



GRUPPO **ZILIO**
dal 1959



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ZILIO

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**Audizione presso la
Commissione Ambiente
del
Senato della Repubblica**

16 Maggio 2017



dal 1959

CASSOLA (VI)

1958 - Fondazione del Gruppo Zilio

- 2010 - Aquisizione da parte della multinazionale danese Greentech
- 2017 - Ingresso dell'attuale compagine societaria

CHI SIAMO



dal 1959



Dott. Daniele Ragazzon
Chimico
CEO

AFRA srl
60%

Ragazzon Daniele
10%

ELLEUNO srl
30%



Dott. Federico Nicolazzi
Chimico
CEO

MISSION

**PRODUZIONE e RIGENERAZIONE
DI MASSE FILTRANTI PER
PURIFICARE L'ACQUA**

PECULIARITÀ

- **Adsorbe arsenico, vanadio, selenio, molibdeno e altri metalli pesanti e fosfati**
- **Ha la più alta capacità di adsorbimento tra i materiali di questo tipo esistenti sul mercato**
- **Permette di realizzare impianti di dimensioni contenute, che non richiedono dosaggi di prodotti chimici, hanno consumi energetici pressochè nulli e sono molto semplici da gestire**

PRESTAZIONI DEL NOSTRO PRODOTTO

Produttore	Superficie specifica BET (mq/g)	Massa umida	Massa secca	% di secco	Arsenico adsorbito a saturazione (mg)	Capacità di adsorbimento (umido) (mg As/g)	Capacità di adsorbimento (secco) (mg As/g)
Gruppo Zilio	349	0,51	0,25	49,02	14,4	28,24	57,60
Concorrente	303	0,51	0,29	56,86	13,6	26,67	46,90

L'IMPIANTO PRODUTTIVO

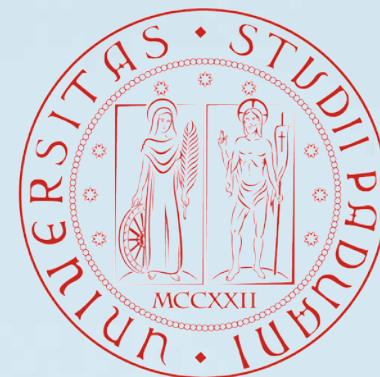


- È stato sviluppato un processo innovativo per la produzione di masse filtranti e costruito il relativo impianto.
- È uno dei soli due impianti al mondo per produrre questo tipo di materiale.

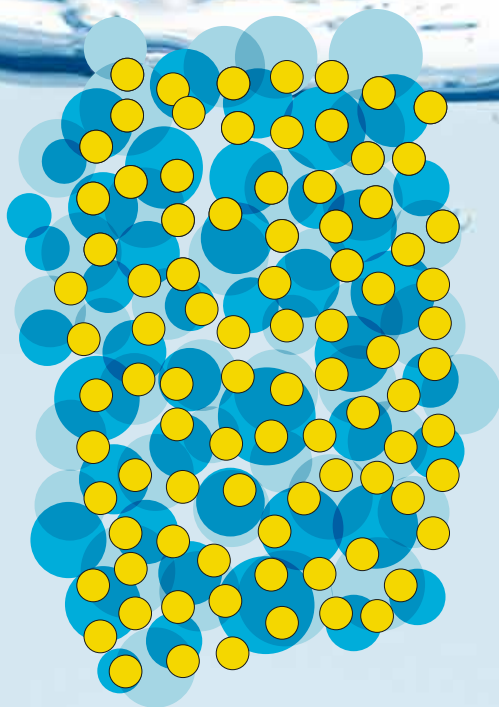
RICERCA e SVILUPPO



- **Collaborazione con l'Università di Padova**
- **Un ricercatore PhD costantemente dedicato alla ricerca e innovazione**
- **Due tesi sviluppate in azienda nell'ultimo anno**



