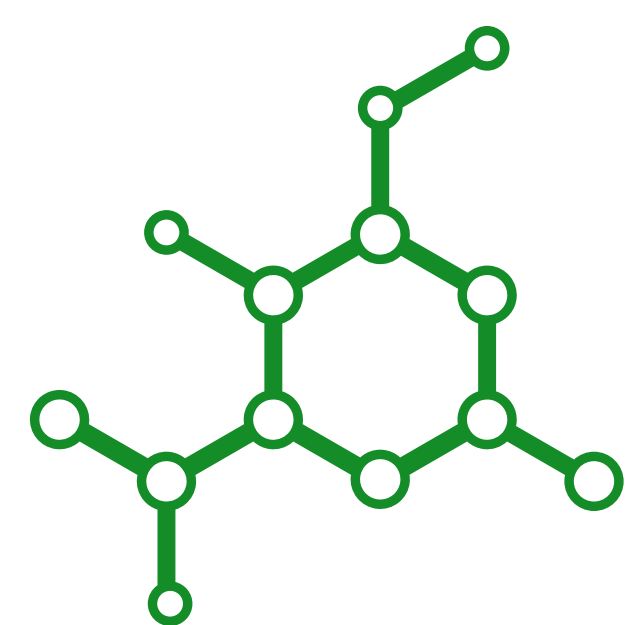


GEYSER

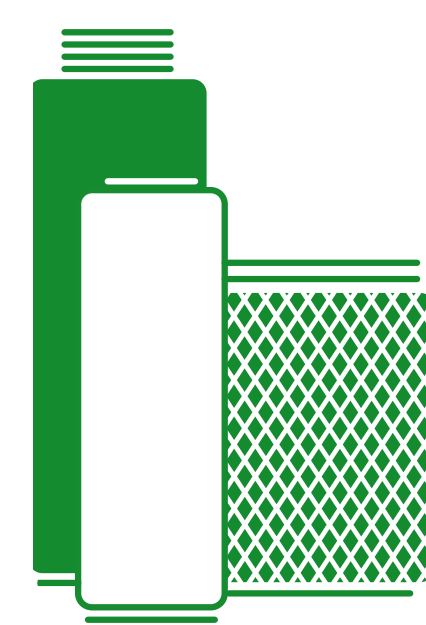
w a t e r f i l t e r s

ARAGON

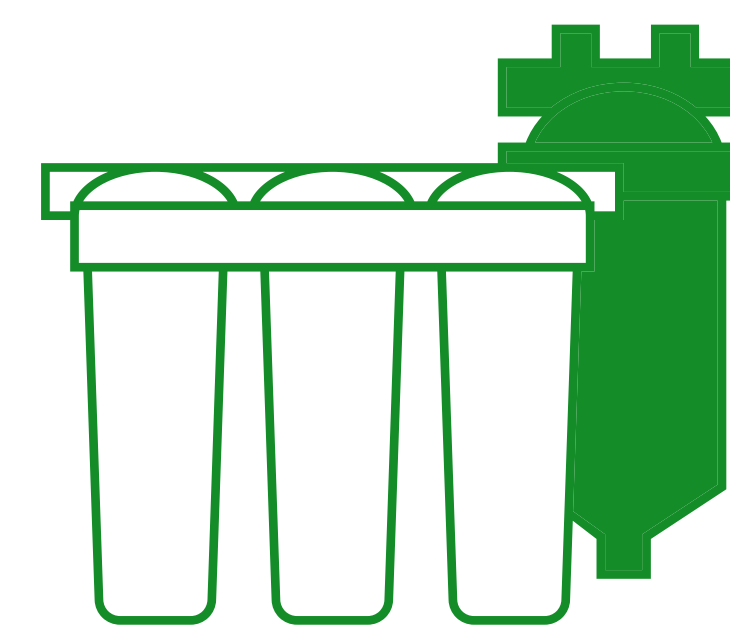
TECHNOLOGIES



MODIFICATIONS

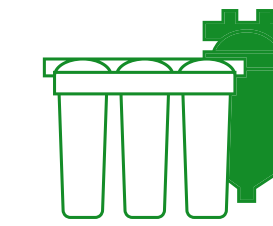
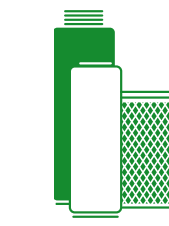
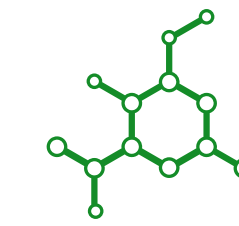


APPLICATION

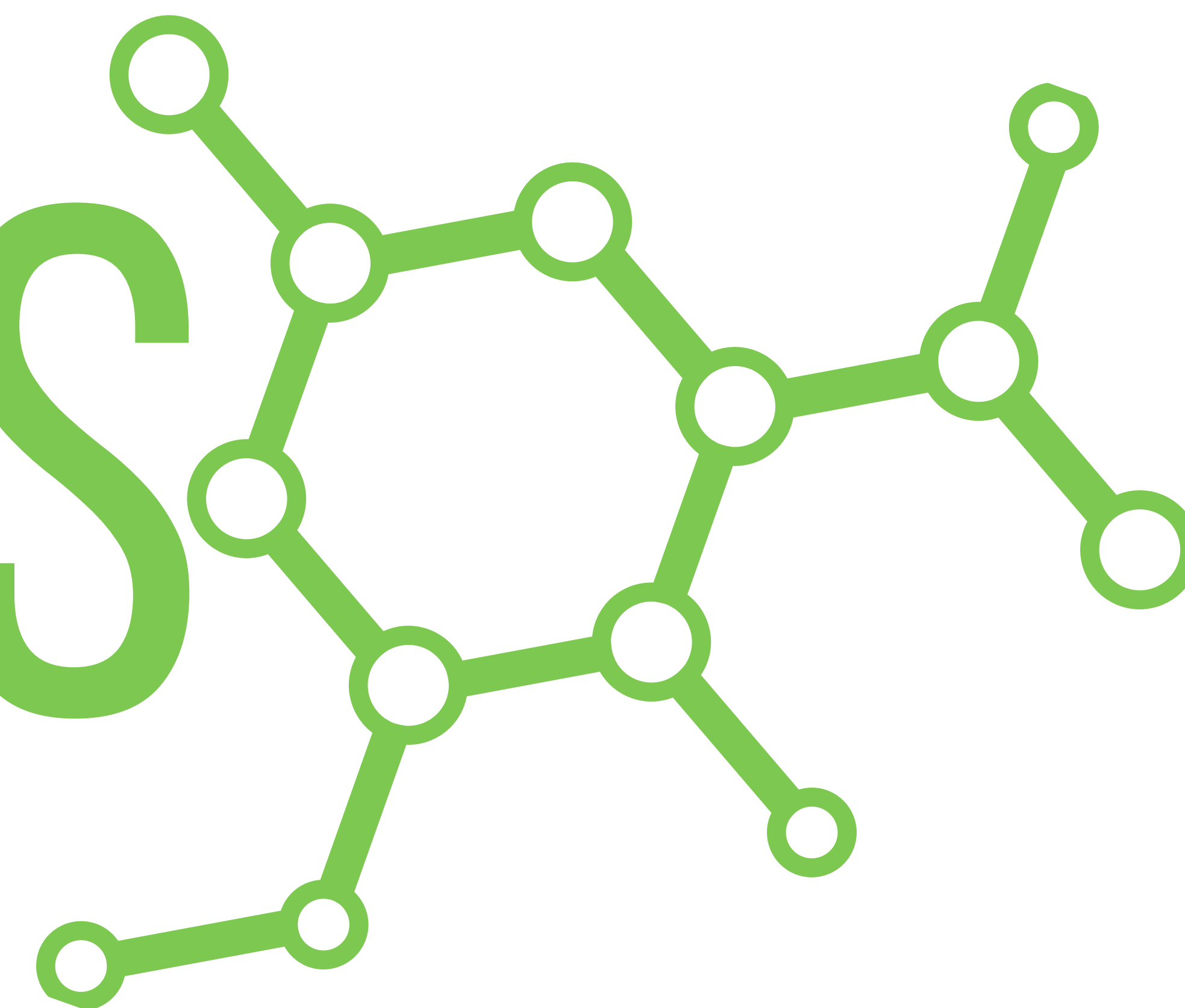


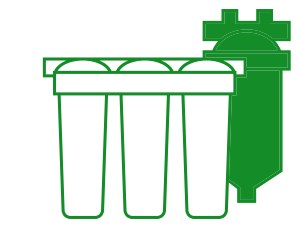
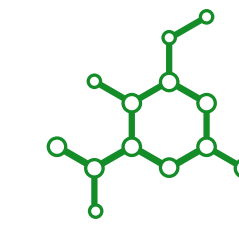
ADVANTAGES



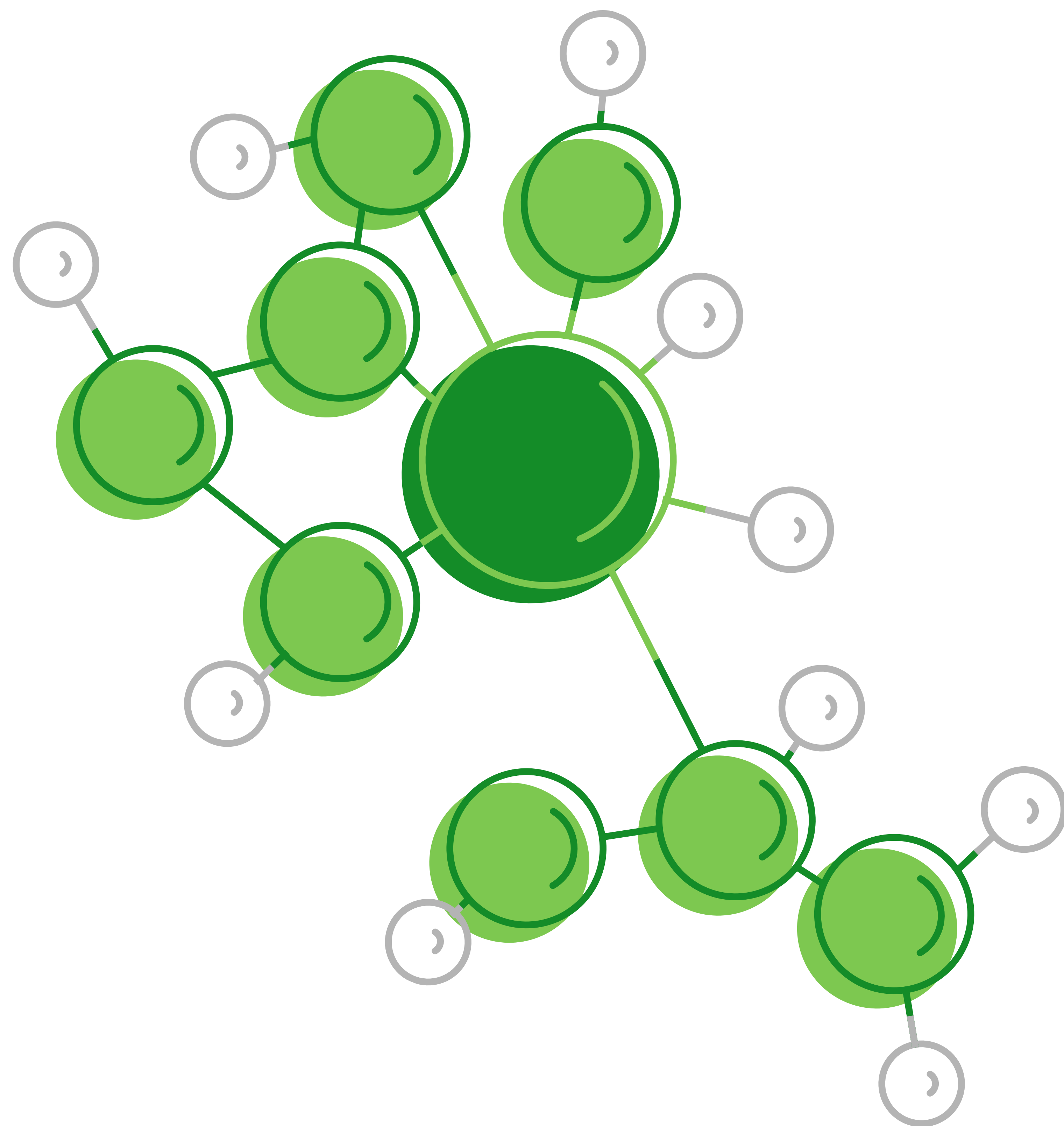
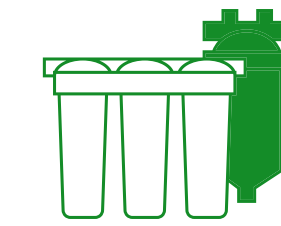
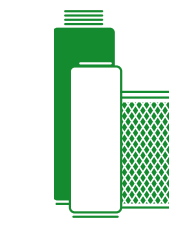
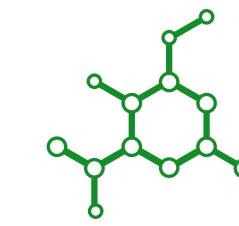


TECHNOLOGIES



The background of the slide features a large, dark red cylindrical filter cartridge on the left side, angled upwards. The rest of the background is filled with a dense layer of small, irregular brown granules, likely representing activated carbon or a similar filtration material.

FILTRATION MATERIAL

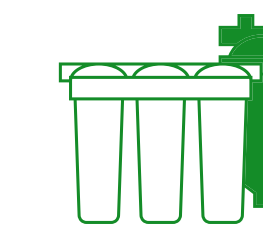
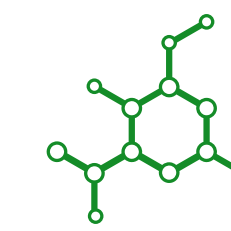


SGS

SGS – POLYMERS

(SPACE-GLOBULAR- STRUCTURE)

High molecular compounds with cation –
and anion-exchange properties.



CHO
6 6 2

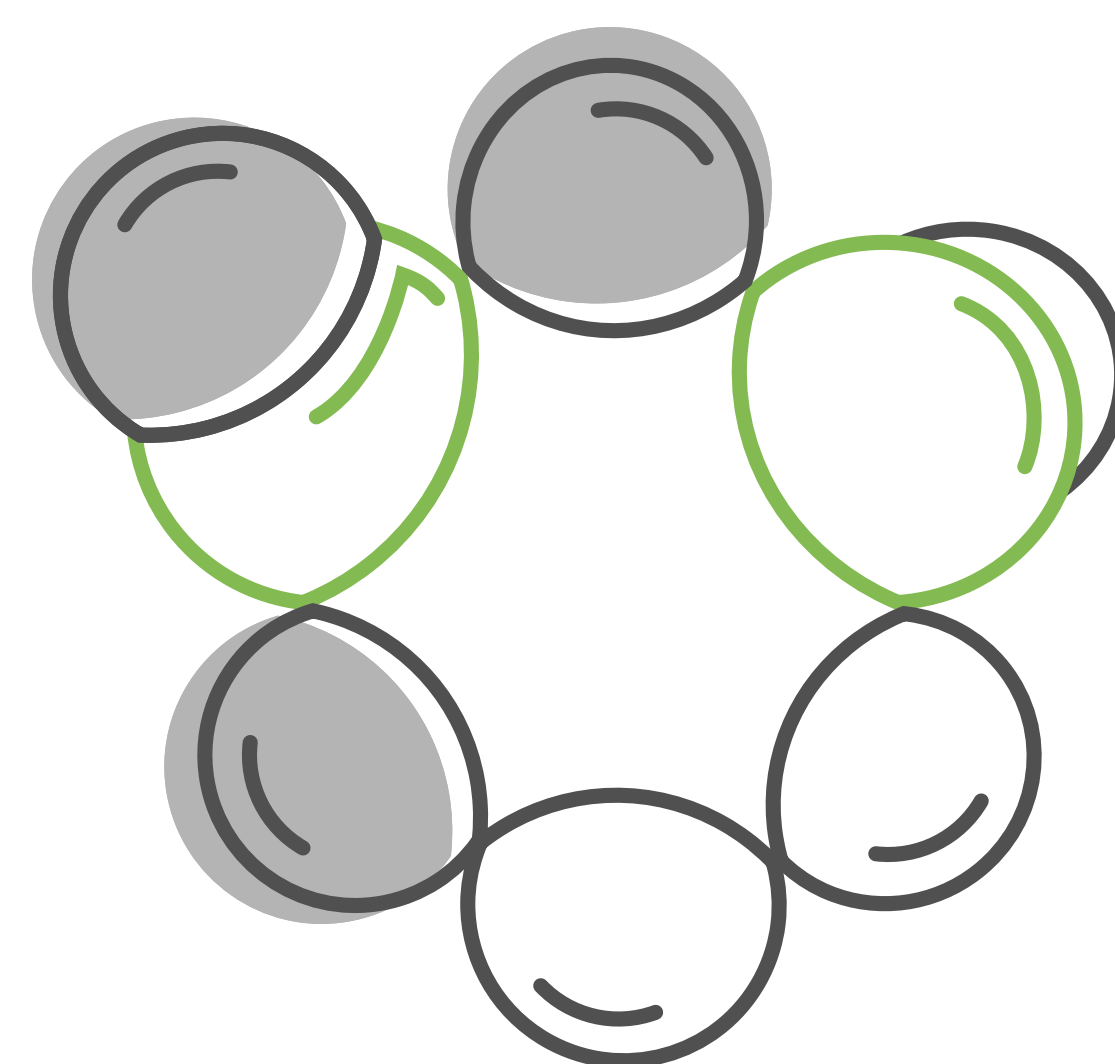
Formula

110,1 g/mol
Molar mass

110 °C
Melting point

1,28 g/cm³
Density

277 °C
Boiling point



ARAGON

The composite polymeric material structured as a single block combined with silver as a bacteriostatic agent.

Invention Patent:

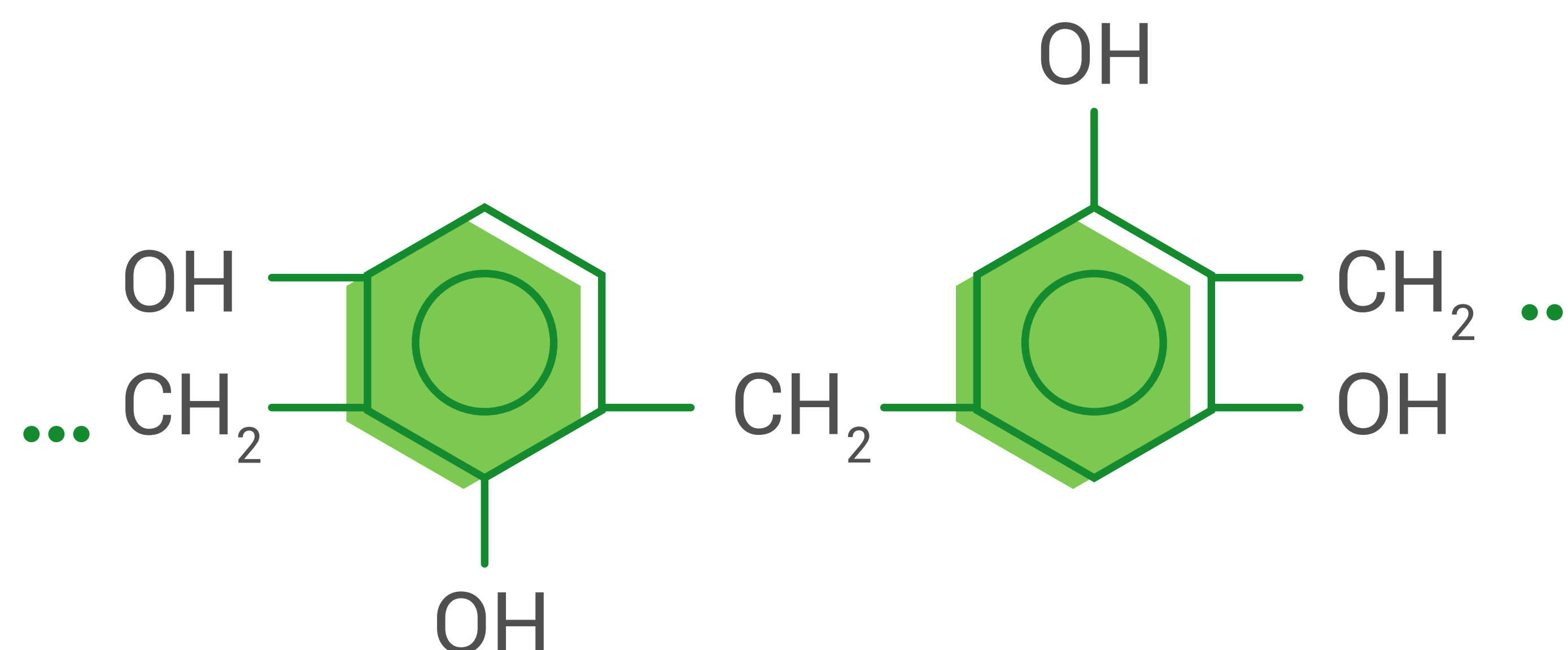
Nº 2286354

Nº 2287356

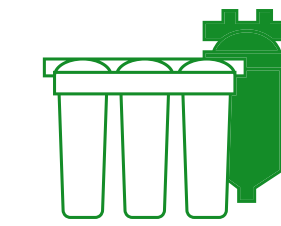
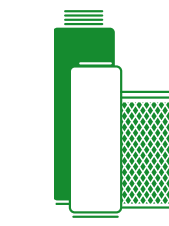
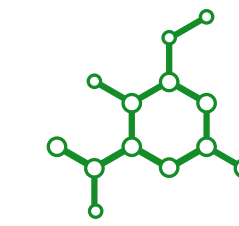
Nº 2297270

Nº 2299087

Resorcin— m-Dihydroxybenzene



The resorcin-based polymer shows the best results in removing contaminants from water.



ARAGON'S STRUCTURE IS FORMED BY MICROGLOBULES

The active ion exchange centers are located on the surface of globules, which makes filtering by Aragon much faster than by standard ion exchange materials.

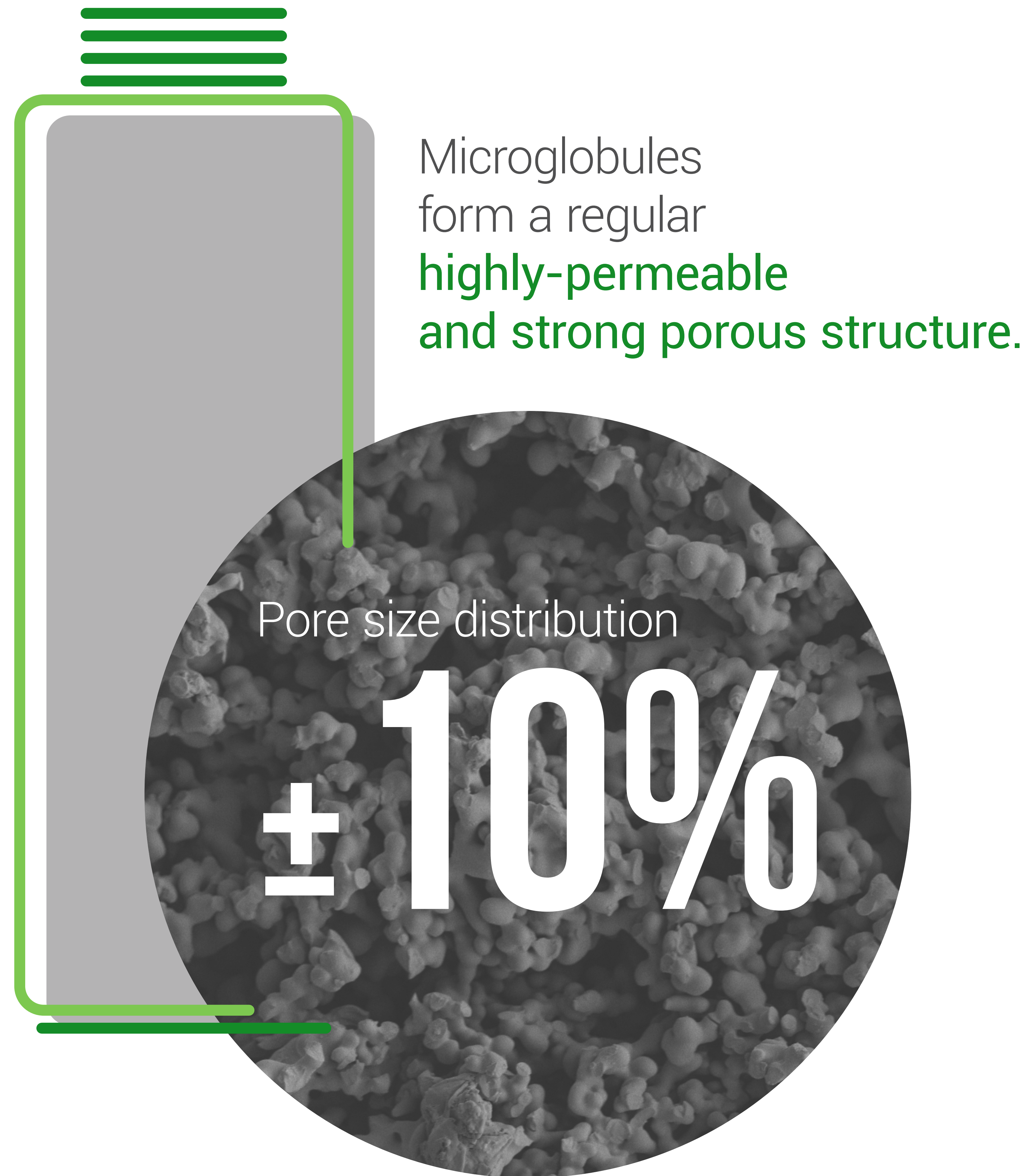
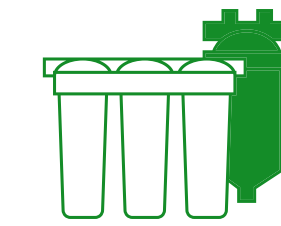
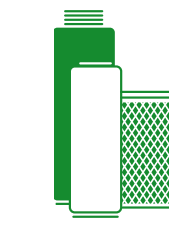
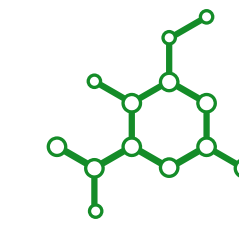
1-7 μm

