. BayoxideTM, see section 1.8.1) [as in claims 1, 4, 7-10, and 17]. As for claim 15, Waternet teaches treated water comprising less than 0.005 mg/L of Manganese (see section 2.4.2). As for claims 13-14, Waternet teaches less than 005 or .003 mg/L arsenic in the treated water (see figure 2.25). As for claim 11, ferric chloride would inherently have a coagulating effect the phosphate, which according the Waternet is present in the untreated water (see figure 5.1, IN column).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2-3, 5-6, 12, 16 and 18-19 are rejected under 35 U.S.C. 103 as being unpatentable over the Waternet reference in view of ordinary skill in the art.

Claims 2-3 and 18-19: Waternet teaches the use 0.5 and 1.0 mg/L ozone concentration. Though he doesn't specify a concentration below 0.5, he does teach that oxidant demands vary based on not only the amount of metals in a sample to be oxidized but also other water quality constituents

e.g. ammonia and dissolved organic matter (section 1.4). The skilled man would also realize that the flow rate of the water being treated, as well as, ozone contact time would also play a factor in choosing the amount of ozone concentration such that ozone concentration is a result-effect variable that would be obvious. In addition, the costs associated with the production of ozone would motivate the skilled man to select the lowest ozone concentration deemed effective such that using a concentration lower than 0.5 mg/L [as in claims 2-3 and 18-19] would have been obvious given the characteristics of the untreated water and the flow parameters of the water treatment equipment.

Claims 5-6: Waternet doesn't specify using a concentration of ferric chloride to be greater than 1.2 mg/L; however, he does teach that his 1.0 mg/L ferric chloride concentration is for removing 7.5 ppb of arsenic. This is an indication that the concentration of coagulant is also a result effective variable that depends upon the concentration of Arsenic (and other metals) in the water to be treated. The skilled man would also recognize that the amount of flocculent necessary would also depend upon flow parameters of the water being treated and the resulting residence time for the flocculent to form.

Claim 12: figures 1.6 and 2.24 indicate that the amounts of Arsenic and Manganese vary depending upon the location of the wellhead and even over time such that the claimed amounts would be obvious. However, Waternet does teach well samples including amounts within the claimed ranges (see e.g. the aforementioned figures).

As for claim 16, the amount of phosphate remaining after treating is a result-effective variable depending upon the initial water characteristics, amount of coagulate added, and flow parameters of the equipment. It is also pointed out that Waternet also teaches treated water having an amount that is below detection level (see figure 5.1, column G-E) such that having less than 0.15 mg/L of phosphate would be obvious.

Other Pertinent Art

6. Applicant should also review the following germane references (abstracts):

- **CN 109879477 A June 14, 2019**

TITLE: Treating arsenic-containing waste water, by adjusting pH of waste water by adding acid or alkali agent, oxidizing trivalent arsenic to pentavalent arsenic, coagulating, adding reducing agent and removing arsenic

- **PUB-NO: CN105753218A July 13, 2016**

TITLE: Method for removing trivalent arsenic

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. TERRY K CECIL whose telephone number is (571)272-1138. The examiner can normally be reached on Normally 7:30-4:00p M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If repeated attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TERRY K CECIL/
Primary Examiner, Art Unit 1778

Notice of References Cited

Application/Control No. 16/880,495	Applicant(s)/Patent Under Reexamination JASIM et al.	
Examiner Mr. TERRY K CECIL	Art Unit 1778	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A					
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Abstract for CN 109879477 A (Year: 2019)
	V	Abstract for CN 105753218 A (Year: 2016)
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
 Approved for use through 07/31/2012. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
 Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16880495
	Filing Date	2020-05-21
	First Named Inventor	JASIM, Saad
	Art Unit	
	Examiner Name	
	Attorney Docket Number	Q146 0001/DJM

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		16880495
	Filing Date		2020-05-21
	First Named Inventor	JASIM, Saad	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		Q146 0001/DJM

1	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Arsenic Treatment Technology Evaluation Handbook for Small Systems (July 2003).
2	NICOMEL, NINA RICCI ET AL., "Technologies for Arsenic Removal from Water: Current Status and Future Perspectives," International Journal of Environmental Research and Public Health, 2016, 13, 62.
3	RES'EAU-WATERNET, A Community Circle Approach to Evaluating Water Treatment Solution for the City of White Rock. Canada 2017.
4	S.Y.JASIM, M. MOHSENI, "Ozone Application for Arsenic and Manganese Treatment at the City of White Rock, BC, Canada," Ozone: Science & Engineering, Canada, May 21, 2019.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/TERRY K CECIL/	Date Considered	12/15/2021
--------------------	-----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.