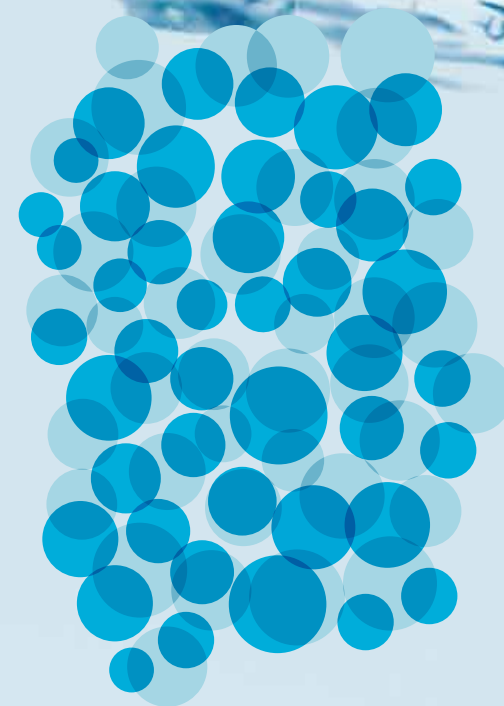
COME FUNZIONA LA MASSA FILTRANTE



ACQUA INQUINATA



FILTRAZIONE

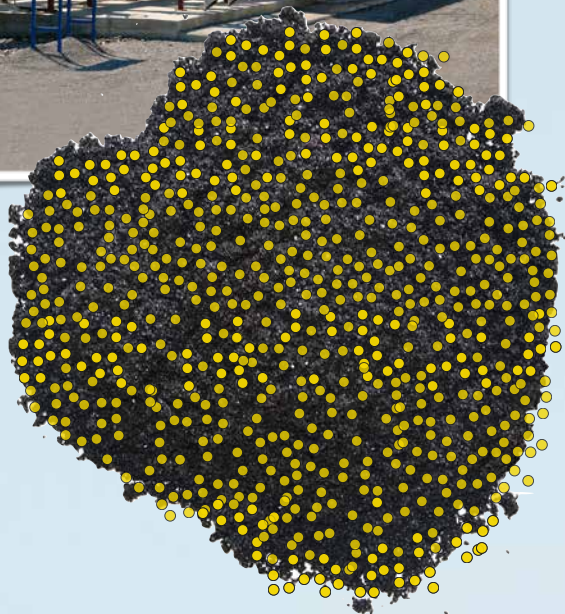


ACQUA POTABILE

COSA AVVIENE QUANDO LA MASSA FILTRANTE È SATURA DI INQUINANTI?