MICROGLOBULE

<

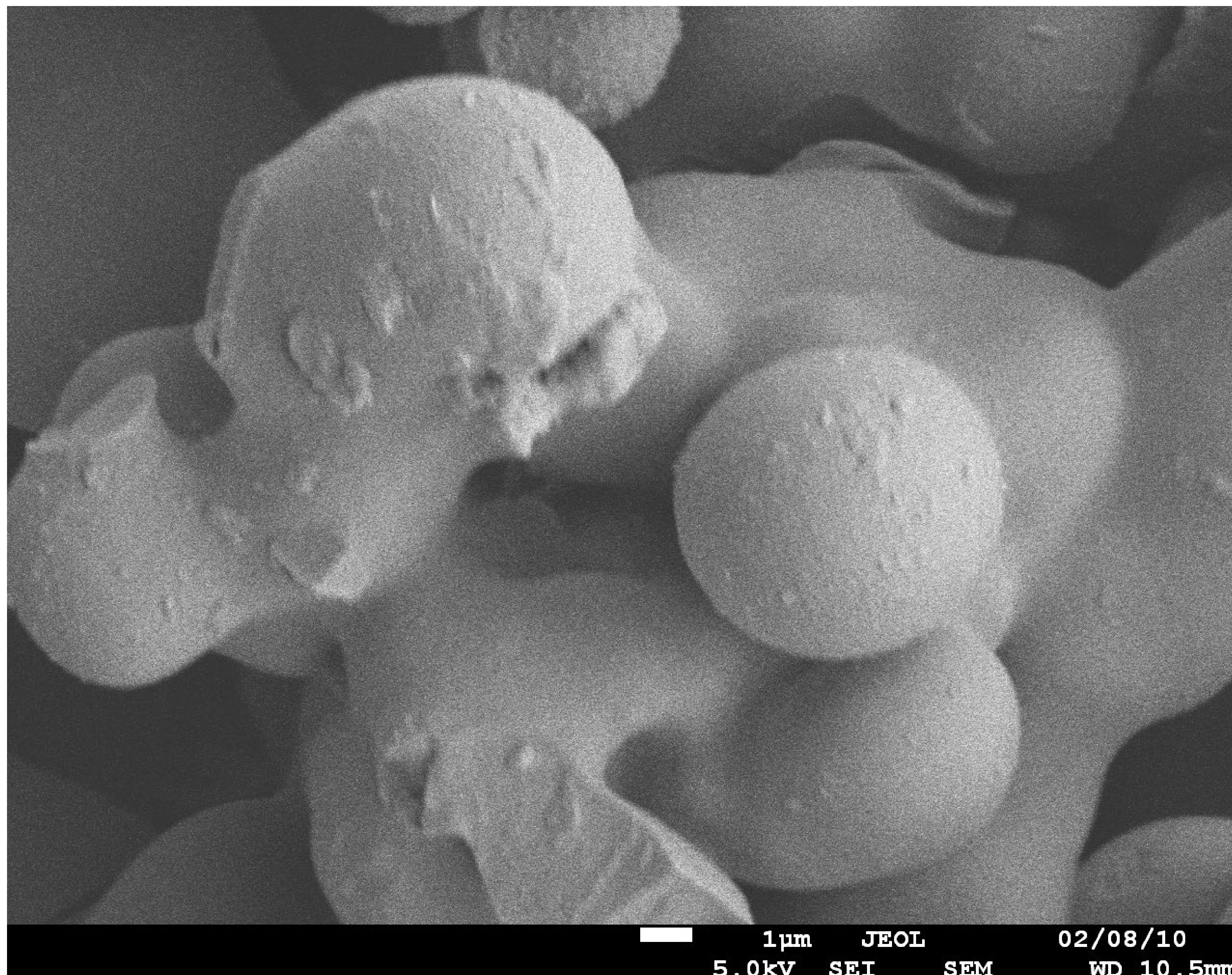
500-700 μm

ION EXCHANGE MATERIAL
standard grain size





1 μm

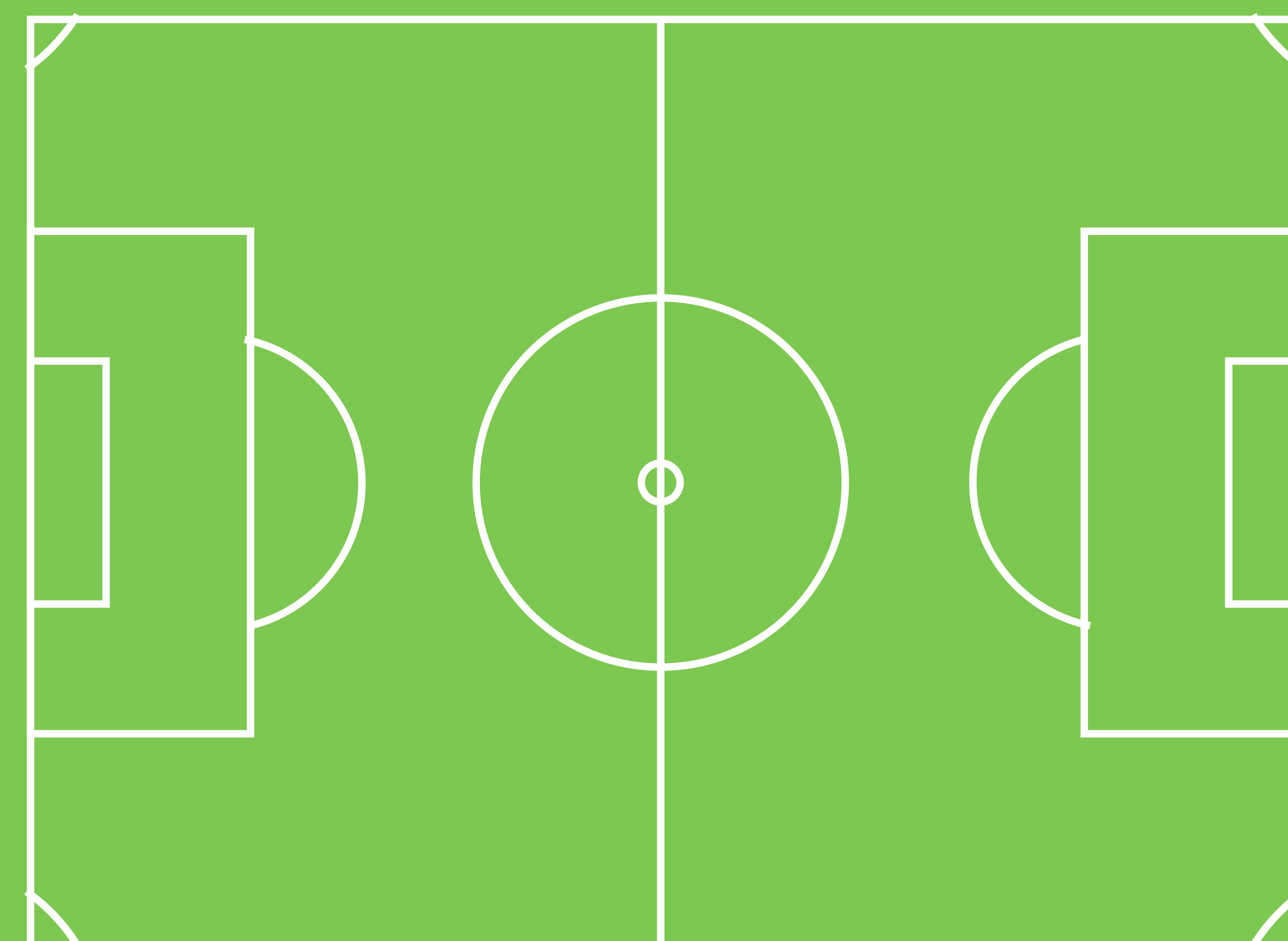


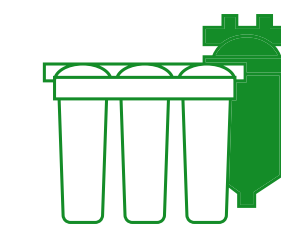
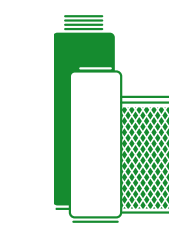
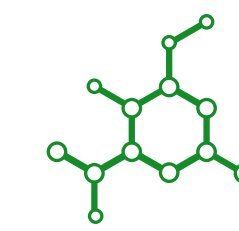
There are active ion-exchange groups on the globules' surface.

MICROGLOBULES

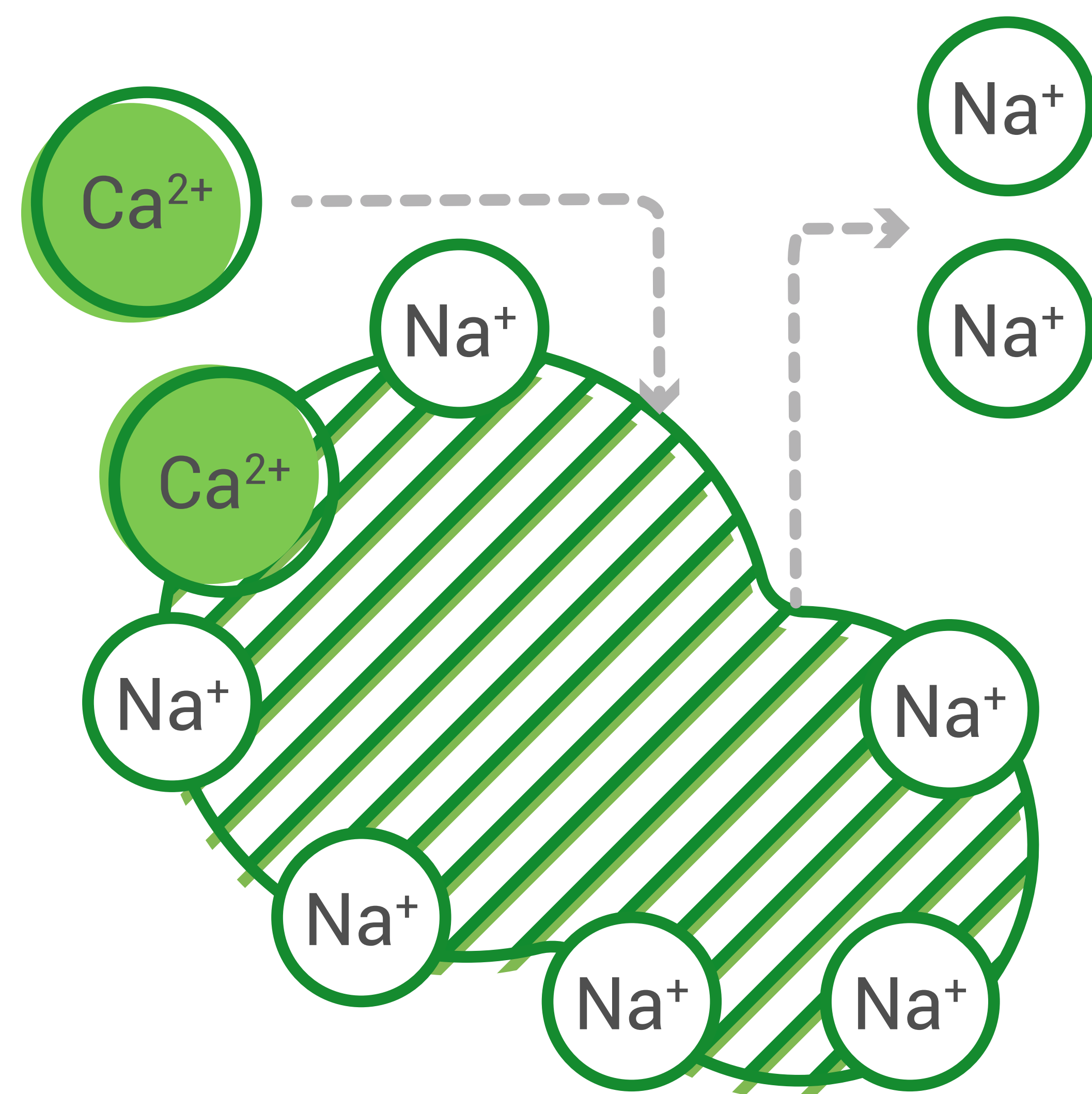
long polymer chains, when connected together, form a mechanically strong structure with a large internal surface area

up to
= 20 m^2/g





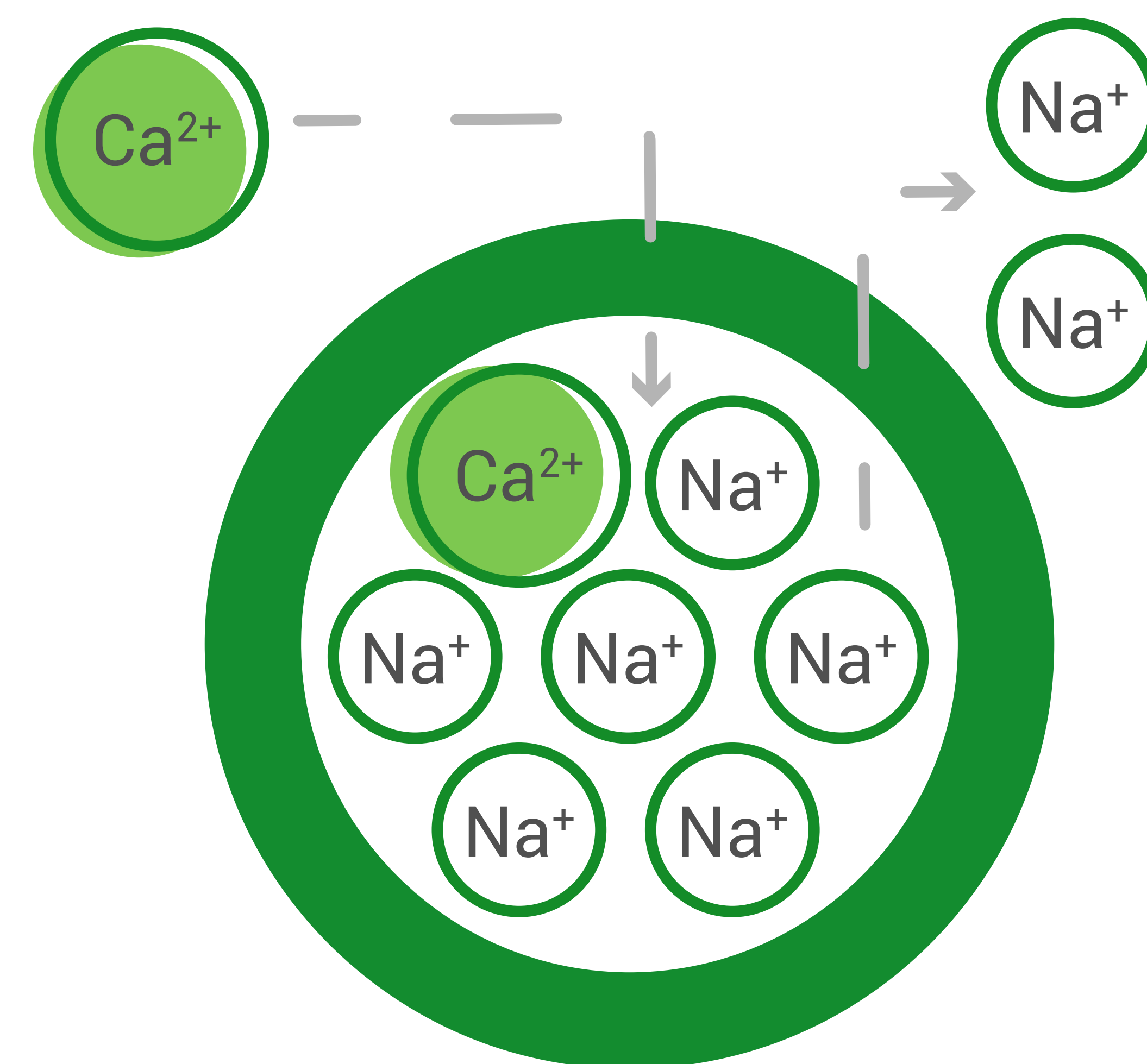
ARAGON



ION EXCHANGE IN ARAGON

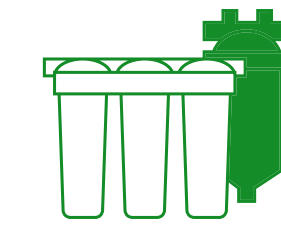
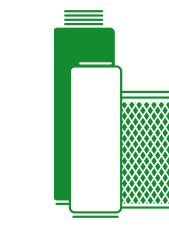
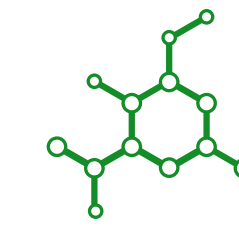
occurs on the globules' surface, which is much faster than in regular ion-exchange materials, because there is no diffusion through the grains' protective cover.

ION-EXCHANGE RESIN



SPEED OF ION EXCHANGE IN ARAGON

grows with the speed of the source water flow, because due to the fast replenishment of solution in micropores the ion exchange process becomes more efficient.



ARAGON 2

Invention Patent:
№ 57142

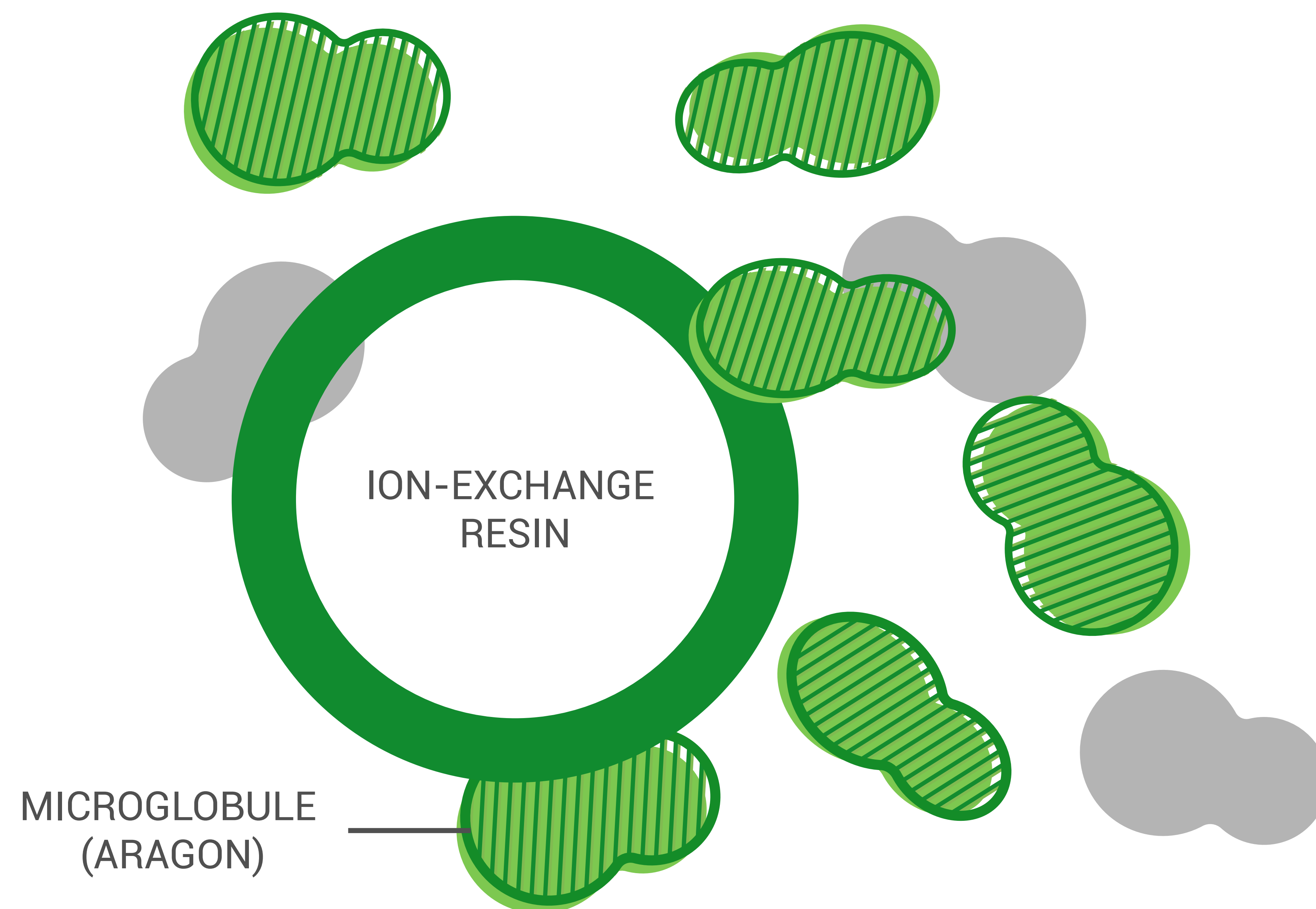
Aragon with the increased

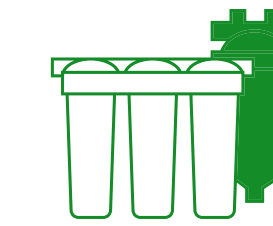
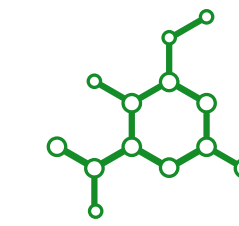
by **12-15** times

ion-exchange capacity.

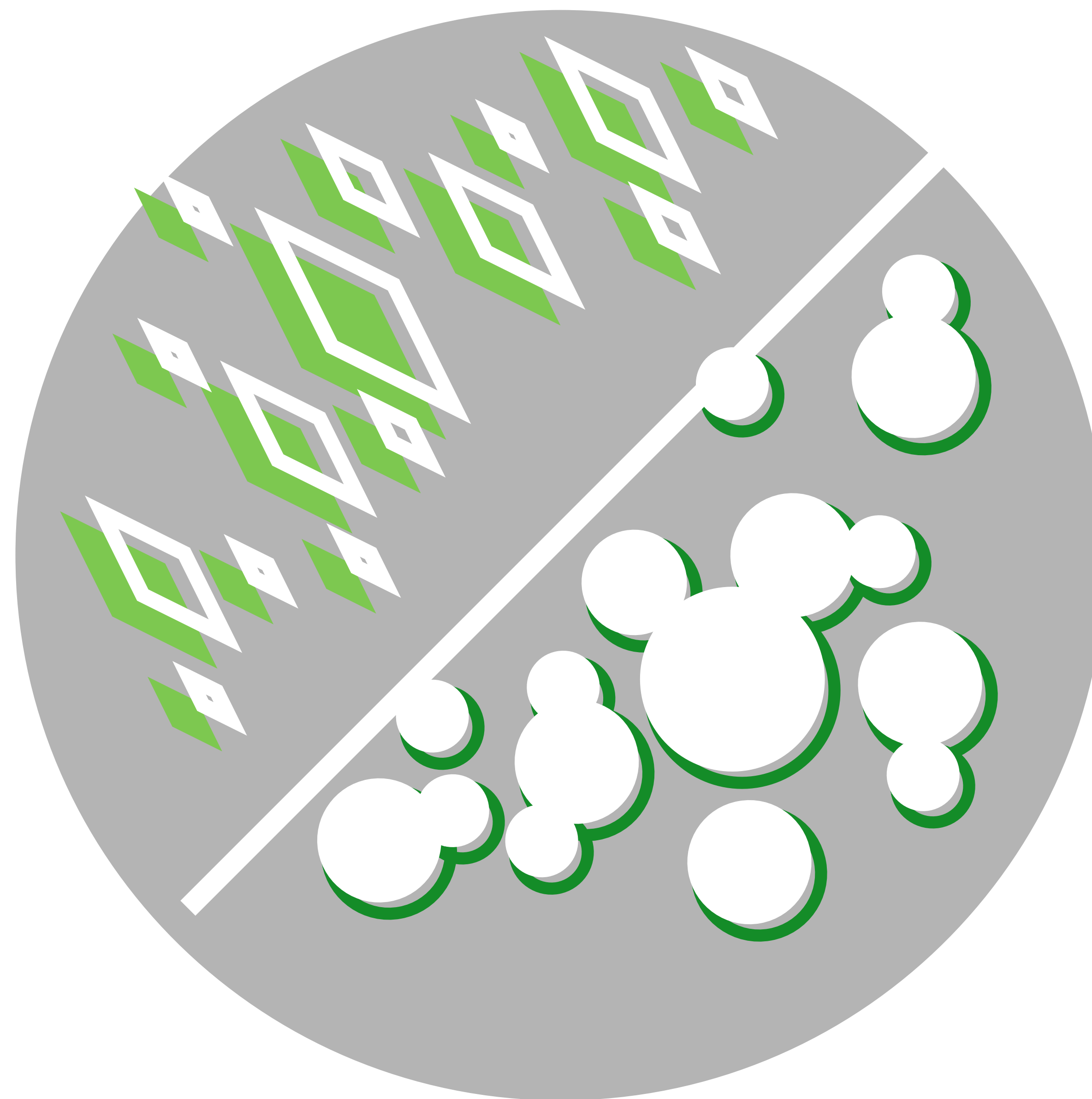
In the process of synthesis the granules of ion-exchange resin are embedded in the polymer.

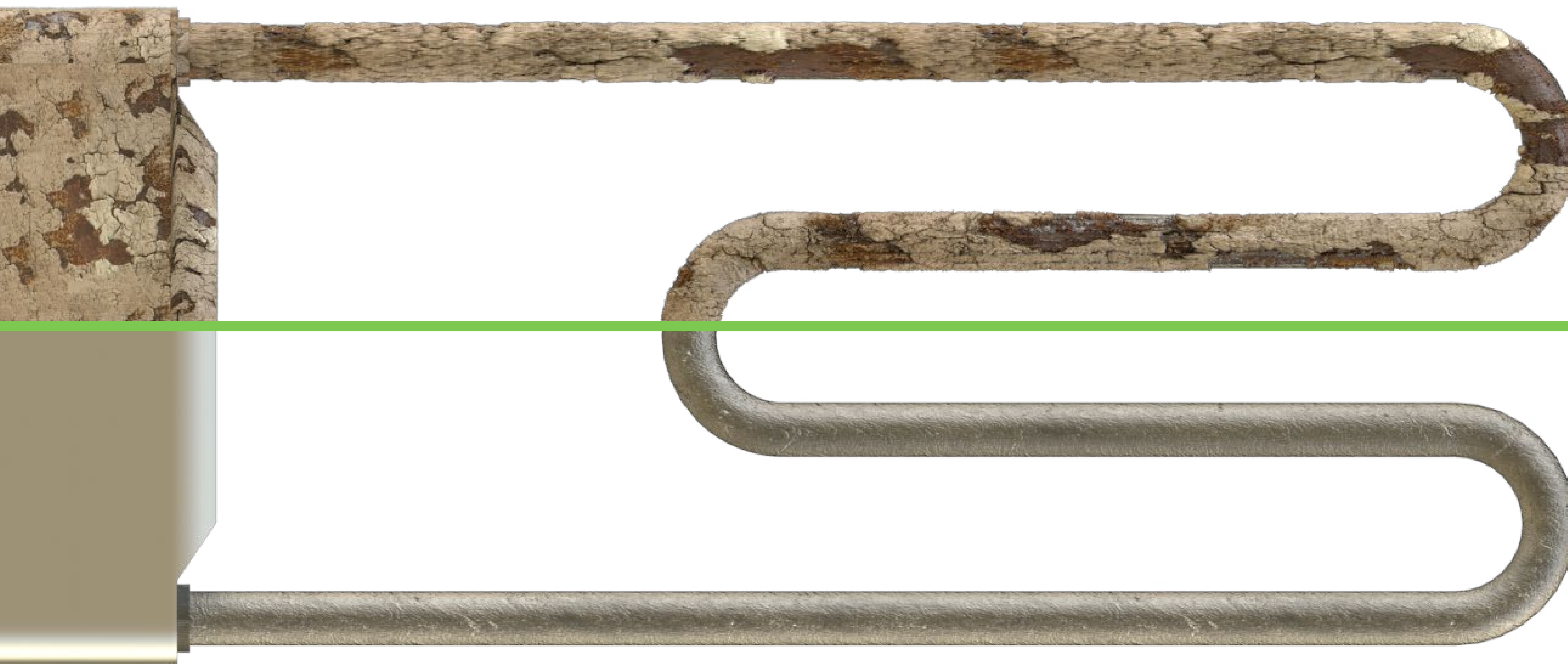
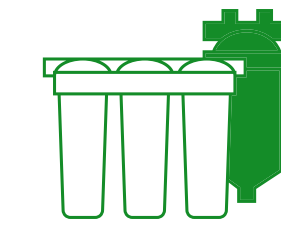
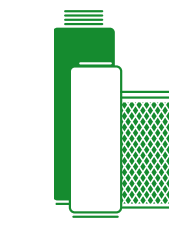
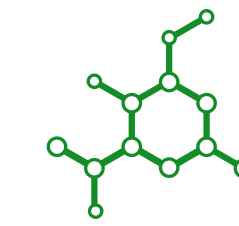
The resin's particles are held by mechanical and electrokinetic bonds.





QUASI-SOFTENING





NO SCALE BUILD-UP
and even removes the
old limescale.

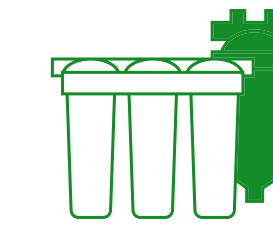
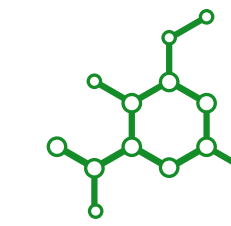
The experience of long-term use of filters
with

ARAGON

for filtering hard water in different Russian
regions showed that even when
the ion-exchange capacity of the filter is used
up, the filtered water causes

NO SCALE BUILD-UP

and even removes the old limescale.

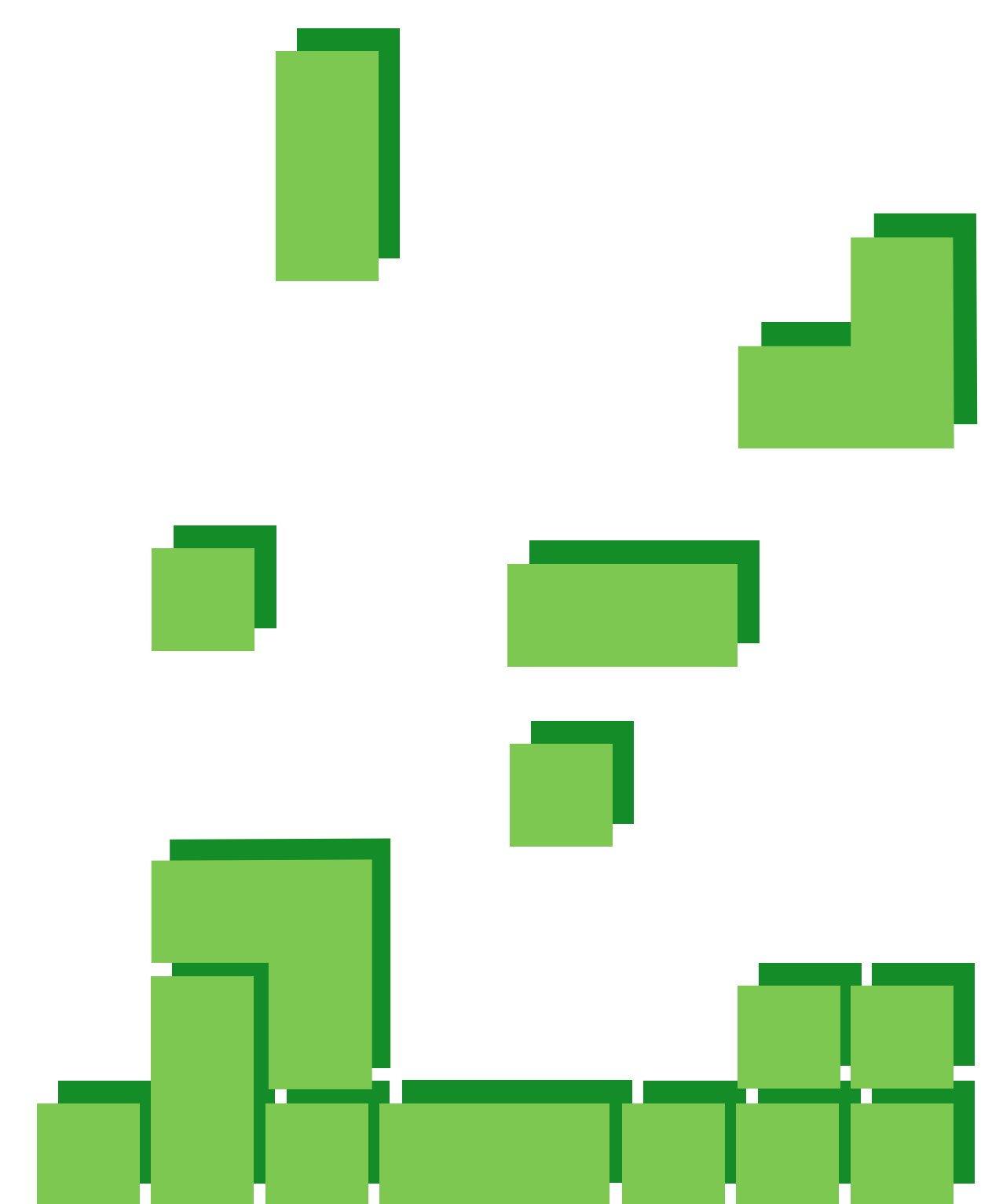


QUASI-SOFTENING

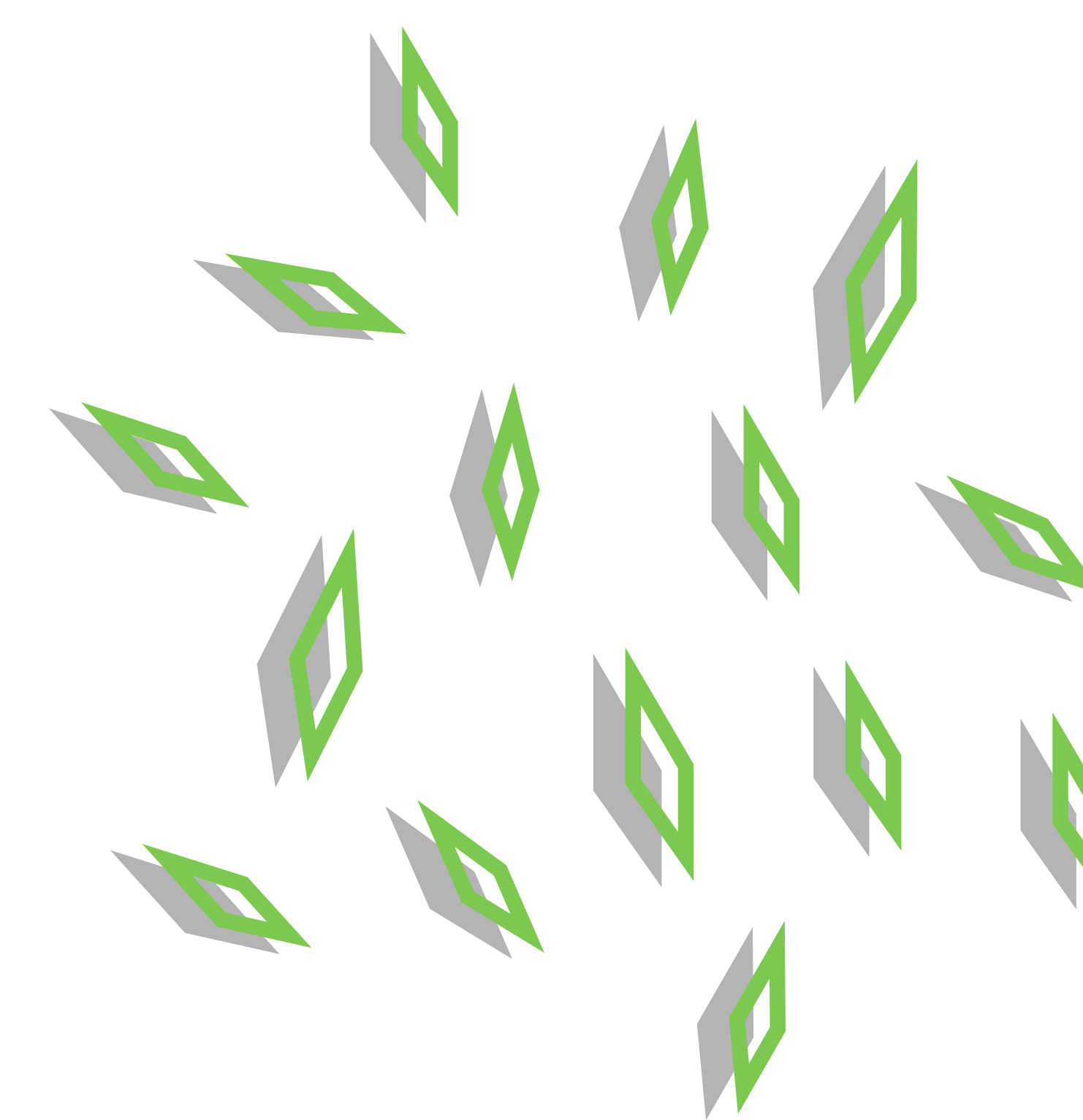
Invention Patent:

№ 2261843

№ 2286953



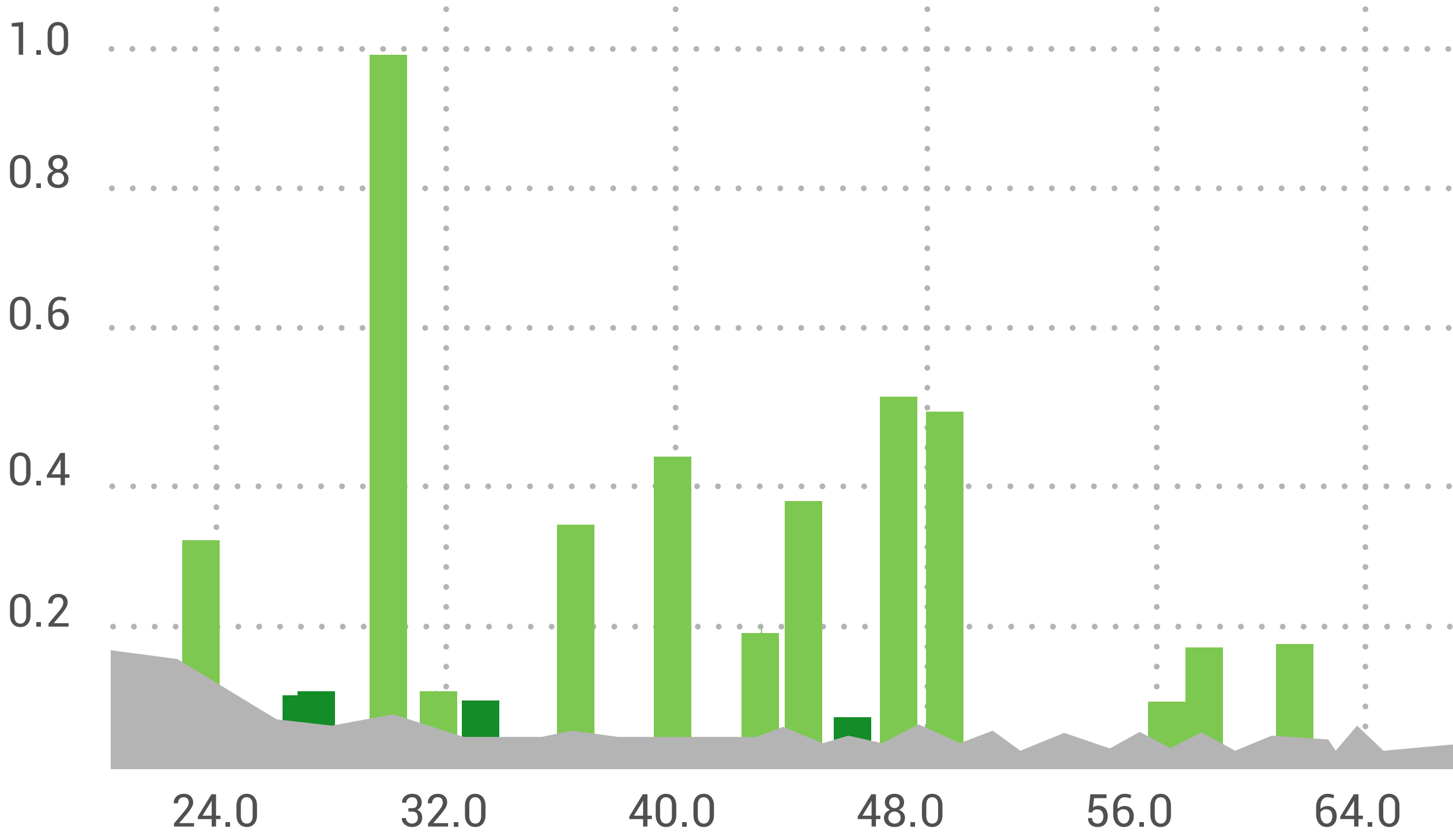
Calcite



Aragonite

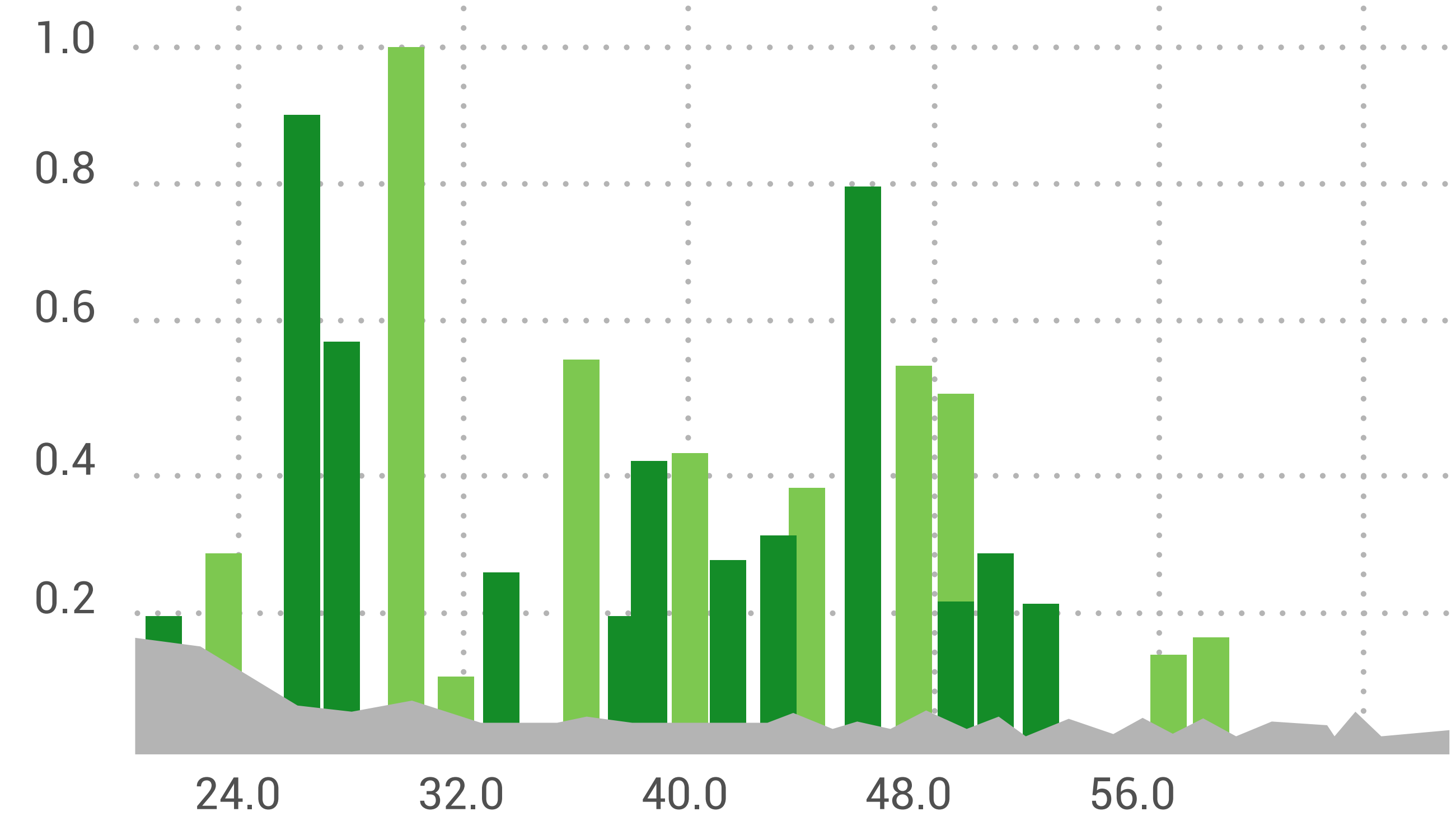
As clusters move in channels between microglobules, the pressure increases and causes a shift of chemical balance resulting in dissolution of carbon dioxide contained in water. This is how conditions for clusters recrystallization from **CALCITE to ARAGONITE are created**. The hardness salts exist in water as metastable structures (clusters). At the moment of leaving filter material the pressure grows and then drops rapidly. Carbon dioxide gets released, pH increases, and the chemical balance shifts towards formation of calcium carbonate in the form of aragonite.

CHANGE
OF COMPOSITION
OF CARBONATES
DISSOLVED IN WATER
(X-RAY SPECTRAL
ANALYSIS RESULTS)



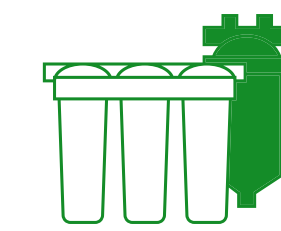
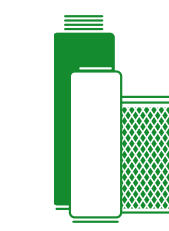
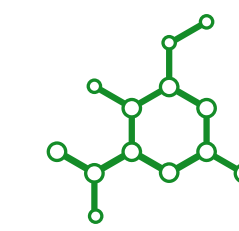
Ordinary hard water:

5% ARAGONITE
95% CALCITE



Filtered water:

40% ARAGONITE
60% CALCITE



ARAGON FOR PREVENTION OF KIDNEY STONE DISEASE

According to the results of the researches conducted at the Saint Petersburg Military Medical Academy, drinking of hard water filtered with ARAGON leads to reduction of crystals causing stone formation in size and quantity (2). Moreover, the aragonite form of hardness salts contributes to the better calcium absorption, thus facilitating kidneys' work.

1

HARD WATER

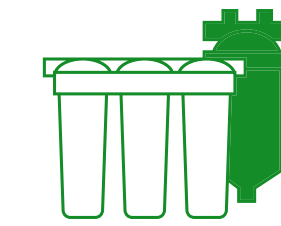
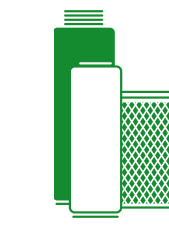
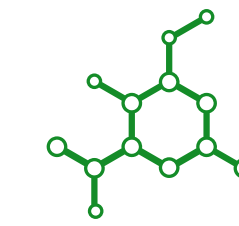


2

WATER FILTERED
WITH ARAGON CARTRIDGE

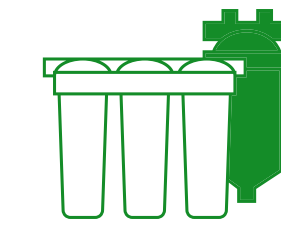
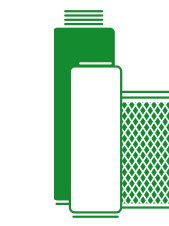
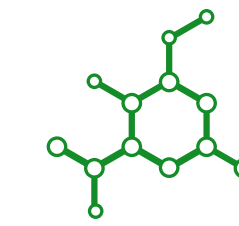


Kirov Military
Medical Academy

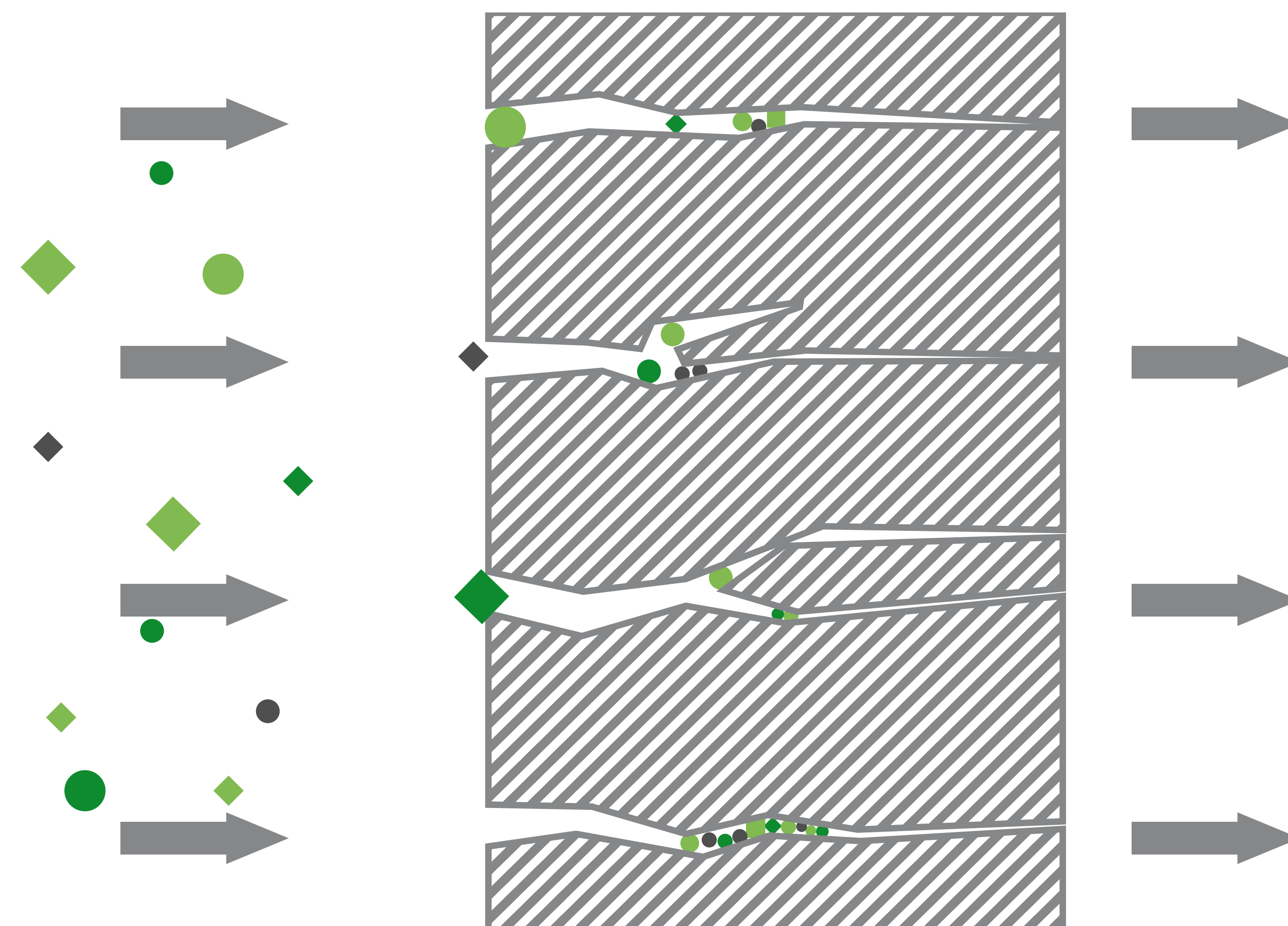


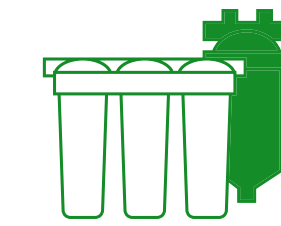
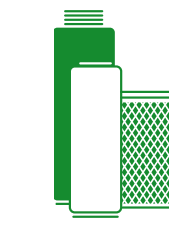
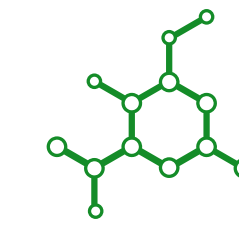
FILTRATION METHODS