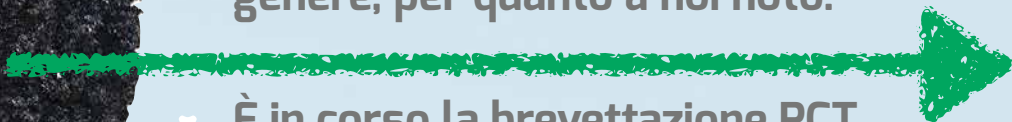
DISCARICA



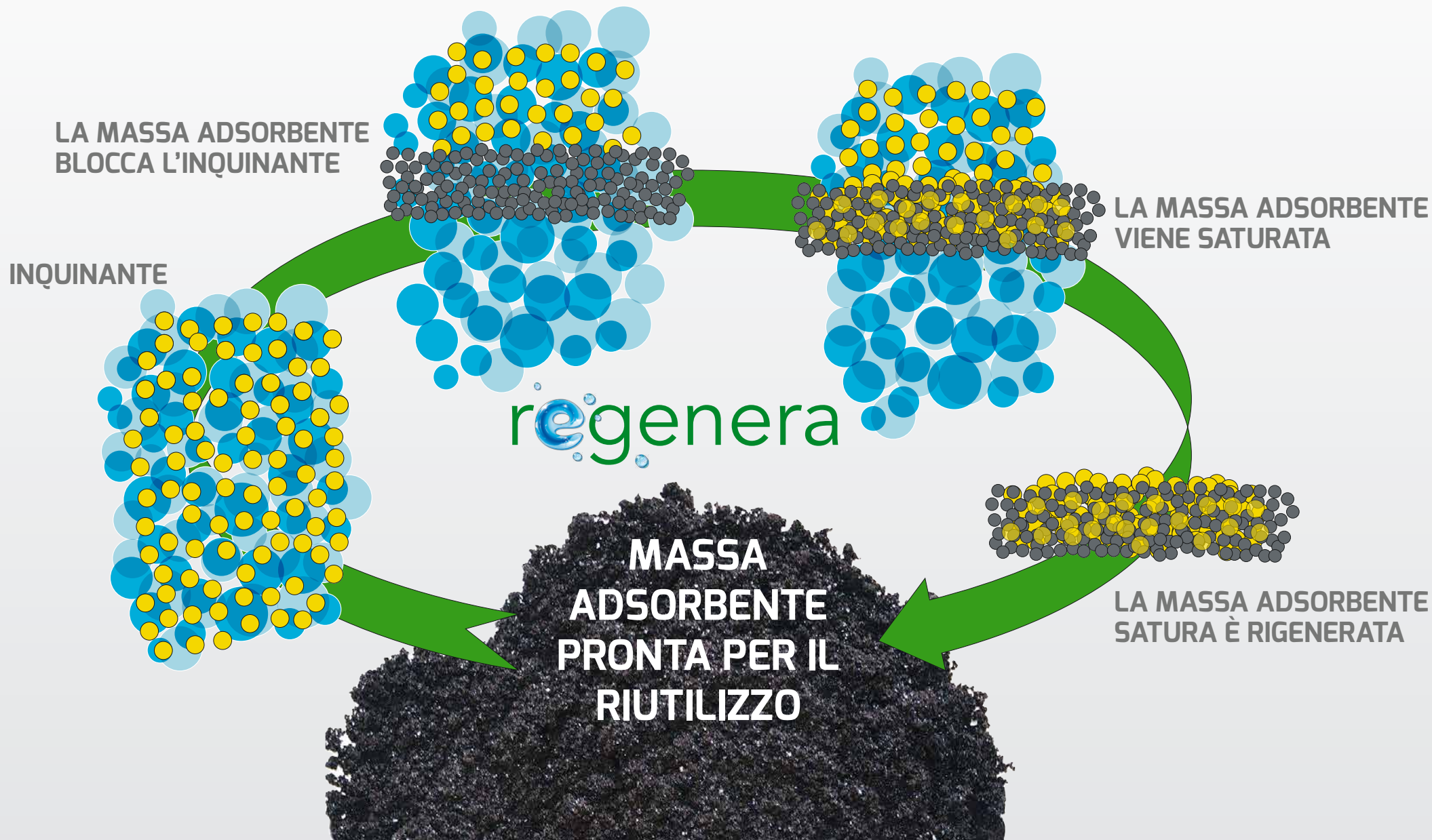
re:genera



- È un processo di rigenerazione che consente il riutilizzo delle masse.
- È l'unico impianto al mondo di questo genere, per quanto a noi noto.
- È in corso la brevettazione PCT
- L'impianto è «zero liquid discharge», cioè non produce reflui di processo da smaltire.
- Permette di portare in discarica solo il 3% circa in peso del materiale, anziché il 100% come era prima



IMPIANTO DI RIGENERAZIONE



ECO/11/304317



Co-funded by the Eco-innovation Initiative of the European Union

European Commission

18th European Forum on Eco-innovation

Boosting competitiveness and innovation
The role of environmental labelling, management and information schemes

Quality Standard Environment Friendly

EU Ecolabel

EMAS

Wednesday 20 and Thursday 21 May 2015
Barcelona, Spain

Environment

22 18th European Forum on Eco-innovation – Boosting competitiveness and innovation: The role of environmental labelling, management and information schemes

Best of Eco-innovation: project success stories

This session will present an analysis of the results of CIP Eco-innovation market replication projects and a showcase of successful practices. The aim is to stimulate the exchange of best practices and gather feedback on eco-innovation barriers and opportunities from the on-the-ground implementation.

Projects presented during this session:

ECO-SANDWICH
ECO-SANDWICH® is a ventilated prefabricated wall panel utilizing recycled construction and demolition waste (CDW) and mineral wool produced using innovative and sustainable Ecozer® technology. The ECO-SANDWICH® represents improvement of existing prefabricated wall panel products, tackling the 2020 goals (20% increase in energy efficiency, 20% reduction of CO₂ emissions, and 20% renewables by 2020) and represents a possible technological solution for fast construction of very low-energy buildings on a large scale. Panels are durable, economical and enable rapid construction with high isostatic values. The ECO-SANDWICH® wall panels are both reusable and fully recyclable. Possibilities for the application of the ECO-SANDWICH® panels in new construction as a load bearing structure or as cladding wall panels include apartment buildings, houses, warehouses, shops, fast-food buildings, office complexes, schools, etc.
For more information: <http://www.eco-sandwich.it>

TV4NEWOOD
TV4NEWOOD has developed a new wood modification process called ThermoVacuum, an innovative and environmentally friendly process that makes the best use of local species for the new generation of high added-value thermally modified wood. It has outstanding properties that match or exceed those of the best tropical hardwoods and treated woods. The ThermoVacuum process is the most ecological process for wood modification—energy saving, 100% free of chemicals, and without air polluting emissions.
For more information: <http://www.tv4newood.it/>

GENIUS
The GENIUS project will launch Graphene Plus (G+) into the European market as an eco-innovative solution for oil spill clean-up. G+ is an inert, safe and recyclable absorbent material based on natural graphite, with a high and fast absorption capacity for every type of non-environmental oil. G+ is capable of removing hydrocarbons even at low concentrations and almost all absorbed oil, thus limiting the production of waste. G+ can be produced on-site thus preventing transportation costs.
For more information: <http://www.genius-project.com/project/>