4_{IN} 1

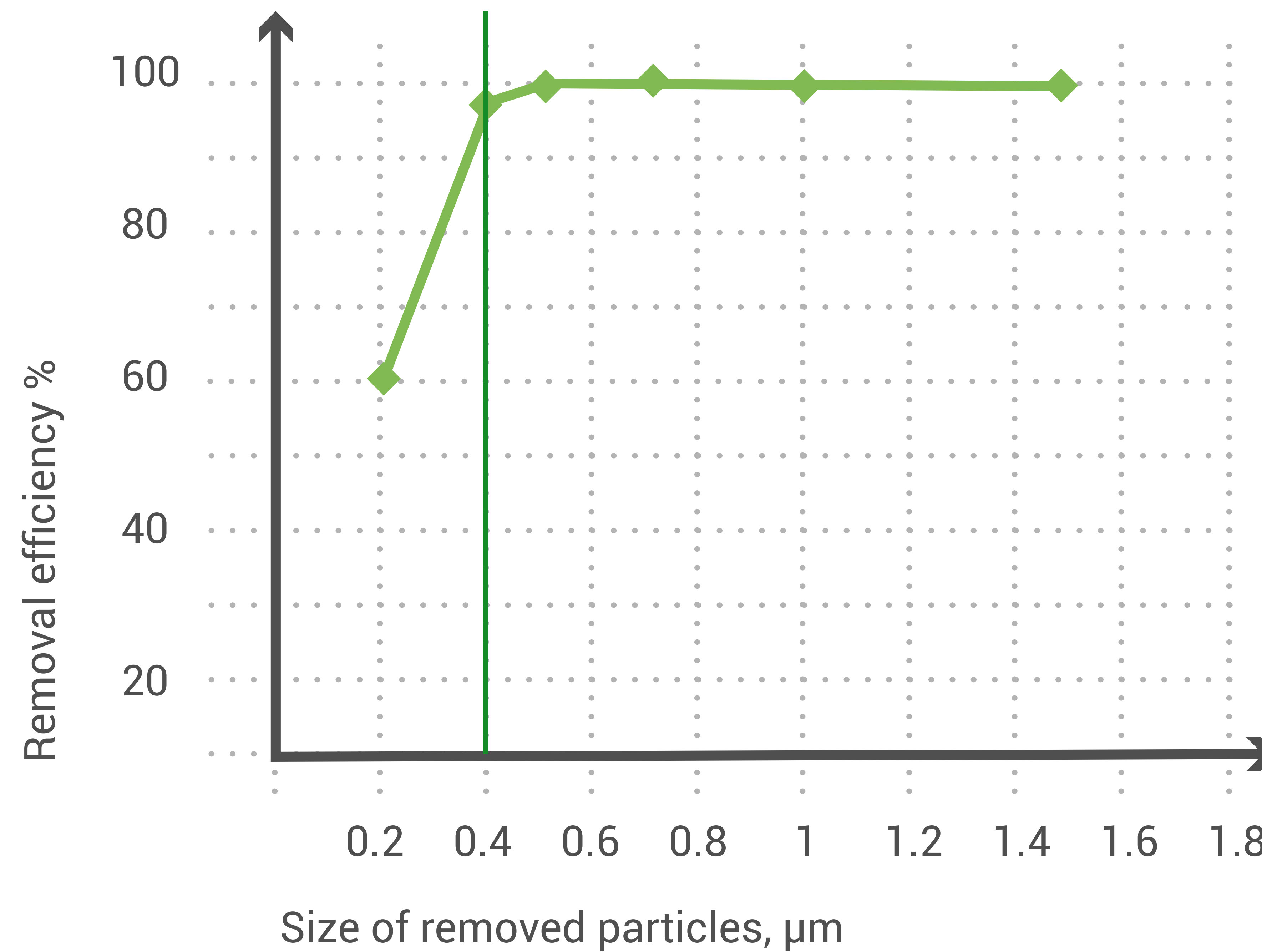


MECHANICAL FILTRATION

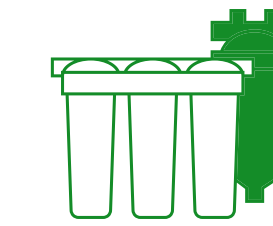
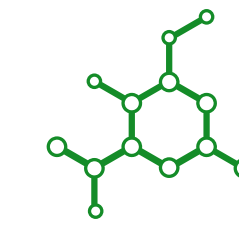




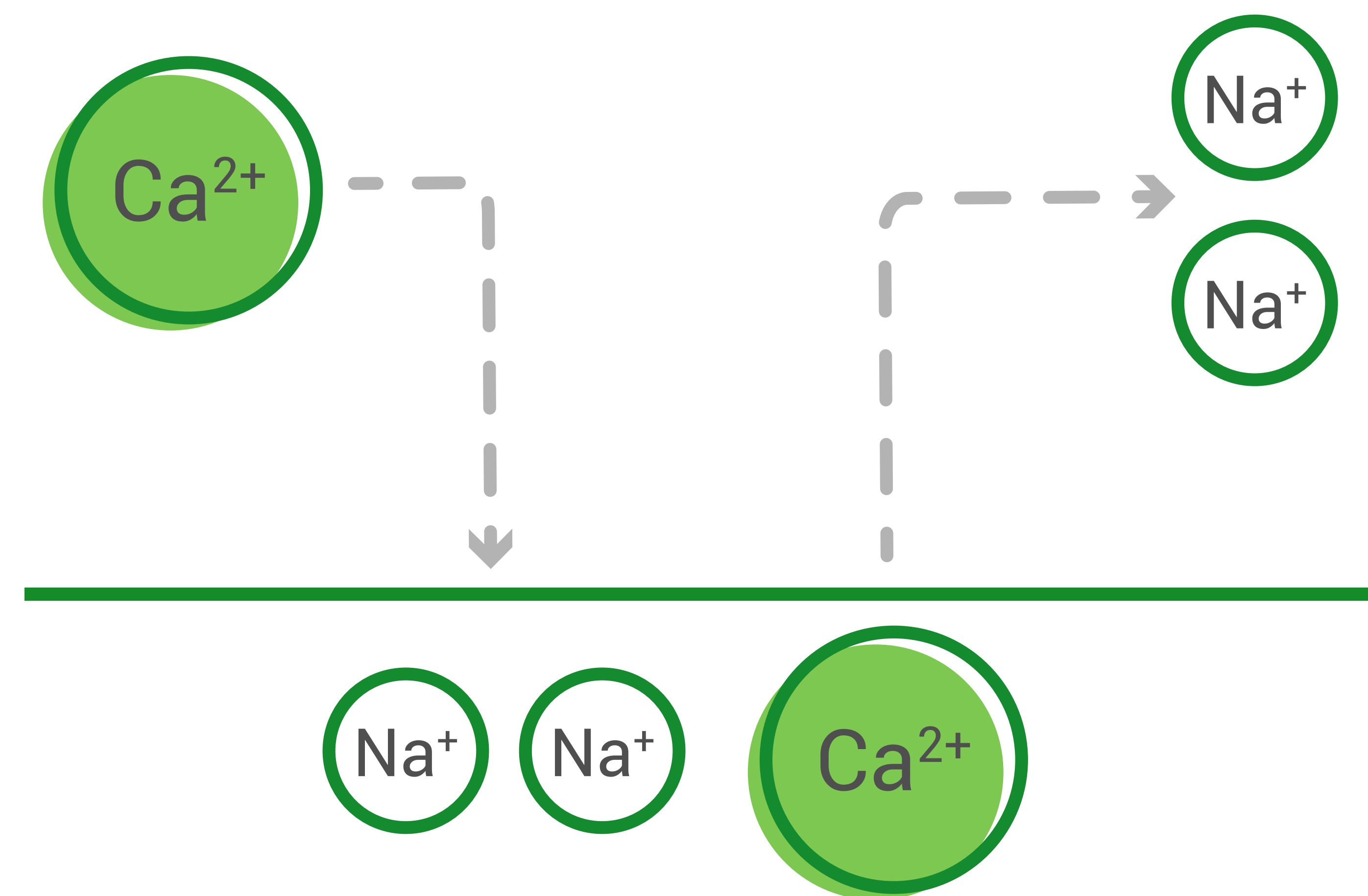
SUSPENDED SOLIDS REMOVAL EFFICIENCY



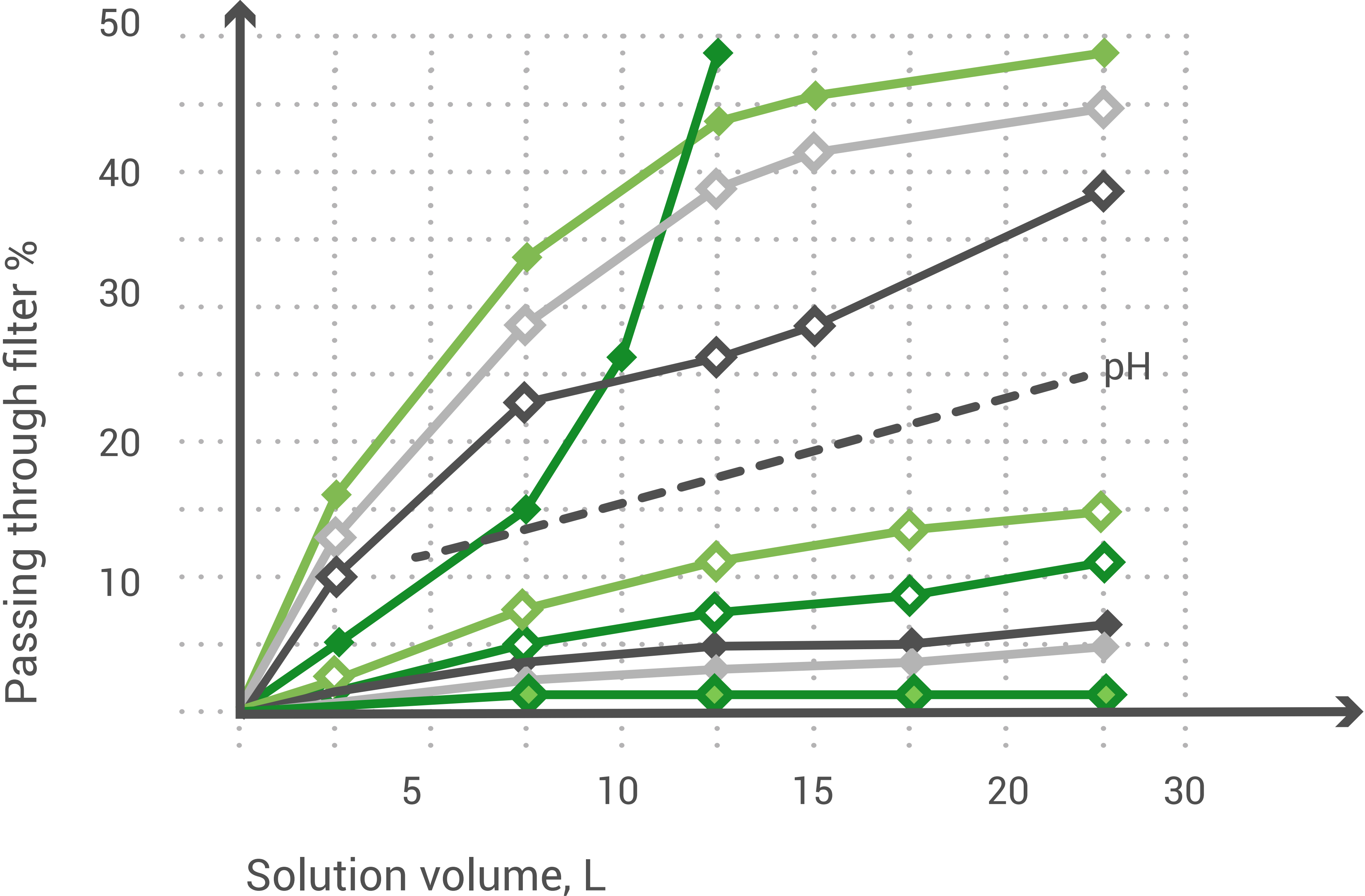
Effective removal of suspended solids
of the target particles' size.



ION EXCHANGE



METALS
(INCL. RADIOACTIVE)
REMOVAL EFFICIENCY



CONCENTRATION OF ELEMENTS IN TEST SOLUTION, MG/L

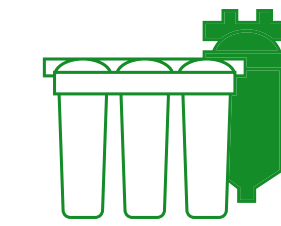
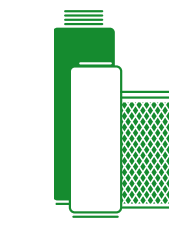
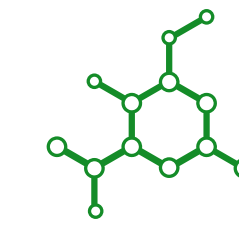
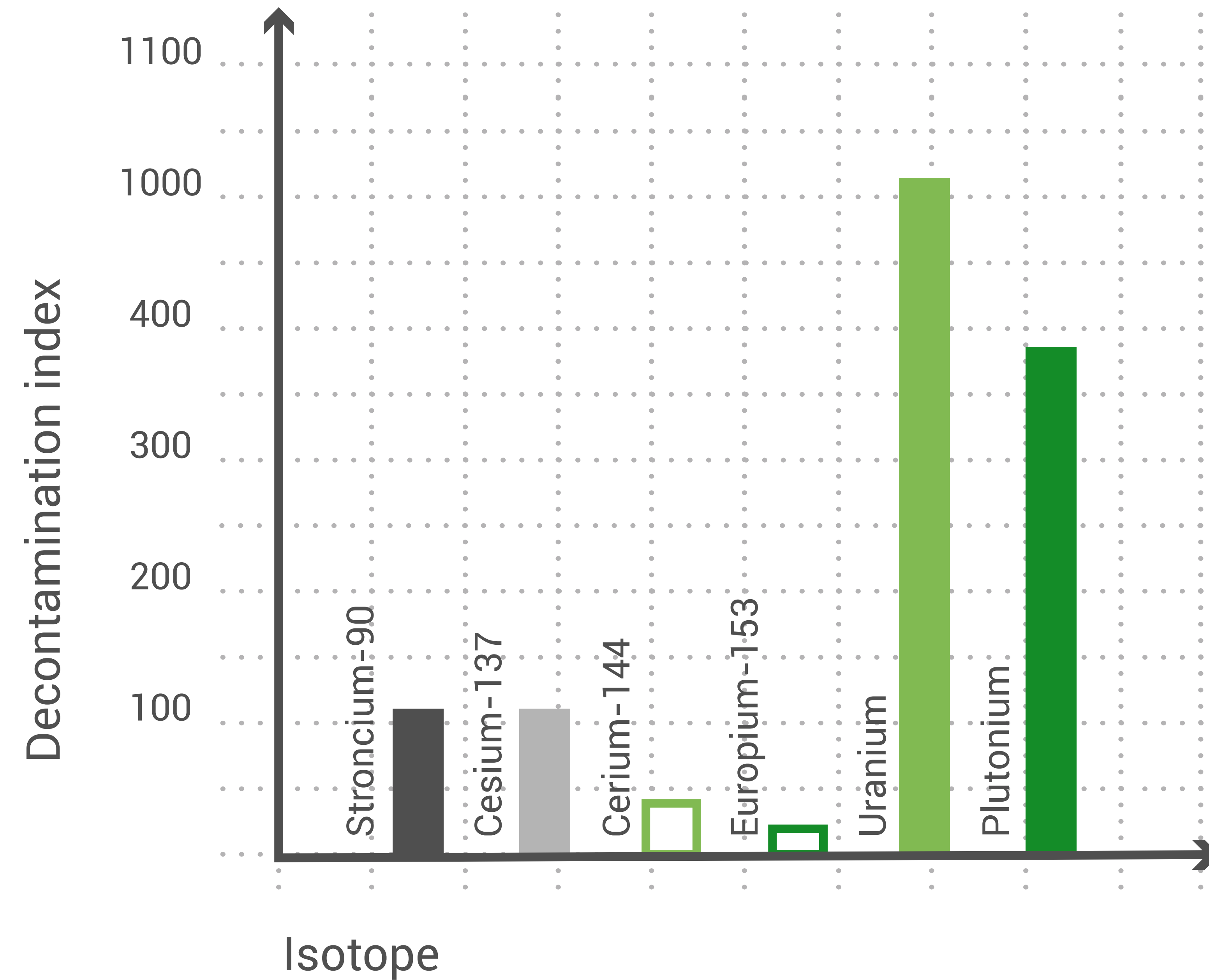
Ca	Cd	Ni	Mg	V	Fe	Cu	Mo	Al	Pb	Cr	Zn
4.7	0.2	0.6	3.3	0.5	2.7	0.2	2.8	1.4	0.9	0.1	0.3
-	-	10 MAC	3 MAC	10 MAC	30 MAC	10 MAC	6 MAC	MAC	200 MAC	MAC	MAC

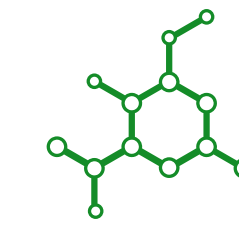


EFFICIENCY OF TREATMENT OF WATER CONTAMINATED WITH RADIOACTIVE ELEMENTS

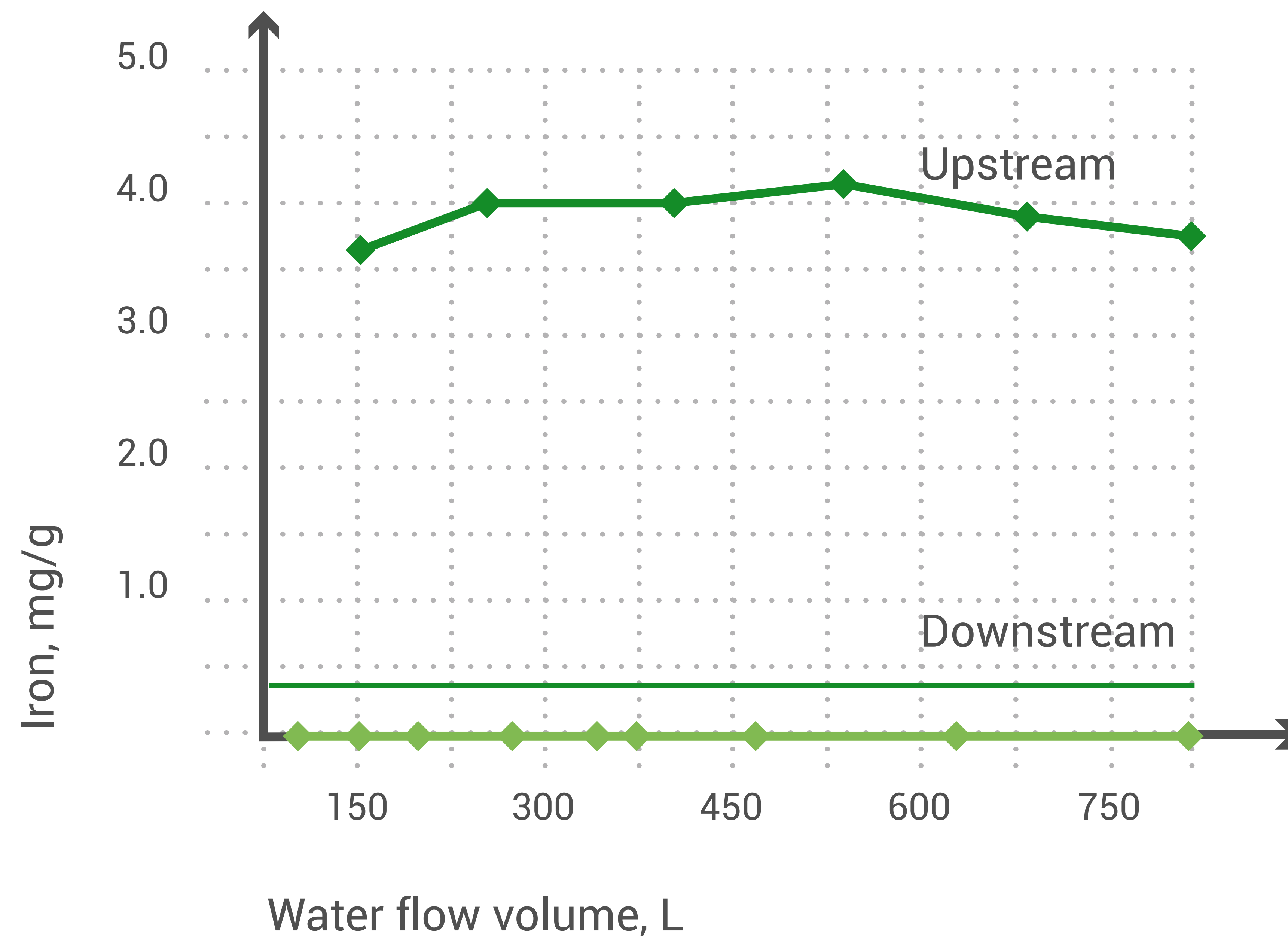


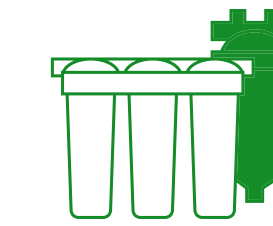
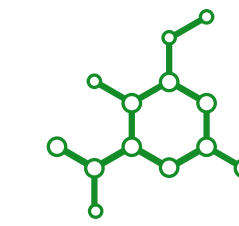
V.G. Khlopin
Radium Institute, Russia



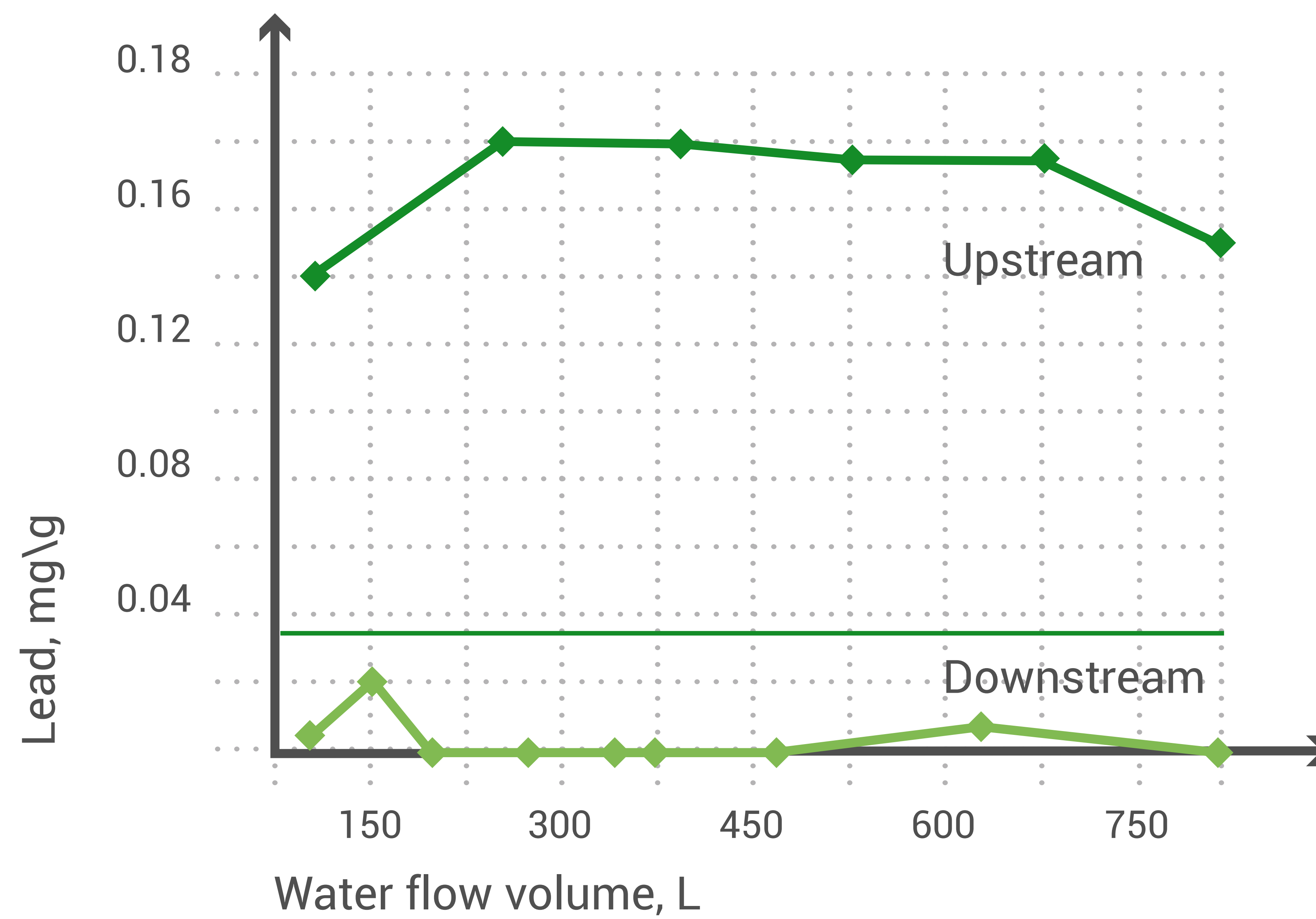


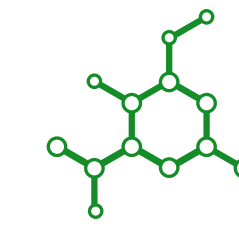
IRON REMOVAL EFFICIENCY



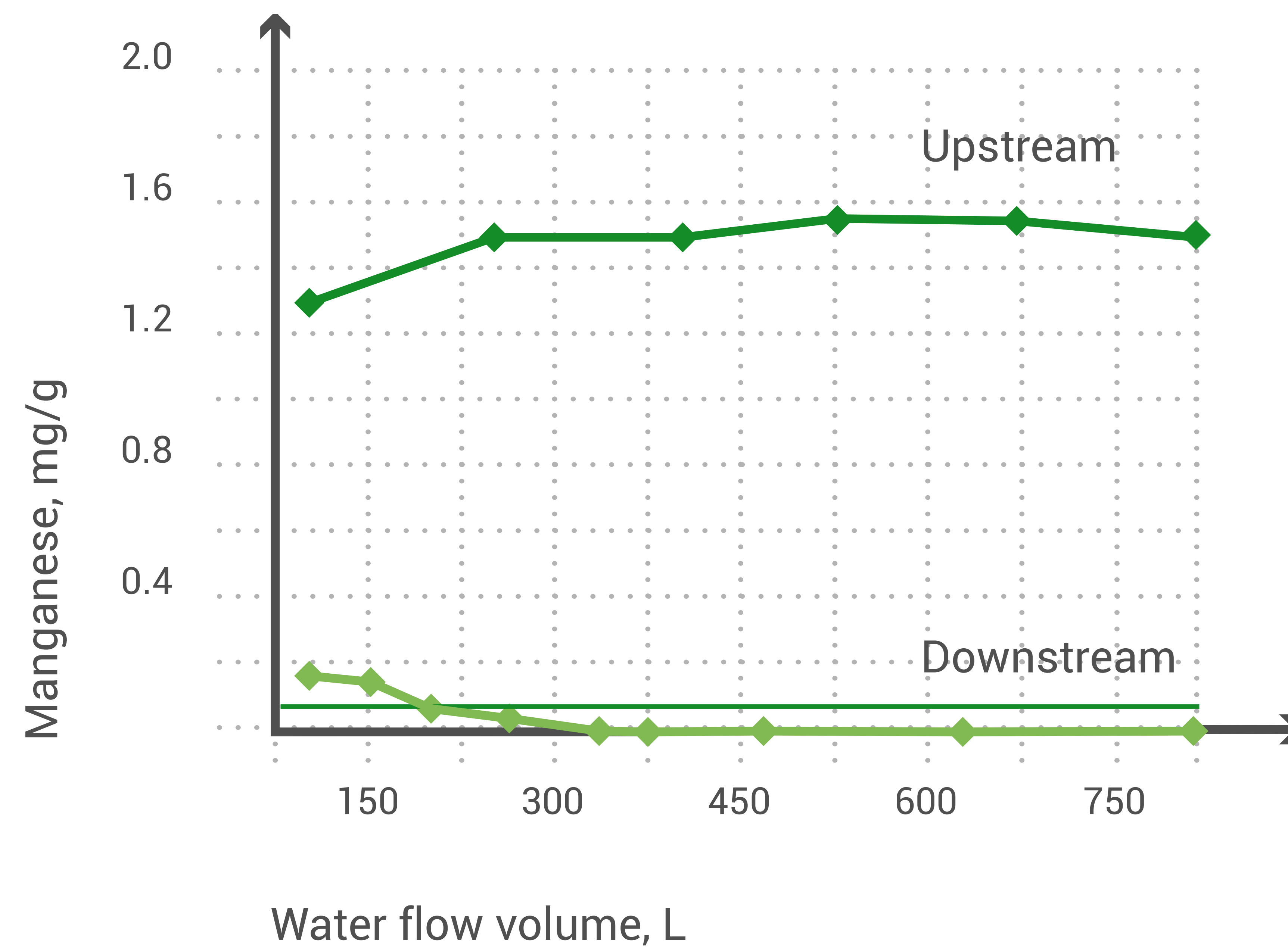


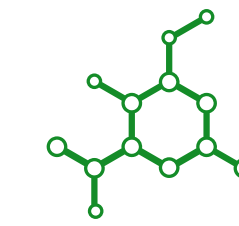
LEAD REMOVAL EFFICIENCY



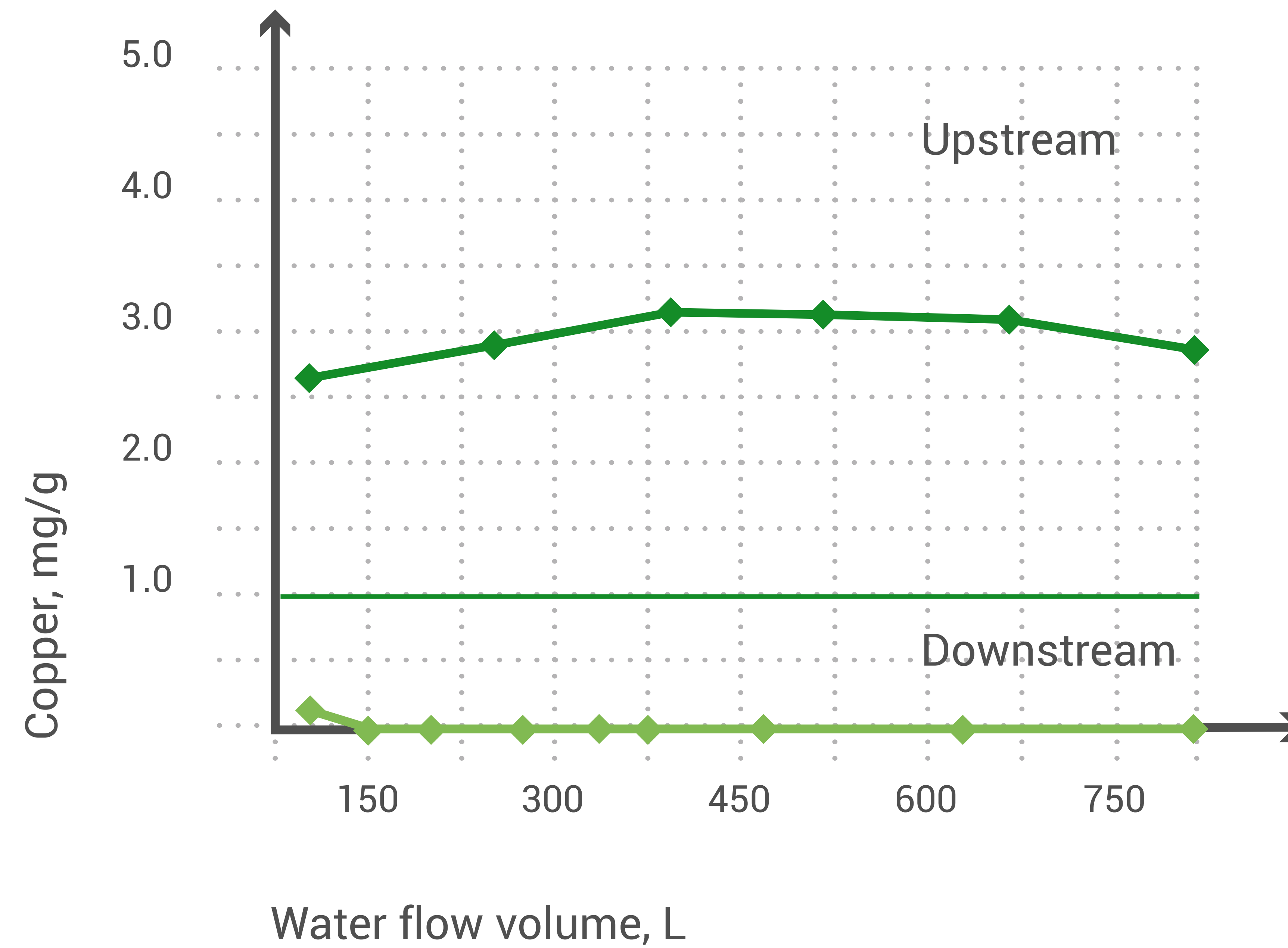


MANGANESE REMOVAL EFFICIENCY

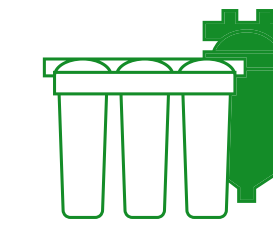
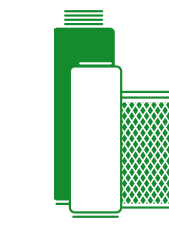
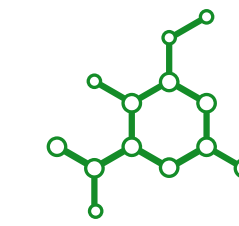




COPPER REMOVAL EFFICIENCY

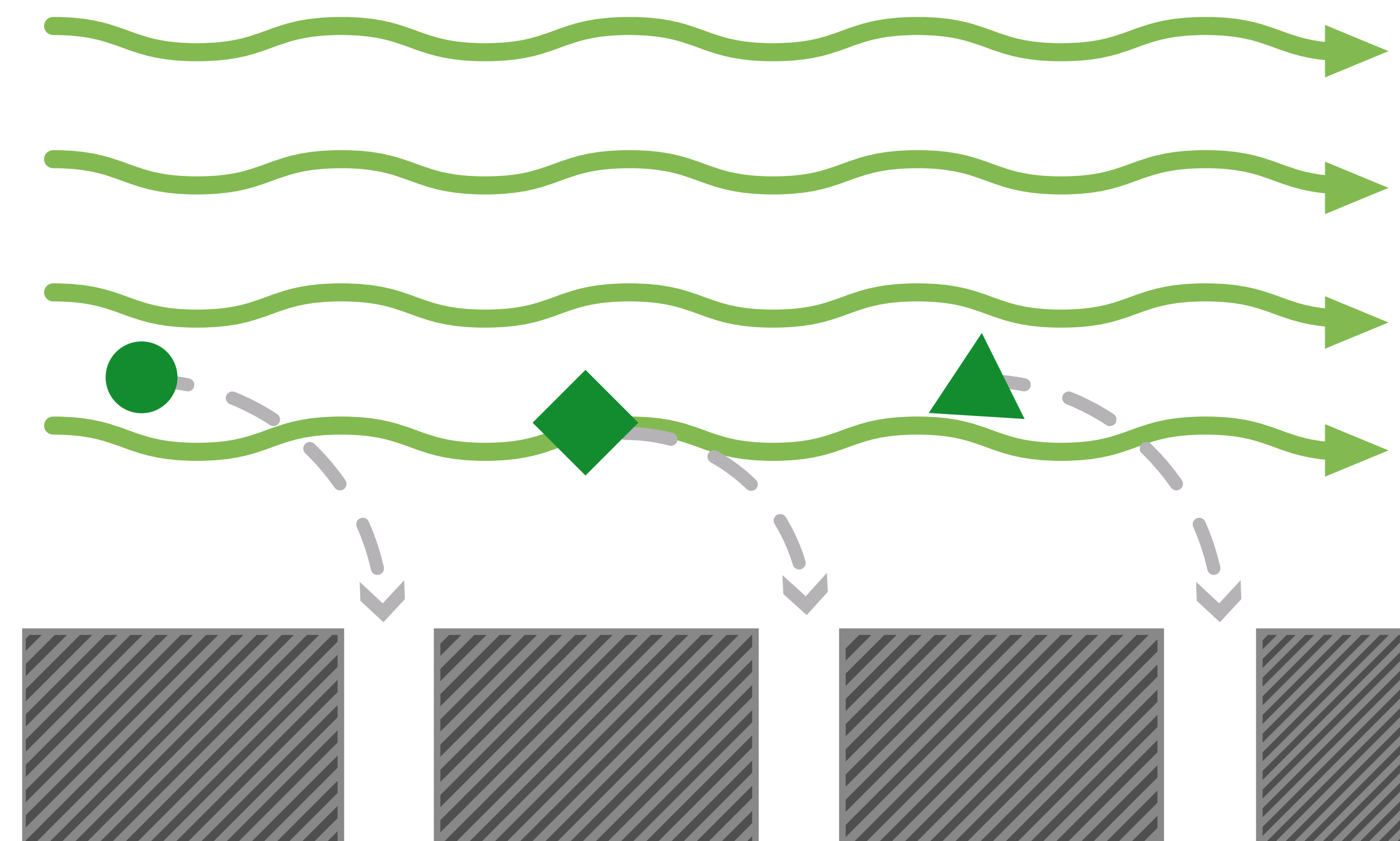


IFTS (International
Filter Testing Services), France

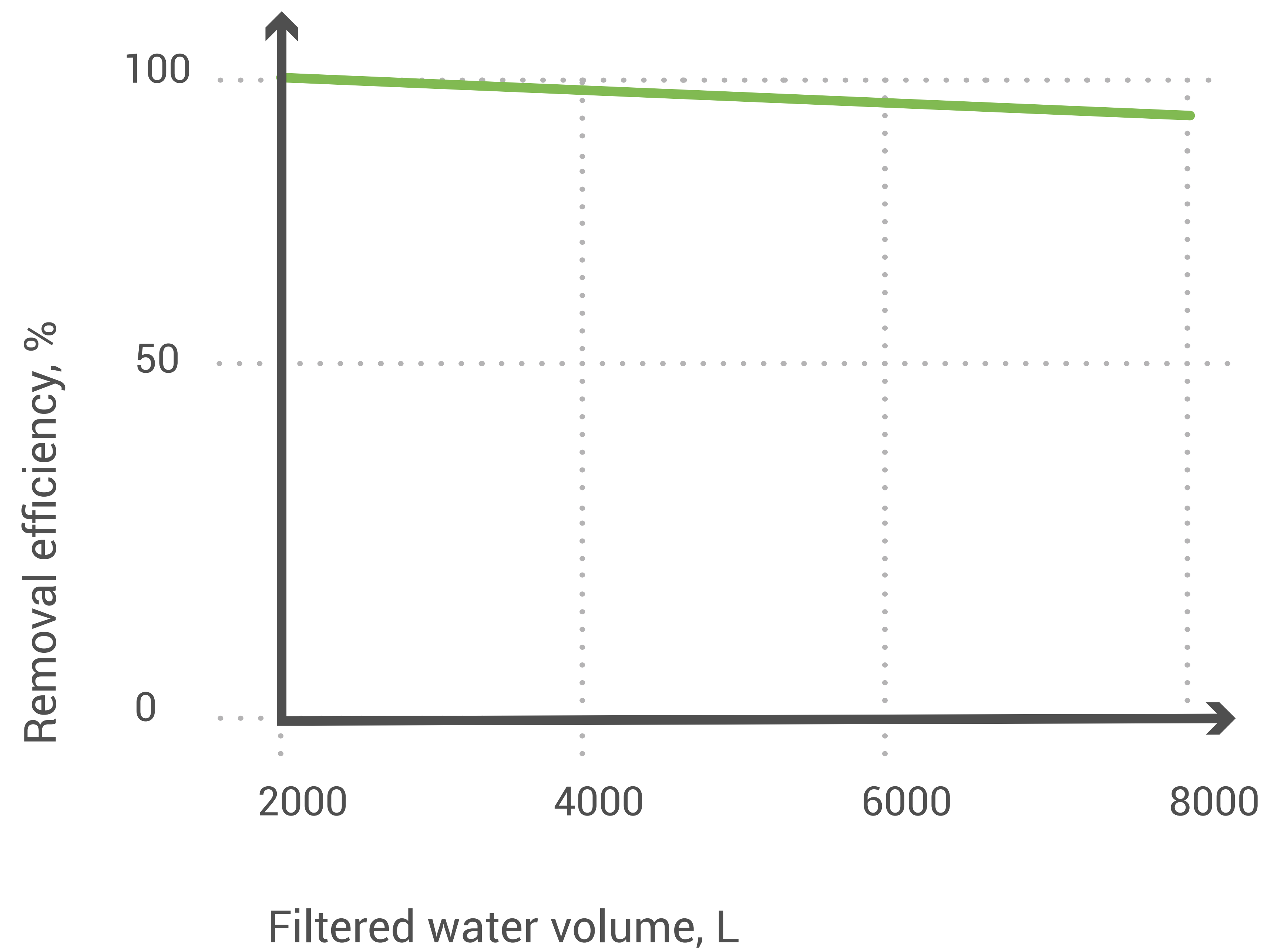
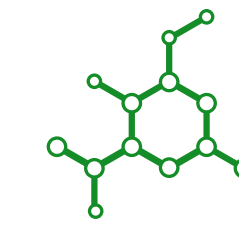


SORPTION

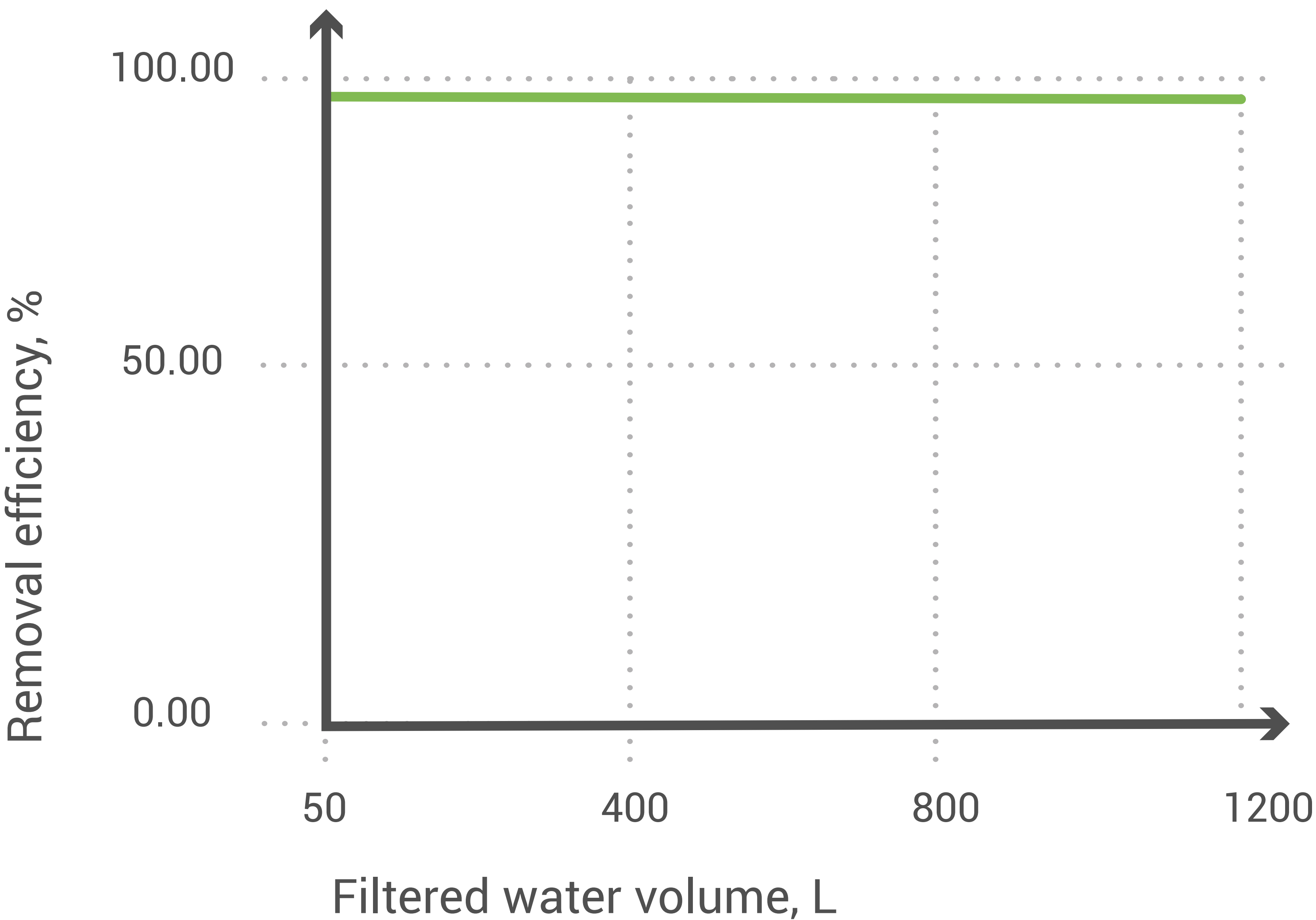
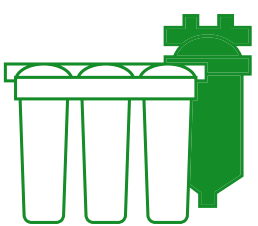
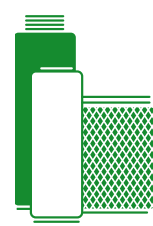
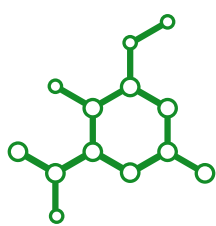
SORPTION PROPERTIES OF ARAGON



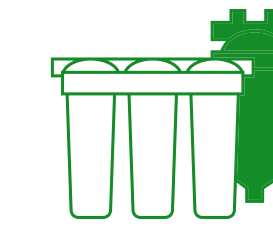
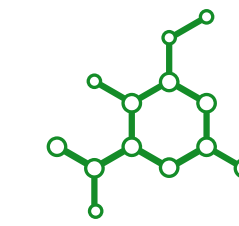
FREE CHLORINE REMOVAL



PESTICIDES
REMOVAL EFFICIENCY
(FOR SIMAZINE)

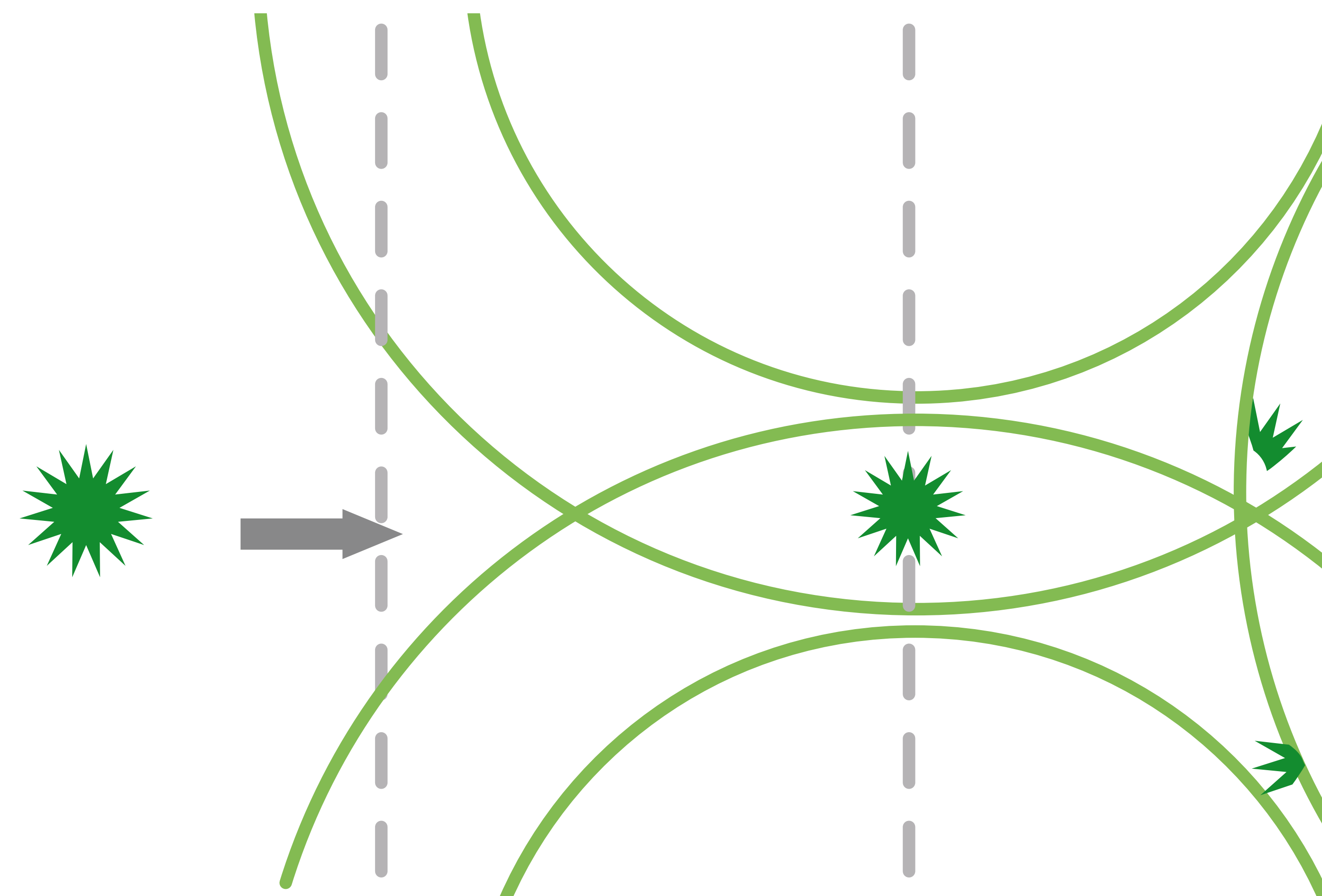


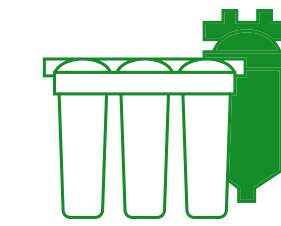
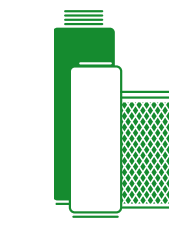
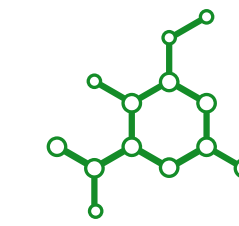
FILTERED WATER VOLUME, L	UPSTREAM CONCENTRATION, MG/L	DOWNSTREAM CONCENTRATION, MG/L	REMOVAL EFFICIENCY, %
50	1.1	0.01	97.62
400	1.0	0.015	98.50
800	1.2	0.02	98.33
1200	1.0	0.02	98.00



DISINFECTION

REMOVAL OF VIRUSES AND BACTERIA





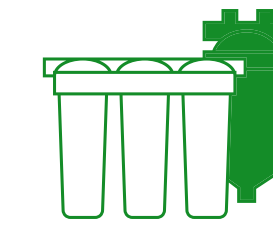
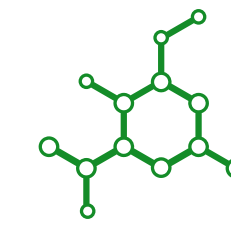
There are only two companies in the world that can produce cartridges which completely remove all viruses and bacteria from water. These are Geyser GC (Russia) and AHLSTROM (USA).