REGENERA
The Regenera project concerns the development of a sorbent material to efficiently remove arsenic from drinking water. The material is highly efficient and regenerable. In the course of the project, two plants were built, one to produce the material and a second to regenerate spent sorbent. Already, in the first few months of operation, four different plants were refilled with regenerated material, saving more than 60 tons of arsenic waste from being released into the environment.
For more information: www.regenera-project.eu

ECOPROFABRICS
Ecoprofabrics is working to set up and test the textile industry's first circular chain with fully recyclable work wear. The project develops work wear garments made of 100% polyester-based fabrics and leases the garments to customers with accompanying maintenance services. Once the garments are returned and recycled into garments.
For more information: <https://ecoprofabrics-wordepes.com/>

Information about CIP Eco-innovation
The European Union's Eco-innovation Initiative helps innovative green ideas become fully-fledged commercial prospects. In doing so, the initiative helps the EU meet its environmental objectives and also boosts economic growth. Priority areas include material recycling, buildings, the food and drink sector, water as well as greener business.
Between 2008 and 2013, nearly EUR 200 million was earmarked for the Eco-innovation initiative. A large number of beneficiaries were small and medium-sized businesses. The Executive Agency for Small and Medium-sized Enterprises (EASME) manages the Eco-innovation initiative on a daily basis on behalf of the European Commission. Since 2014, market replication projects are covered by the programme Horizon 2020.
For more details on the Eco-innovation programme, please visit: <http://ec.europa.eu/environment/eco-innovation>



MA NOI L'ABBIAMO GIÀ FATTO!

regenera

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Regeneration of iron-based adsorptive media used for removing arsenic from groundwater

Abraham S.C. Chen^a, Thomas J. Sorg^{b,*}, Lili Wang^c

^a ALSA Tech, LLC, North Potomac, MD 20878, United States
^b U.S. Environmental Protection Agency, Cincinnati, OH 45268, United States
^c U.S. Environmental Protection Agency, Washington, DC 20460, United States

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ABSTRACT

Adsorptive media technology is regarded as a simple, low cost method of removing arsenic from drinking water particularly for small systems. Currently, when the effluent of a treatment system reaches the USEPA maximum contaminant level (MCL) of 10 ug/L, the exhausted media is removed and replaced by new virgin media. Although the commonly used iron-based media products are reasonable in price, the replacement cost accounts for around 80% of the systems total operational costs. One option to media replacement is on-site regeneration and reuse of the exhausted media. To determine whether an iron based media can be successfully regenerated and reused, laboratory batch and column regeneration tests were conducted on six exhausted iron-based media products obtained from six full scale arsenic removal treatment systems. Batch tests conducted on three of the media products to evaluate the effectiveness of 1–6% caustic regenerant solutions found that arsenic desorption increased until around 4%. Using 4% caustic solutions, the columns tests on the six exhausted media products showed arsenic removals ranged from 25 to 90% with the best results obtained with the Severn Trent E33 media. Exposing the media to caustic (pH ≥ 13) and acid (pH ≤ 2) solutions found minimal media loss with the caustic solution, but significant media dissolution with a pH 2 acid solution. A six column pilot plant test at an Ohio test site with the lab regenerated media products found that the regenerated media could achieve arsenic removals somewhat similar to virgin media.

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PRESTAZIONI DEL MATERIALE RIGENERATO



Giorni di filtrazione / Concentrazione di Arsenico in acqua trattata

Codice filtro	Giorni di filtrazione	86	115	158	176	204	230	264	430
C1-VA1	[As] (µg/l)	3	2	4	4	3	4	3	6
C2-VB1	[As] (µg/l)	3	3	5	<2	0	2	<2	7
Acqua grezza	[As] (µg/l)	51	57	53	53	49	57	54	49





- per l'ambiente: i materiali non vengono portati in discarica.




- per il risparmio di risorse: ogni 10 t di materiale rigenerato si risparmiano 9 t di cloruro ferrico e 7 t di soda.



- per la comunità: minori costi per fornire acqua pulita.



- 
- Incentivare l'utilizzo delle masse filtranti rigenerate
 - Semplificare gli iter autorizzativi



GRUPPO **ZILIO**
dal 1959

GRUPPO ZILIO S.p.A.
36022 CASSOLA (VI) Italy
via A. Ferrarin, 73

info@gruppozilio.com - www.gruppozilio.com