GEYSER
water filters

Based on polymer Aragon

AHLSTROM

Based on nano alumina fiber



INVENTION PATENT

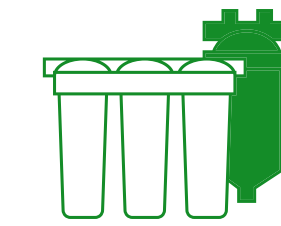
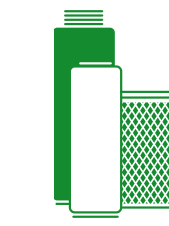
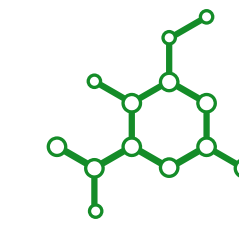
VIRUSES

CLASSIFICATION

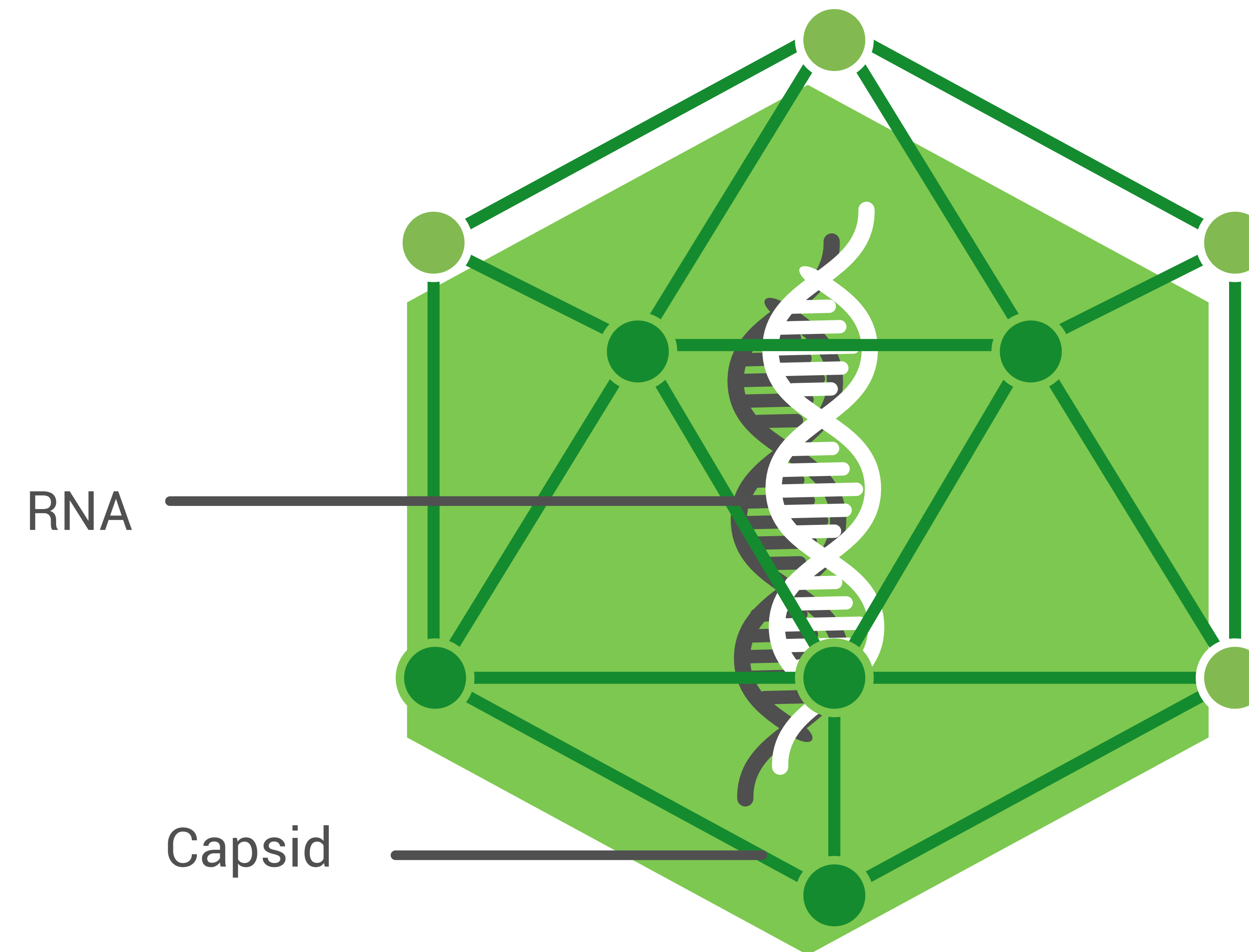
VIRUS CLASS	SIZE (NM)	PERCENTAGE (%)	DISEASES
Hepatitis A	27 – 32	3	Hepatitis
Norovirus	27 - 40	82	Intestinal influenza and acute enteric infection
Rotavirus	60 - 70	5	Rotavirus infection
Entero- and astroviruses	27 - 30	5	Poliomyelitis, etc.
Adenoviruses	70 - 90	5	Catarrh of the upper respiratory tract , conjunctivitis, atypical pneumonia, etc.



Aragon passed laboratory testing in Russian and international testing institutions.

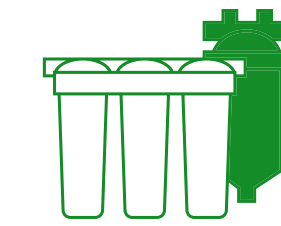
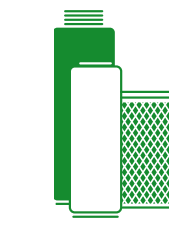
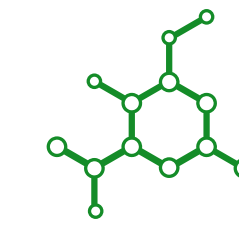


MECHANISM OF VIRUSES REMOVAL BY ARAGON



A virus is not able to replicate independently. It is searching for a life form inside which it would start replicating.

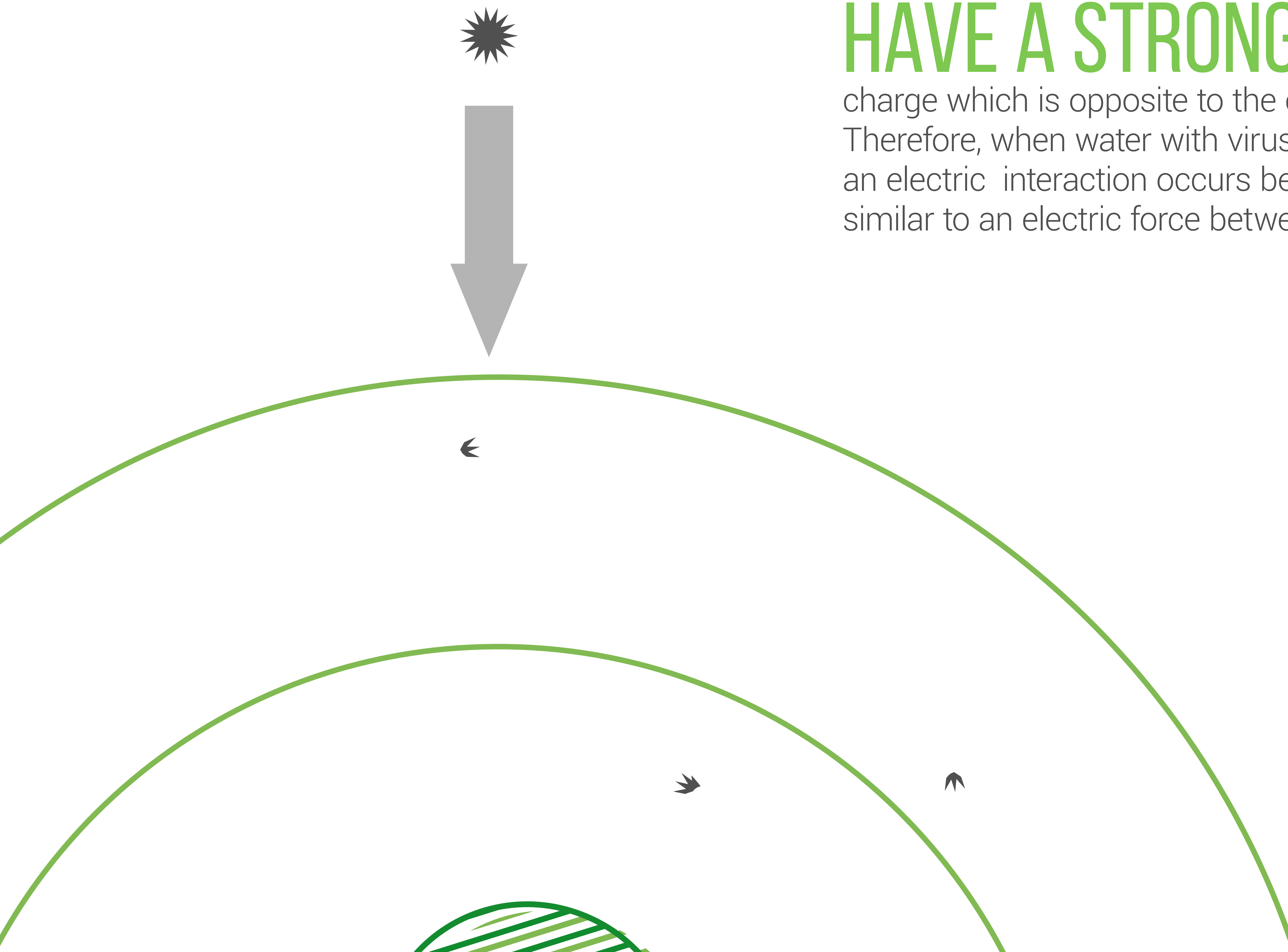
Most viruses have a protein coat (capsid) which protects RNA. To neutralize a virus it is enough to destroy the capsid or to damage its RNA.

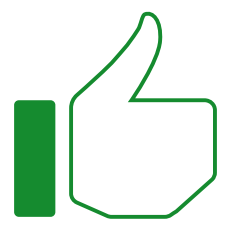
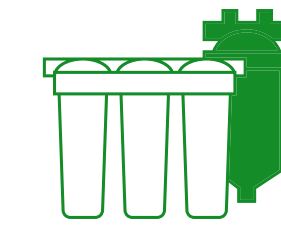
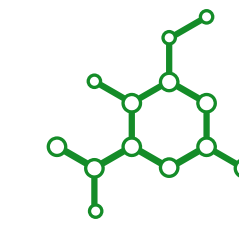


ARAGON 'S PORES HAVE A STRONG SURFACE

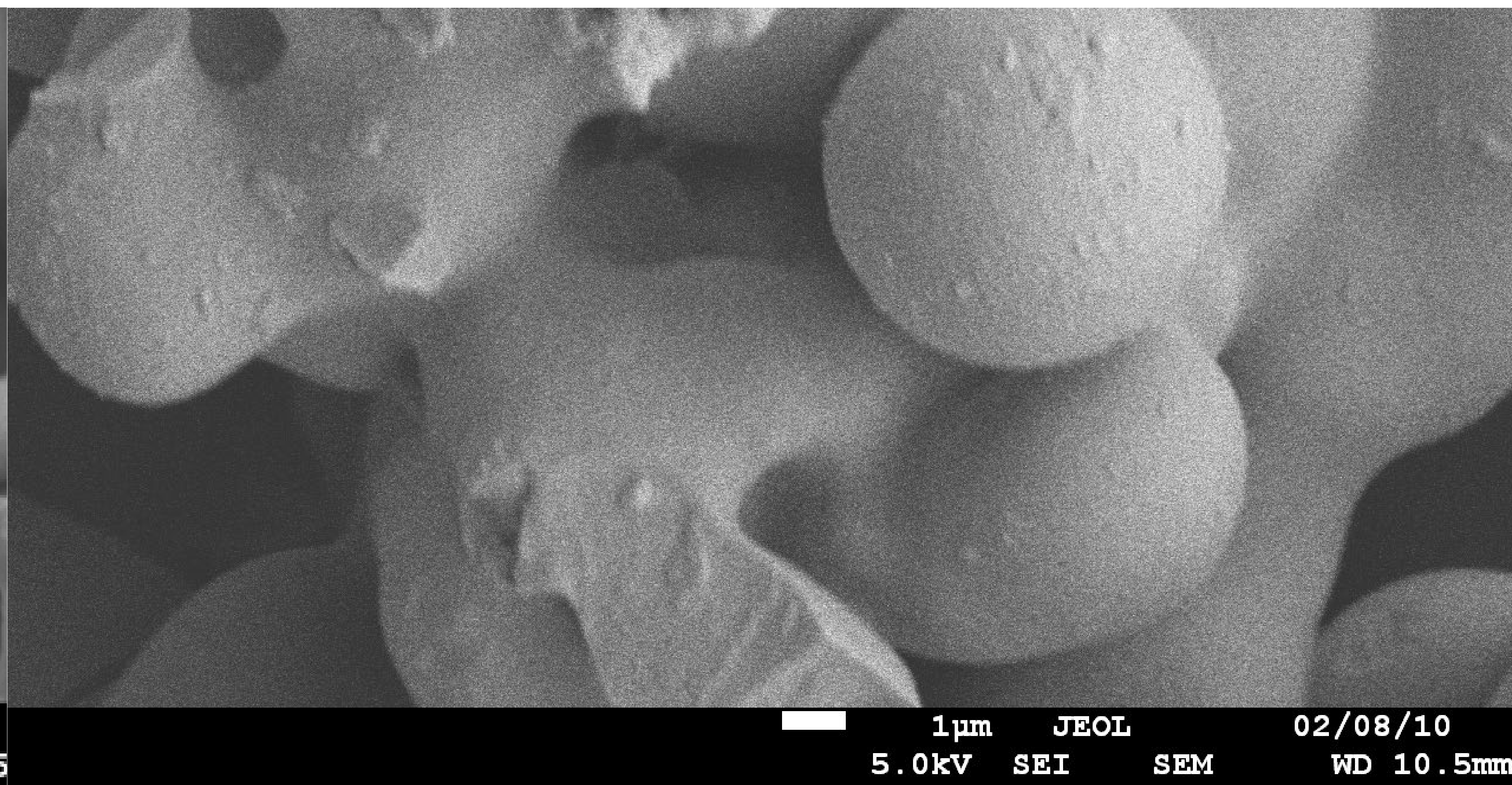
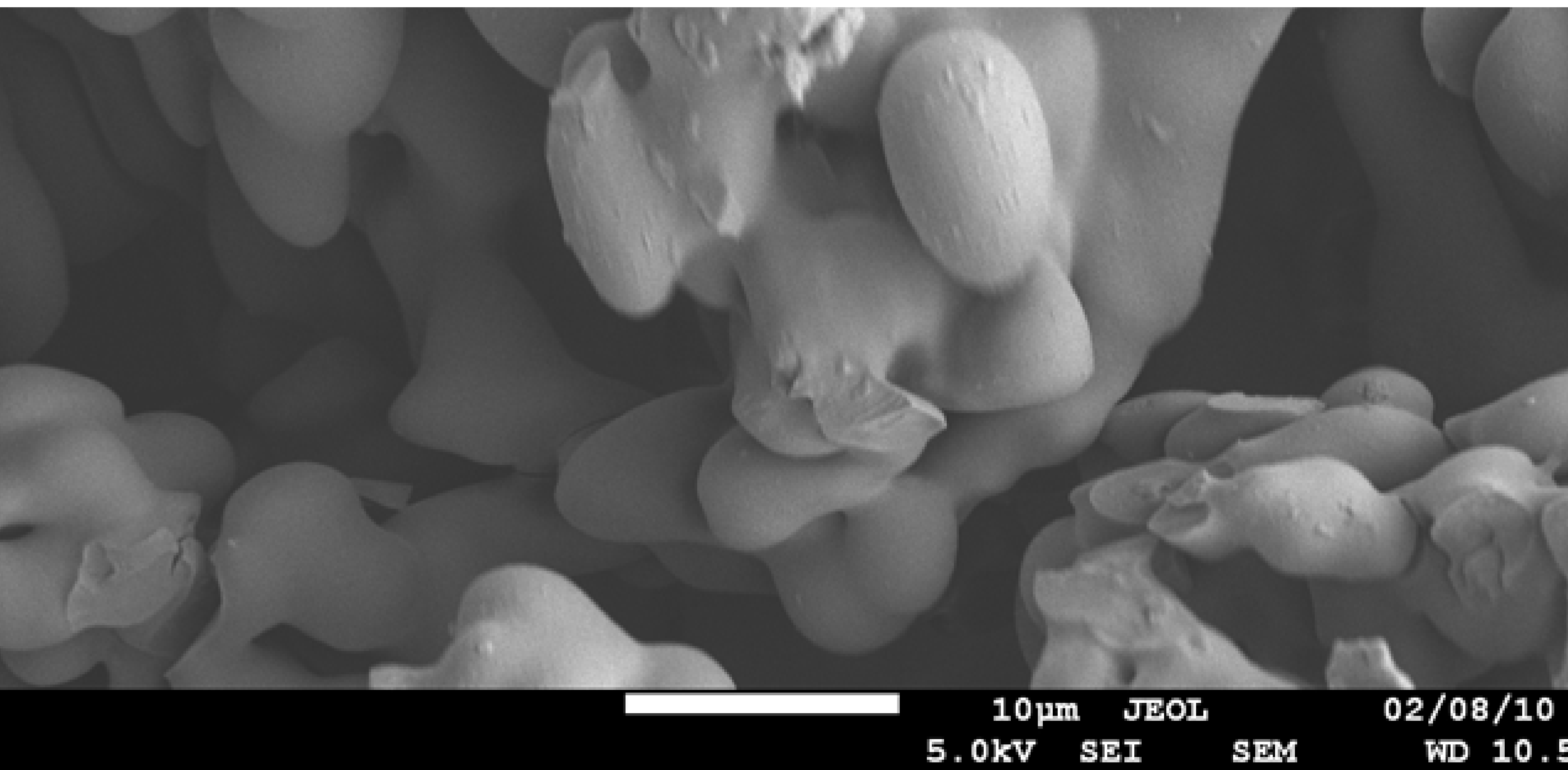
charge which is opposite to the charge of viruses.

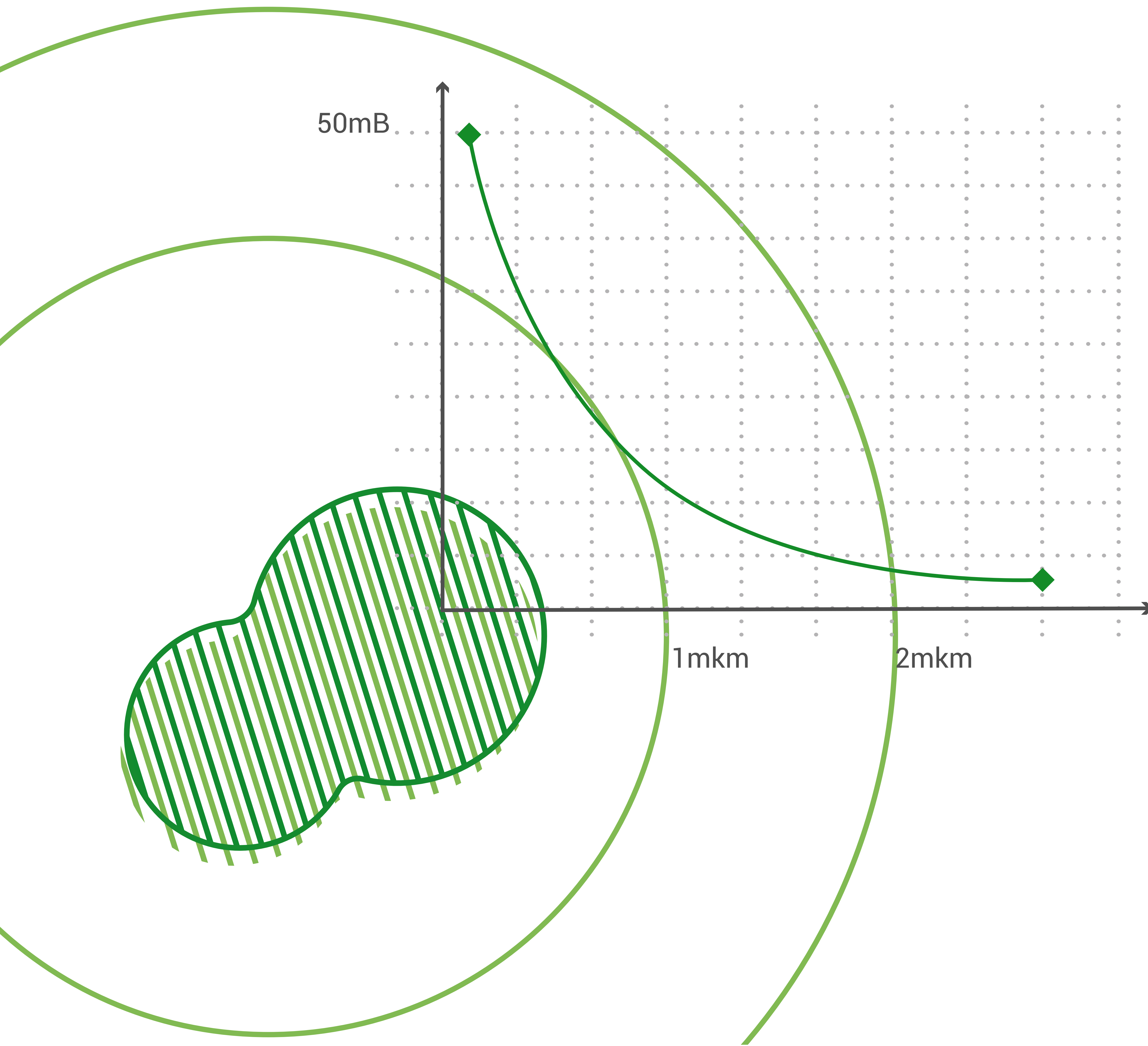
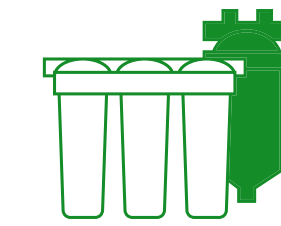
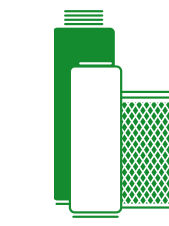
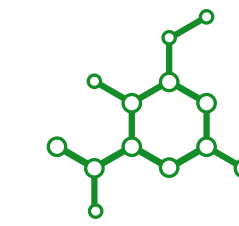
Therefore, when water with viruses passes through the filtration material, an electric interaction occurs between the material and viruses similar to an electric force between two opposite charges.





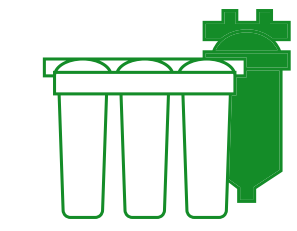
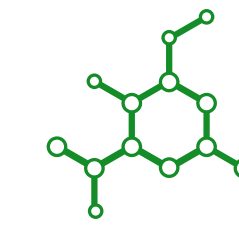
IMAGES OF ARAGON PRODUCED BY ELECTRON MICROSCOPE





ELECTRIC FIELD OF A GLOBULE

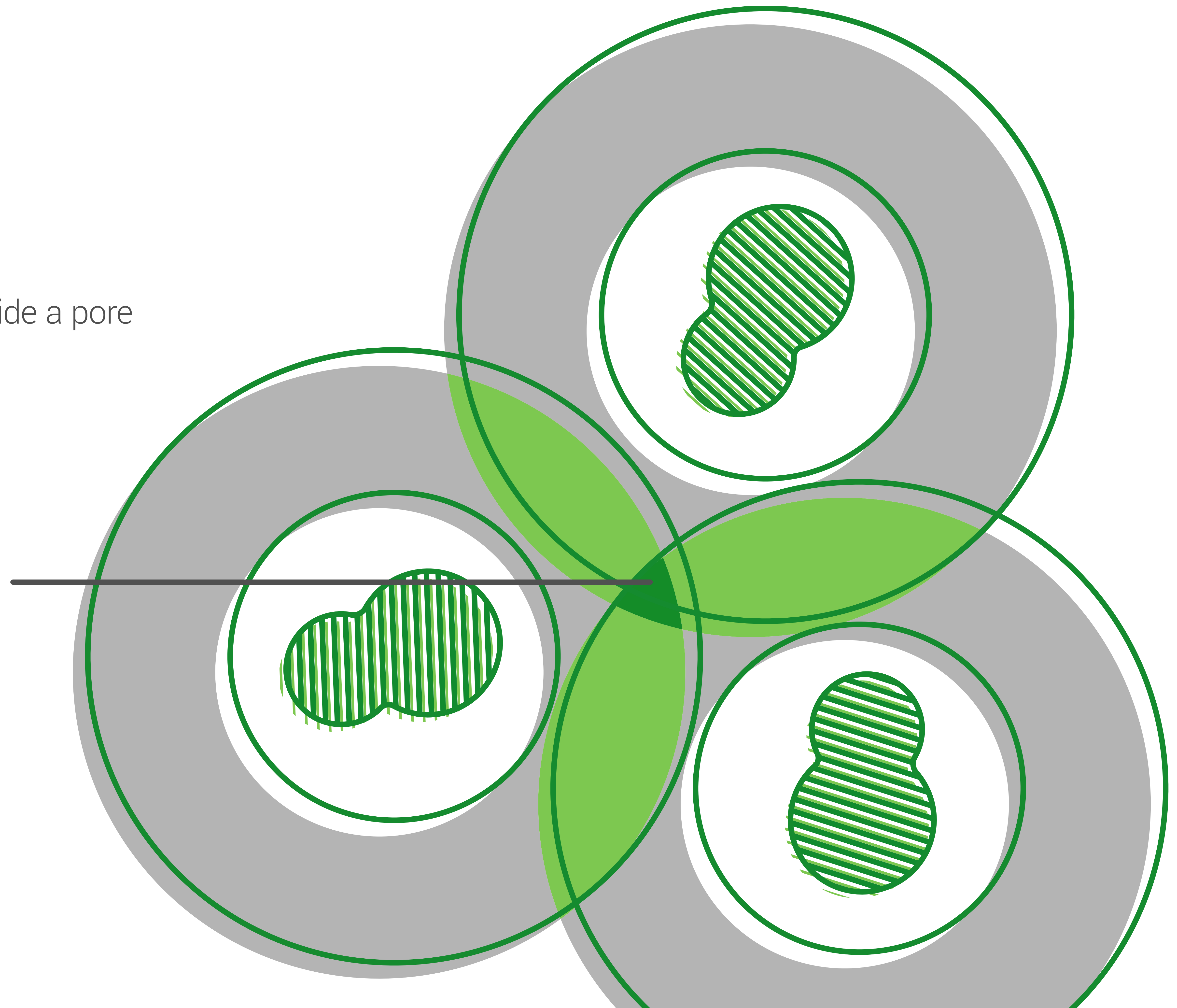
A globule's surface is negatively charged and creates a strong electric field covering the entire pore.

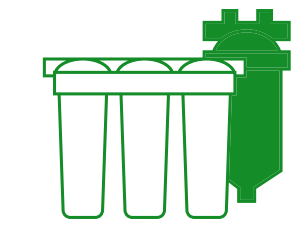
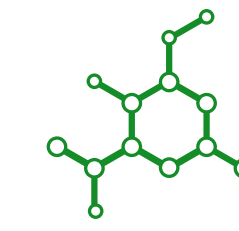


ELECTRIC FIELD INSIDE PORE

Overlapping of individual globules' fields forms a highly gradient electric field of high intensity inside a pore

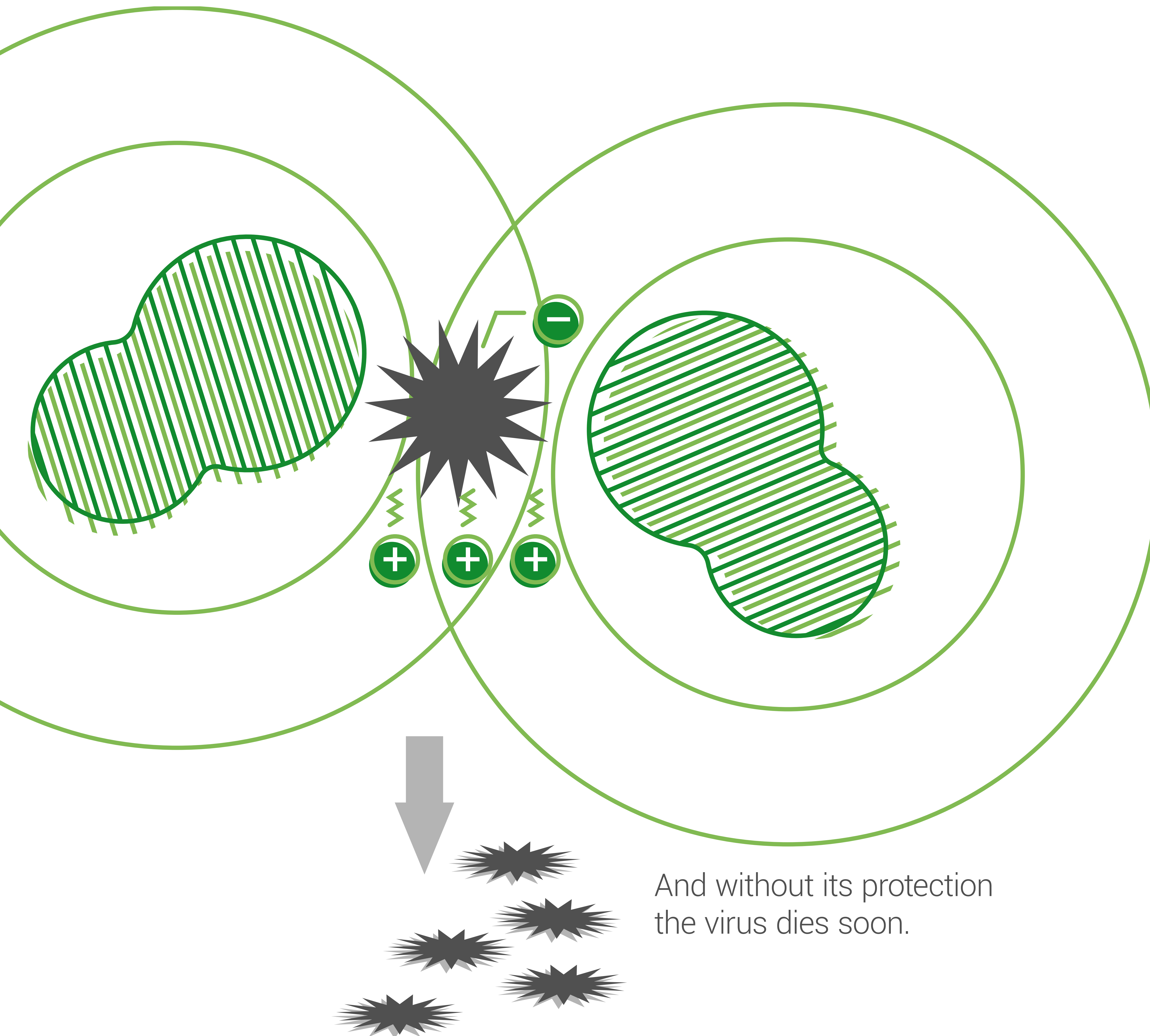
Area
of maximum
field intensity

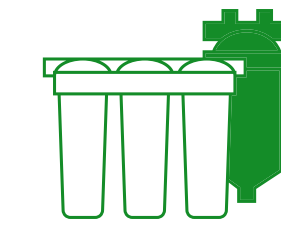
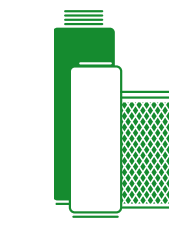
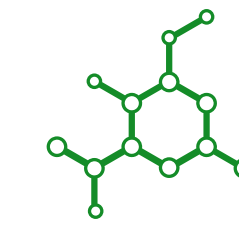




ELECTROKINETIC IMPACT ON VIRUSES

Electric field causes destruction
of the virus's protection cover.

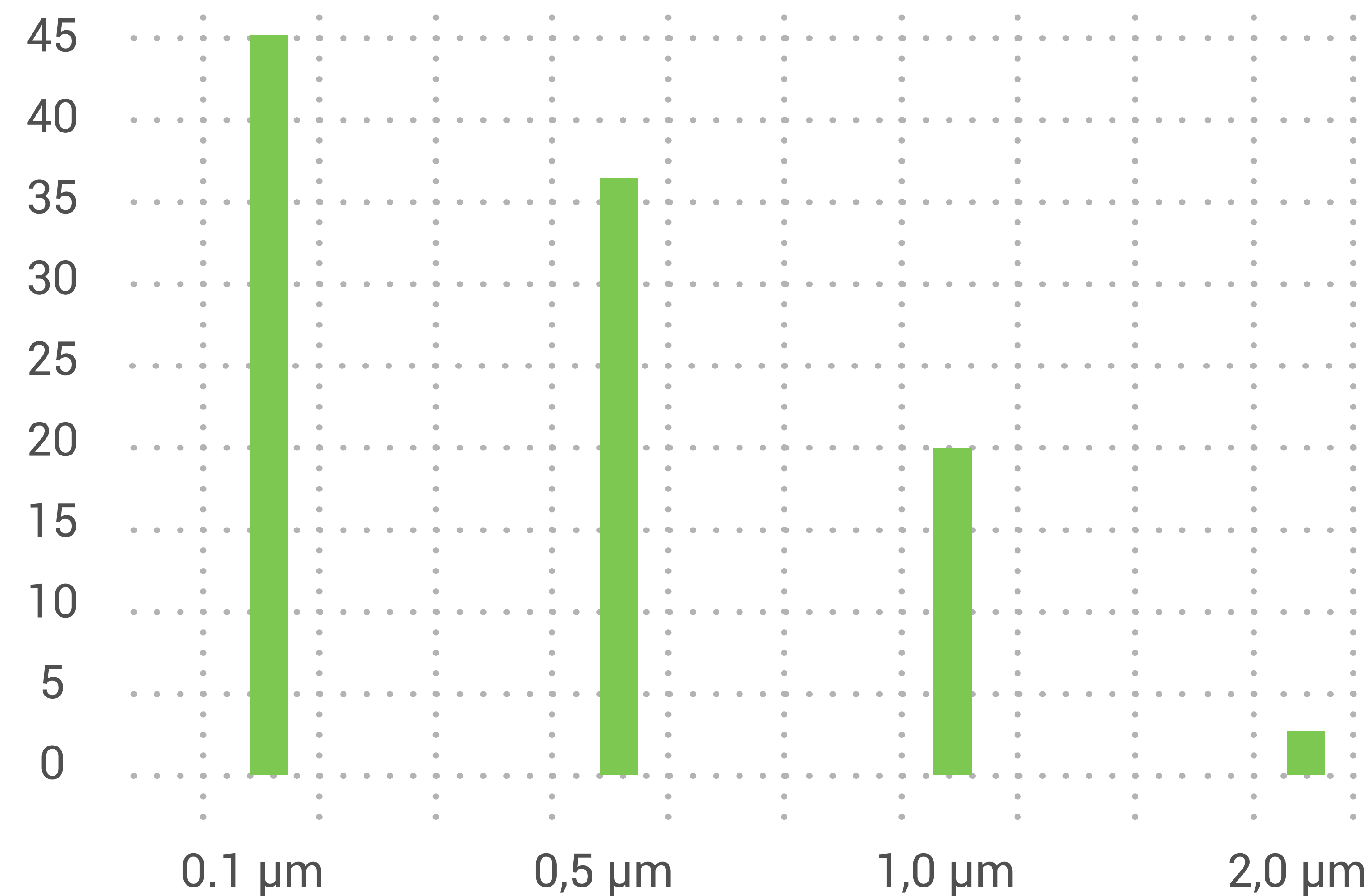




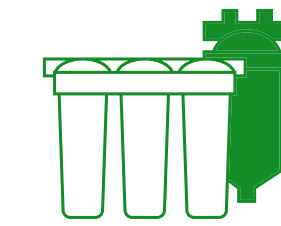
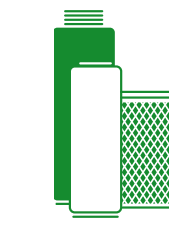
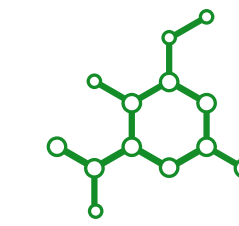
FILTRATION MATERIALS

ζ – POTENTIAL

MEASUREMENT RESULTS



ζ -potential decreases with increasing pore size (from 0,5 to 2 μm). Hence, by varying the globules' position and size we can enable the polymer to be effective in removing bacteria and viruses.



THE PROPERTY OF ARAGON BIO TO CAPTURE VIRUSES AND BACTERIA WAS TESTED AND PROVEN



Pasteur Institute of Epidemiology
and Microbiology,
2007 – 2010



Kirov Military Medical
Academy,
2008



A.N. Sysin research institute of human ecology
and environment hygiene,
2011



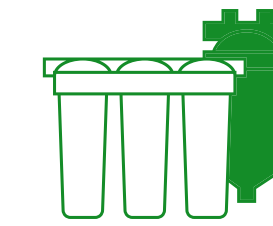
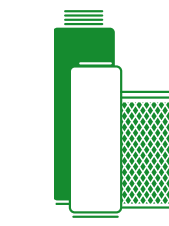
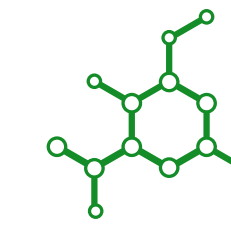
Influenza Research Institute,
2011



Università di Ferrara,
2012



Institut Pasteur de Lille,
2014



ЗАКЛЮЧЕНИЕ

по результатам гигиенической оценки эффективности очистки воды от химических и микробных загрязнений воды ионообменными картриджами АРАГОН-БИО производства ООО «Акватория»

Гигиеническая оценка эффективности работы ионообменных фильтров АРАГОН-БИО выполнена в комплексных исследованиях, проведенных на базе ФГБУ НИИ Экологии человека и гигиены окружающей среды им. А.Н.Сысина Минздравсоцразвития России и ФГУН «Санкт-Петербургский НИИ Эпидемиологии и микробиологии им. Пастера» Роспотребнадзора в соответствии с требованиями ГОСТА Р 51871 «Устройства водоочистные. Общие требования к эффективности и методы ее определения».

На основании проведенных исследований были сделаны следующие выводы:

1. Испытанные ионообменные картриджи АРАГОН-БИО показали 100% эффективность очистки воды от вирусного загрязнения, проведенного на модельных водах с исходной концентрацией норовирусов и гепатита А до 1×10^8 ТЦД/мл и ротавирусов - до 1×10^{10} ТЦД/мл.
2. В ресурсных испытаниях картриджей АРАГОН-БИО получен 100% вирулицидный эффект в отношении ротавирусов при их концентрации 1×10^6 ТЦД/мл на протяжении всего ресурса (50 л, 200 л, 1000 л, 2000 л и 5000 л).
3. Оценка эффективности очистки воды в аварийных ситуациях от бактериального загрязнения, проведенное на водопроводной воде, загрязненной канализационными стоками с исходной концентрацией E.coli $2,2 \times 10^5$ КОЕ/мл показало, что картриджи АРАГОН-БИО обеспечивают 100% эффективность задержки E.coli и соответствие очищенной воды требованиям, предъявляемым к питьевой воде.
4. Оценка эффективности очистки воды от различных химических загрязнений, в частности, металлов при их начальной концентрации 2ПДК показало, что ионообменные картриджи АРАГОН-БИО обеспечивают эффективную очистку от свинца (75%), алюминия (96%), железа (98%), меди (92%).
5. На основании данных физико-химических и микробиологических исследований фильтры с ионообменными картриджами АРАГОН-БИО рекомендованы для дообеззараживания (E.Coli, гепатит А, ротавирусы, норовирусы) и доочистки водопроводной воды от химических загрязнений (свинец, алюминий, железо, медь) и улучшения органолептических показателей. Фильтры с картриджем АРАГОН-БИО могут быть рекомендованы для использования в дошкольных и школьных учреждениях, учреждениях социального профиля, лечебных и других учреждениях.

Зав лаборатории гигиены питьевого водоснабжения и санитарной охраны водоемов,
д.м.н., профессор

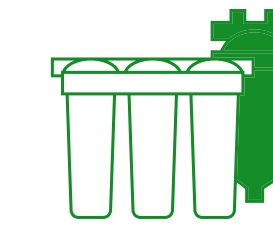
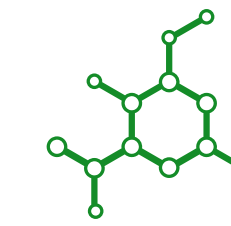


 Михайлова Р.И.



TESTING REPORT OF A.N. SYSIN RESEARCH INSTITUTE OF HUMAN ECOLOGY AND ENVIRONMENT HYGIENE (RUSSIA)

"The testing of ARAGON cartridges showed 100% efficiency in purifying water from viral contamination, conducted on test water samples with initial concentration of noroviruses and Hepatitis A up to 1×10^9 TCID/ml and rotaviruses up to 1×10^{10} TCID/ml."



Федеральное государственное бюджетное учреждение
Научно-исследовательский институт ГРИППА
Министерства здравоохранения и социального развития
Российской Федерации

Заключение

По результатам проведенных исследований по оценке барьерной функции
картриджей «АРАГОН-БИО» в отношении ротавирусов и норовирусов при очистке
водопроводной воды

На базе Федерального государственного бюджетного учреждения «Научно-исследовательский институт гриппа» Министерства здравоохранения и социального развития Российской Федерации (ФГБУ «НИИ гриппа» Минздравсоцразвития России) было проведено исследование барьерной функции материала «АРАГОН-БИО» в отношении ротавирусов и норовирусов, являющихся наиболее распространенными возбудителями острых кишечных инфекций, передающихся через воду.

На основании проведенных испытаний были сделаны следующие выводы:

1. Фильтр «Гейзер БИО» с картриджем «АРАГОН-БИО» удаляет из воды 99,99% опасных для человека патогенов - ротавирусов и норовирусов.
2. Максимальная концентрация вирусов в воде, полностью задерживаемая картриджем «АРАГОН-БИО», составила $1,0 \times 10^8$ частиц/л для ротавирусов и $0,5 \times 10^7$ частиц/л для норовирусов, что более чем в 1000 раз превышает максимально возможную концентрацию патогенных вирусов в водопроводной воде.

Таким образом, на основании результатов проведенных вирусологических исследований фильтр «Гейзер БИО» для воды с картриджем «АРАГОН-БИО» можно рекомендовать как простое и эффективное средство дообеззараживания водопроводной воды. Фильтры «Гейзер БИО» могут быть рекомендованы для постоянного использования в дошкольных и школьных учреждениях, учреждениях социального профиля, лечебных и других учреждениях.

Директор ФГБУ «НИИ гриппа»
Минздравсоцразвития России
Академик РАН

О.И.Кислев

197376 г. Санкт-Петербург
ул. Проф. Попова, 15/17

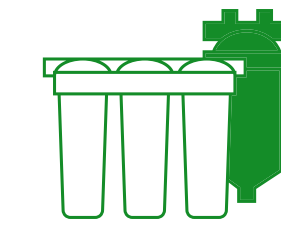
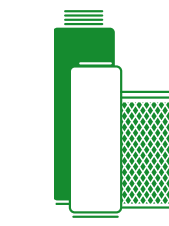
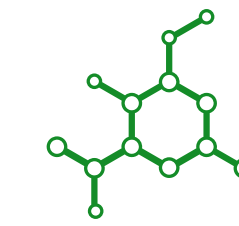
Web: <http://www.influenza.spb.ru>
E-mail: office@influenza.spb.ru

Тел.: +7 (812) 234-6200
Тел./факс: +7 (812) 234-5973



TESTING REPORT INFLUENZA RESEARCH INSTITUTE

“ARAGON BIO filter removes from water 99.99% of human pathogens - rotaviruses and noroviruses. The maximum concentration of viruses in water, completely captured by the filter, was 1.0×10^8 U/L for rotaviruses and 0.5×10^7 U/L for noroviruses, which exceeds the maximum permissible concentration of pathogenic viruses in tap water by nearly 1000 times”.



REPORT EFFICACIA VIRUCIDA/ EVALUATION OF VIRUCIDAL ACTIVITY

CONCLUSIONI / CONCLUSIONS:

Sulla base dei risultati ottenuti, rispettati i criteri di validità del saggio, il filtro "Geyser filter for water treatment" è risultato **VIRUCIDA**, in condizioni di pulito (0,3 gr/l albumina) e in condizioni di sporco (3 gr/l albumina + 3 ml/l di eritrociti), nei confronti di *Polyovirus* tipo 1, ceppo LSc-2ab e di *Herpes simplex virus* Tipo 1, ceppo KOS, dopo il tempo di filtrazione, dimostrando una riduzione della vitalità corrispondente a una riduzione > 99,999 %, secondo quanto previsto dal metodo di prova e dai requisiti della norma UNI EN 14476:2007 – Fase 2 / Stadio 1.

*According to EN 14476: 2007 - Phase 2 / Step 1 standard, the product "filtro "GEYSER FILTER FOR WATER TREATMENT" possesses **VIRUCIDAL ACTIVITY**, under clean condition (0,3 gr/l bovine albumin) and dirty condition (3 gr/l bovine albumin+ 3 ml/l erythrocytes), was obtained viral reduction equal at least 99.999%, for referenced strains Polyovirus type 1, LSc-2ab and Herpes simplex virus type 1, KOS.*

Ferrara: 25/01/2012
Ferrara: January 25th 2012





(Firma / Signature Prof. Pier Giorgio Balboni)
UNIVERSITÀ DI FERRARA
DIP.TO MEDICINA SPERIMENTALE E DIAGNOSTICA - SEZIONE DI MICROBIOLOGIA
DPT. EXP. & DIAGNOSTIC MEDICINE - SECTION OF MICROBIOLOGY
/ UNIVERSITY OF FERRARA

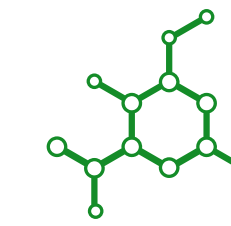


TESTING REPORT OF UNIVERSITÀ DI FERRARA, ITALY

"According to the results of the laboratory testing under procedure UNI EN 14476:2007 - phase 2, step 1, the filter

"Geyser" has an antiviral effect and clears water of herpes virus LSc-2a type 1 and circulating polio-virus. The laboratory tests have the virus reduction by 99,999%, which conforms to the stated standards and requirements of UNI EN 14476:2007 – phase 2, step 1.

The filter's efficiency was proven in the course of laboratory testing with use of albumin (0.3 g/l) and albumin (3 g/l) + erythrocytes (3 ml/l)."



REPORT EFFICACIA VIRUCIDA/ EVALUATION OF VIRUCIDAL ACTIVITY

CONCLUSIONI / CONCLUSIONS:

Sulla base dei risultati ottenuti, rispettati i criteri di validità del saggio, il filtro “**GEYSER FILTER FOR WATER TREATMENT**” ha dimostrato l’attività **VIRUCIDA NEI CONFRONTI DEI BATTERIOFAGI**, dopo il tempo di filtrazione, in presenza di sostanze interferenti dimostrando una riduzione della vitalità corrispondente a una riduzione >99,99 % del batteriofago MS2, secondo quanto previsto dal metodo di prova e dai requisiti della norma UNI EN 13610:2004 – Fase 2 / Stadio 1.

*According to EN 13610: 2004 - Phase 2 / Step 1 standard., the product “**GEYSER FILTER FOR WATER TREATMENT**” possesses **VIRUCIDAL ACTIVITY AGAINST BACTERIOPAHGES**, after filtration with interfering substances was obtained viral reduction > 99.99%, for referenced strains Bacteriophage MS2.*

Ferrara: 20/06/2012
Ferrara: June 20th 2012



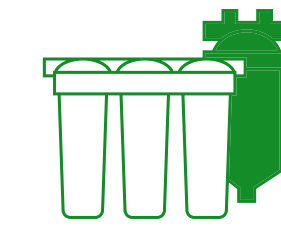
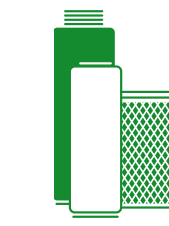
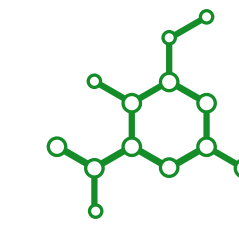


(Firma / Signature Prof. Pier Giorgio Balboni)
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/ UNIVERSITY OF FERRARA



TESTING REPORT OF UNIVERSITÀ DI FERRARA, ITALY

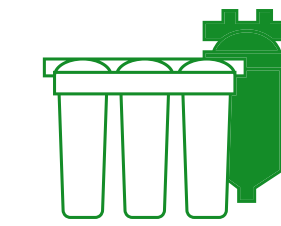
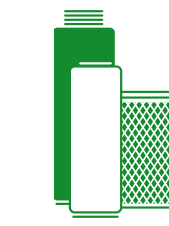
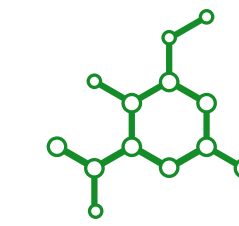
“According to the results of laboratory tests, the “Geyser” filter has antiviral effect and removes bacteriophages from water. The laboratory tests confirmed reduction of MS₂ bacteriophage by 99.99%, which conforms to the stated standards and requirements of EN 13610:2004.”



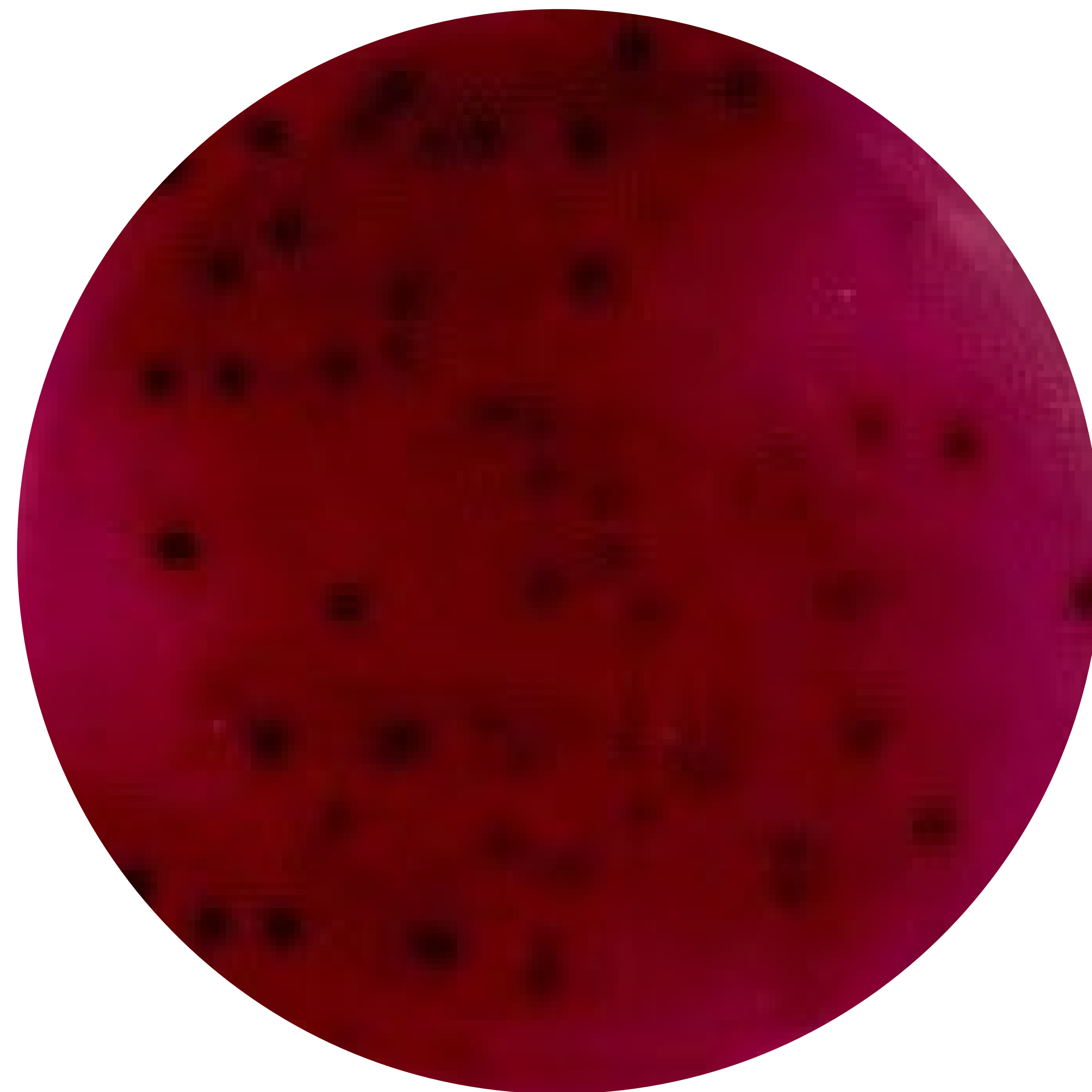
INSTITUT PASTEUR DE LILLE (FRANCE)

The institute is named after the famous French microbiologist Louis Pasteur, its founder and the first director. For his prominent services to France Louis Pasteur was buried in Notre-Dame de Paris Cathedral, but later reburied on the territory of the Institute (Lille).

The important discoveries made in Pasteur Institute have contributed to the success of the fight against such virulent diseases as diphtheria, tetanus, tuberculosis, poliomyelitis, influenza, yellow fever and plague. The human immunodeficiency virus was discovered here in 1983. Since 1908 ten scientists of this institute have received Noble Prizes in Medical Science and Physiology.

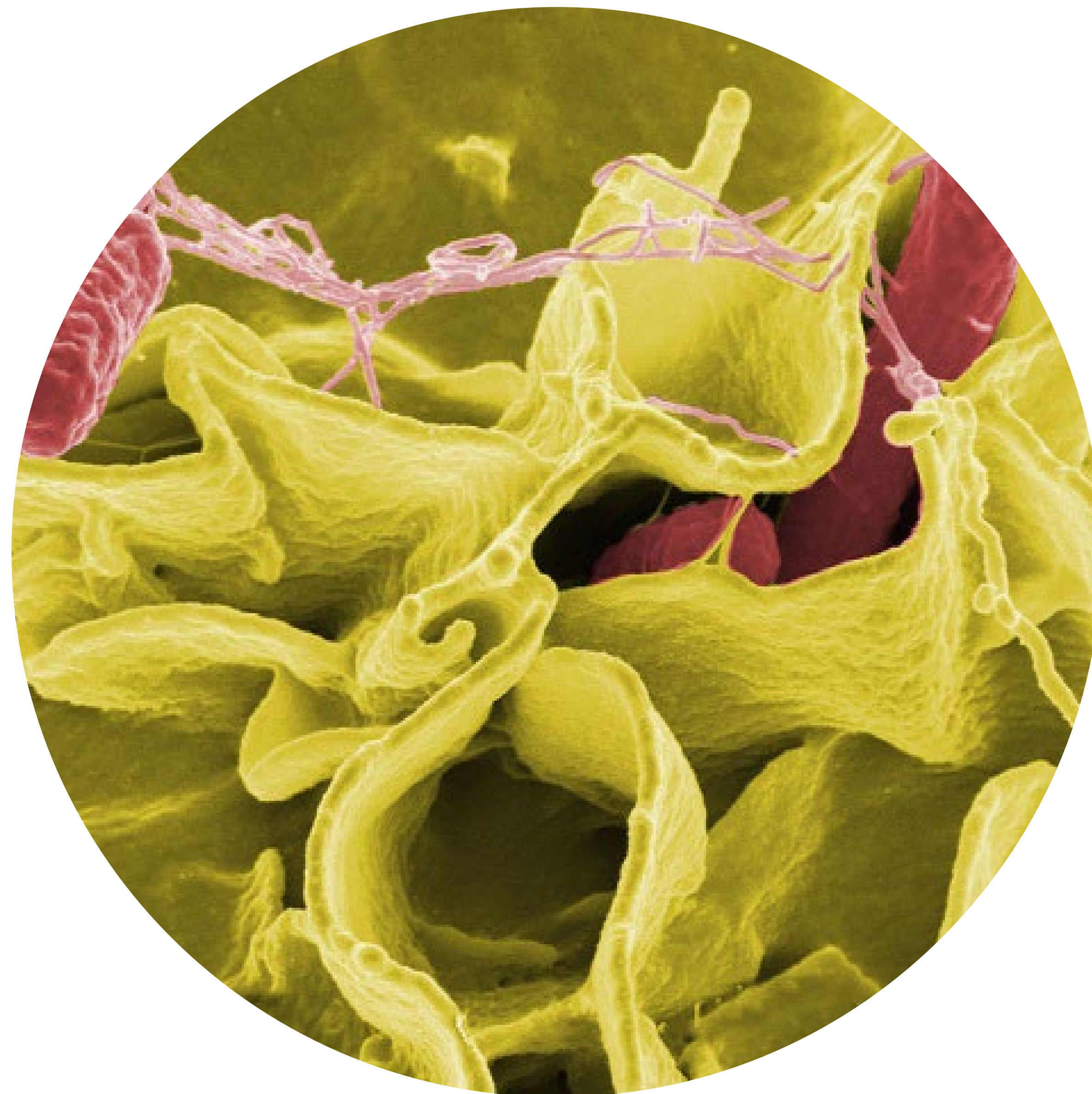
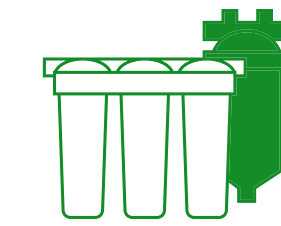
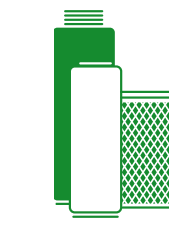
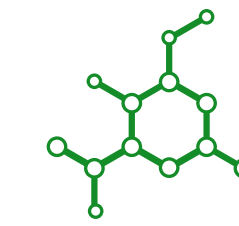


BACTERIA AND VIRUSES REMOVAL



Test strains of bacteria and viruses typical for water supply networks were selected for testing.

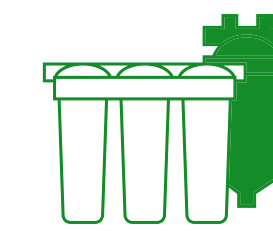
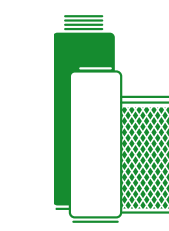
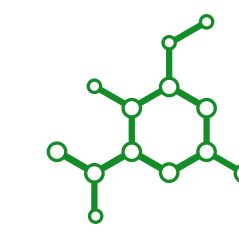
- Salmonella
- Legionella pneumophila
- Poliovirus strain Sabin type 1
- Hepatitis A
- Rotavirus



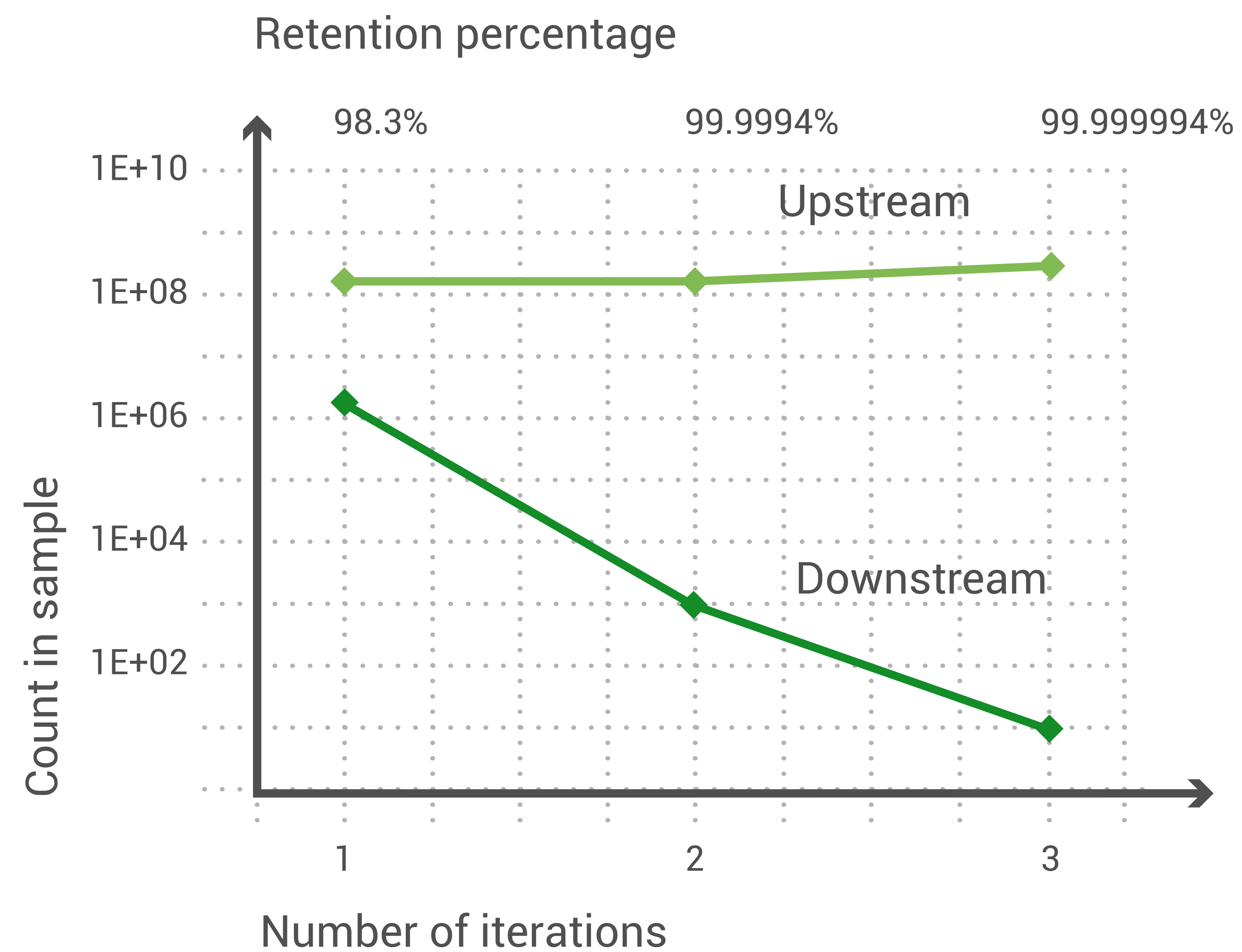
BACTERIA AND VIRUSES REMOVAL SALMONELLA

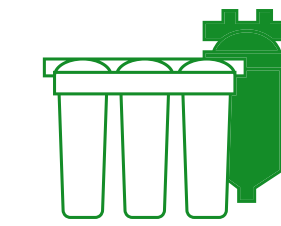
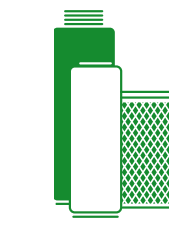
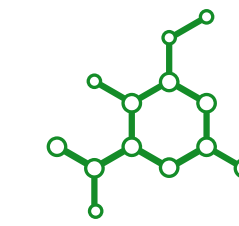
Salmonella is a mouse typhoid causative agent. Non-spore-forming rod-shaped bacteria. Length 1-7 μm ; width about 0.3-0.7 μm . Salmonella bacteria are gram-negative mobile facultative anaerobic bacilli.

Growth and counting medium: Trypticase soy agar.



BACTERIA AND VIRUSES REMOVAL

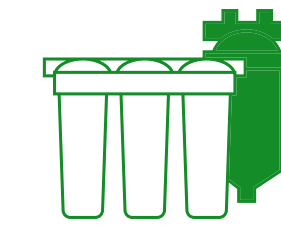
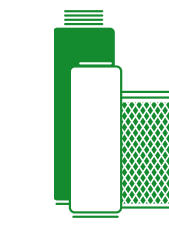
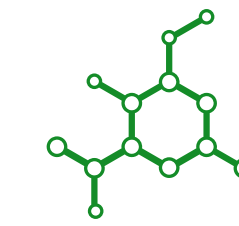




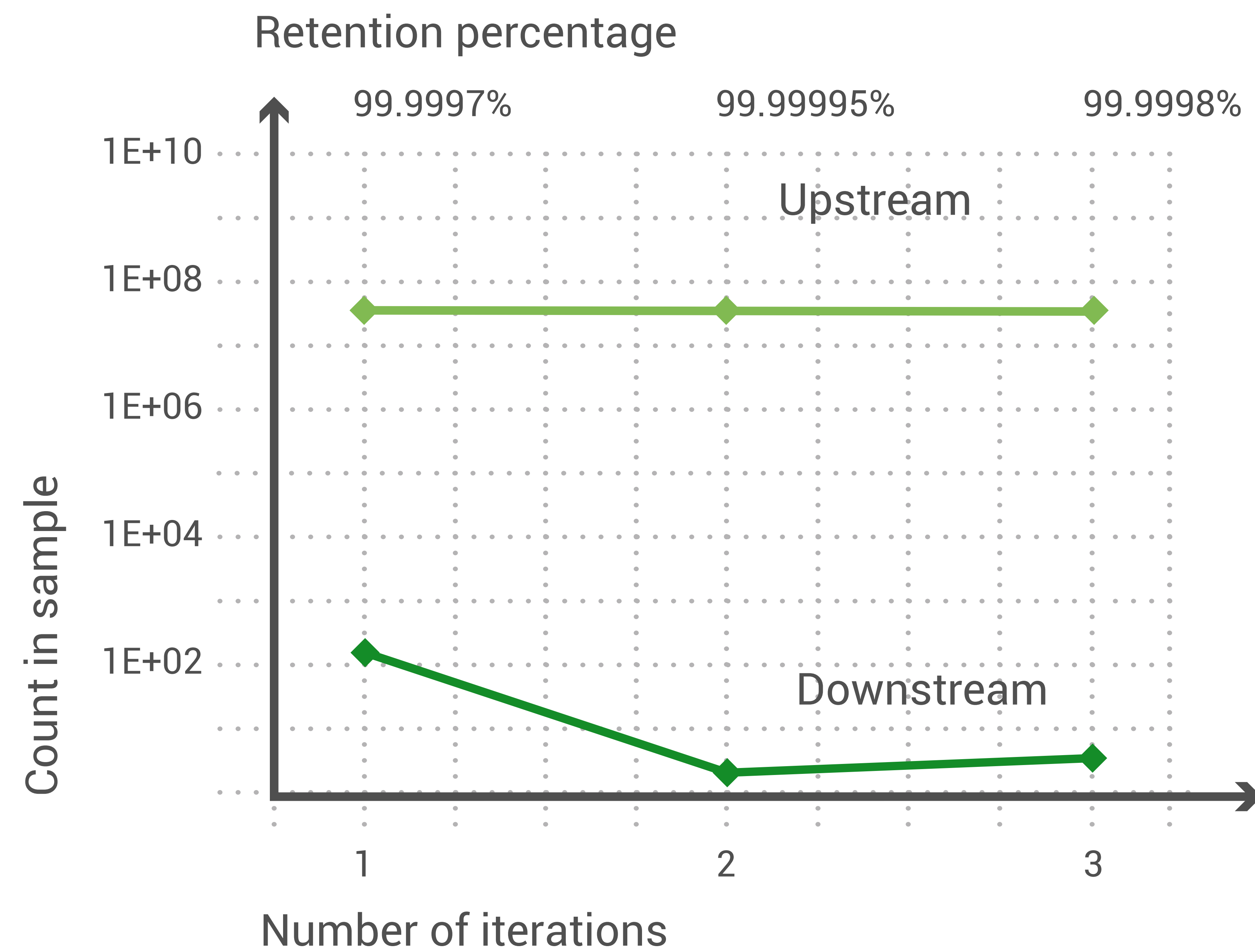
STRAINS AND MEDIA BACTERIA LEGIONELLA PNEUMOPHILA

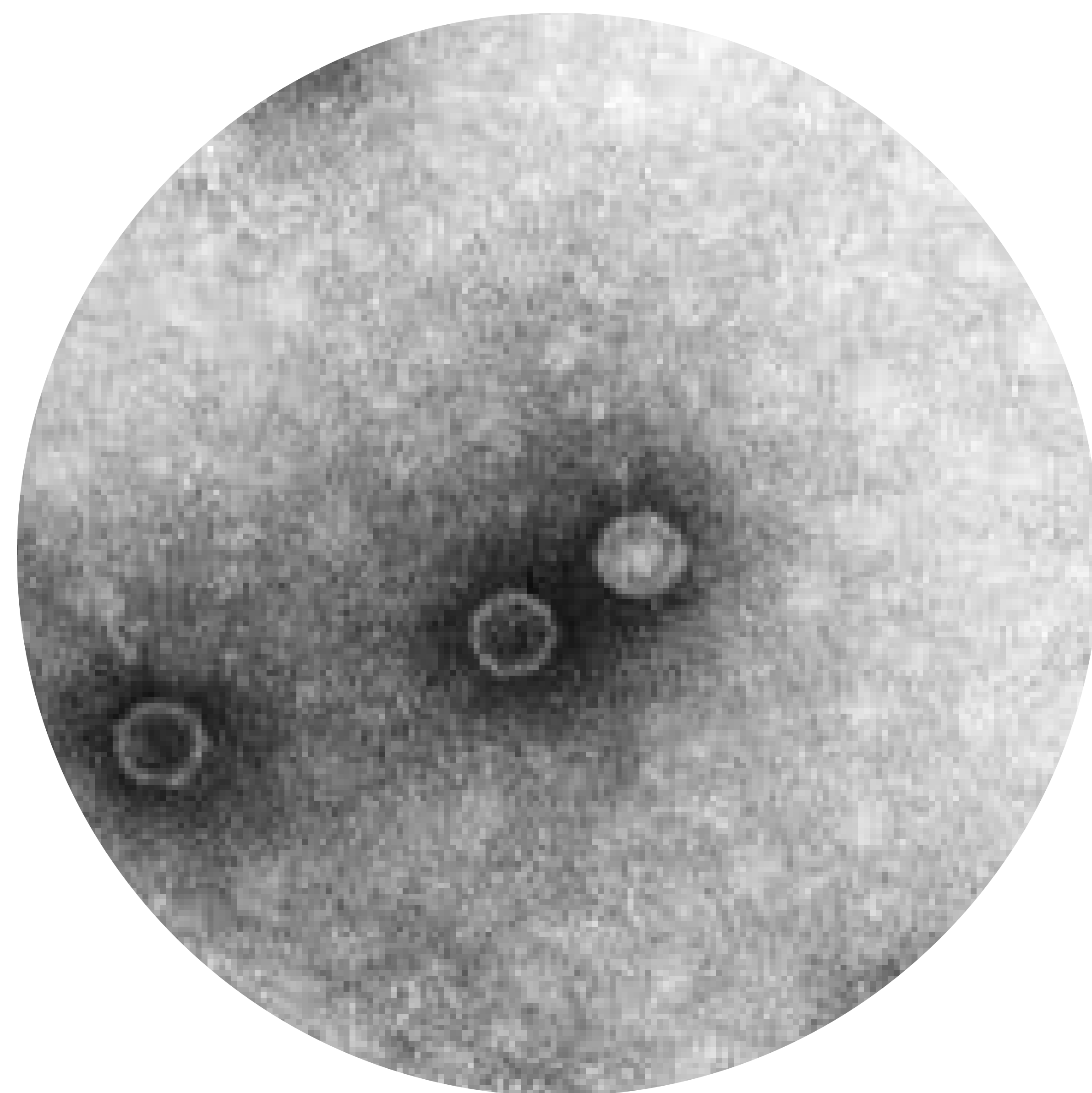
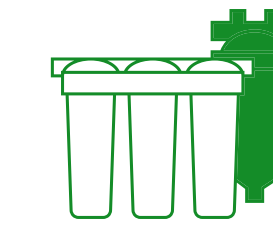
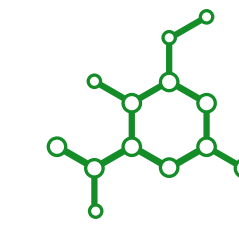
Legionella pneumophila –
pathogenic gram-negative bacteria.
Diameter: 0.2 to 0.7 μm ,
length: 2 to 20 μm .

Legionellosis (Legionnaires' disease) has been known since 1976 when it appeared as ARVI outbreak with severe pneumonia and high lethality among participants of the "American Legion" Veteran Organization's congress in Philadelphia. 182 persons of 4400 congress participants became ill, 29 of them died. This is when the disease was called the "Legionnaires' disease". In most cases the causative agent of the disease is Legionella pneumophilla. The habitats of legionella are fresh water bodies and soil, water supply and air conditioning systems in buildings, boilers and shower facilities, fountains, etc.



REMOVAL OF LEGIONELLA



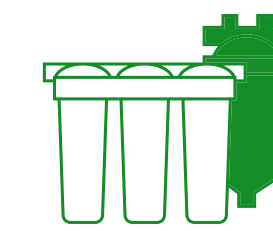
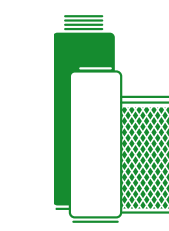
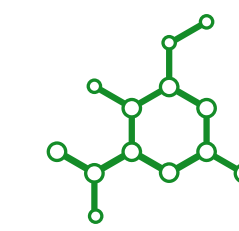


STRAINS AND MEDIA

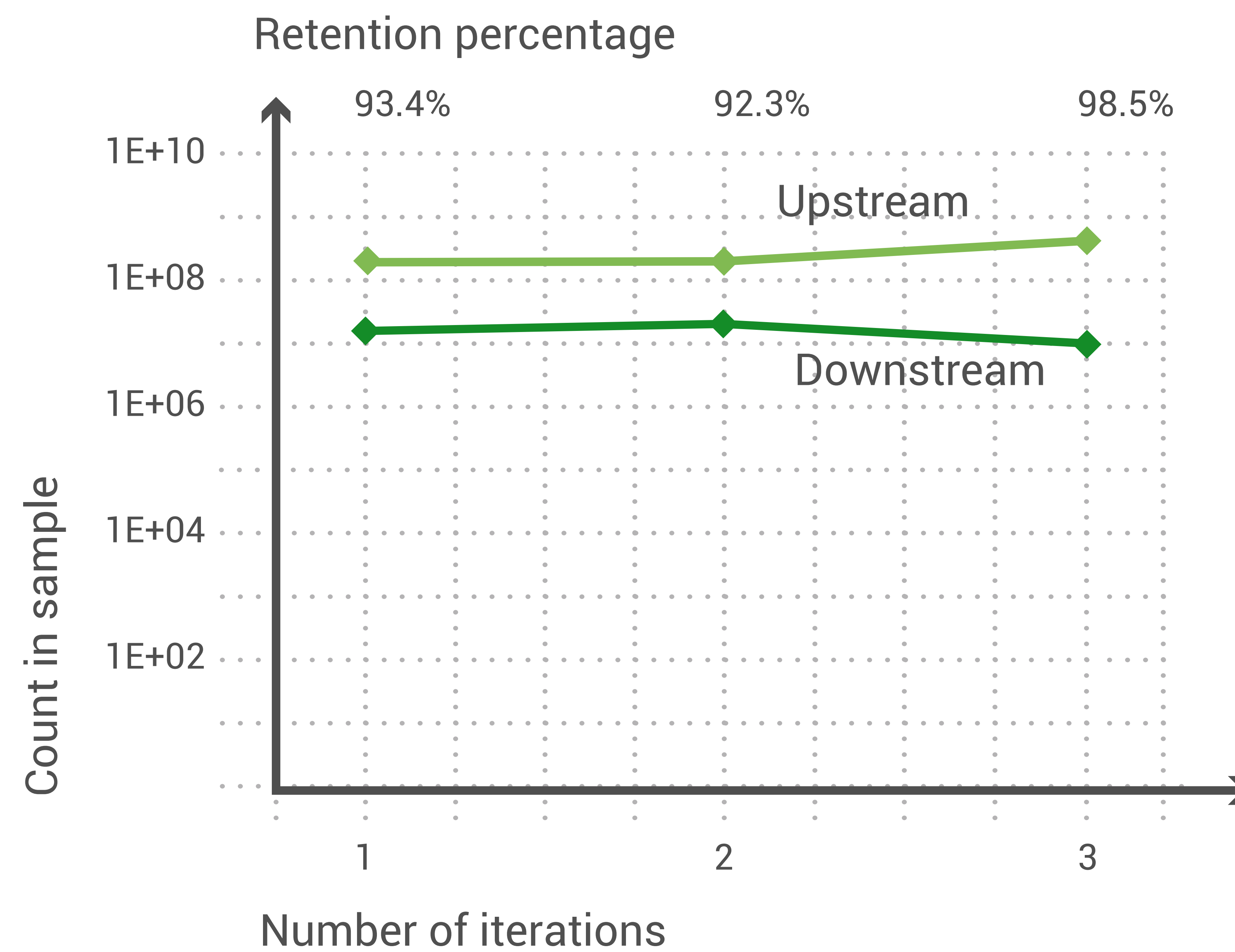
VIRUSES

POLIOVIRUS

Poliovirus is a human enterovirus and member of the family of Picornaviridae.
Virus size: 27-30 nm.

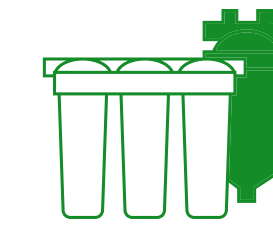
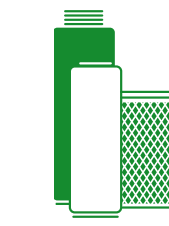
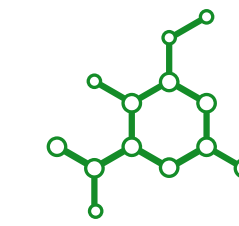
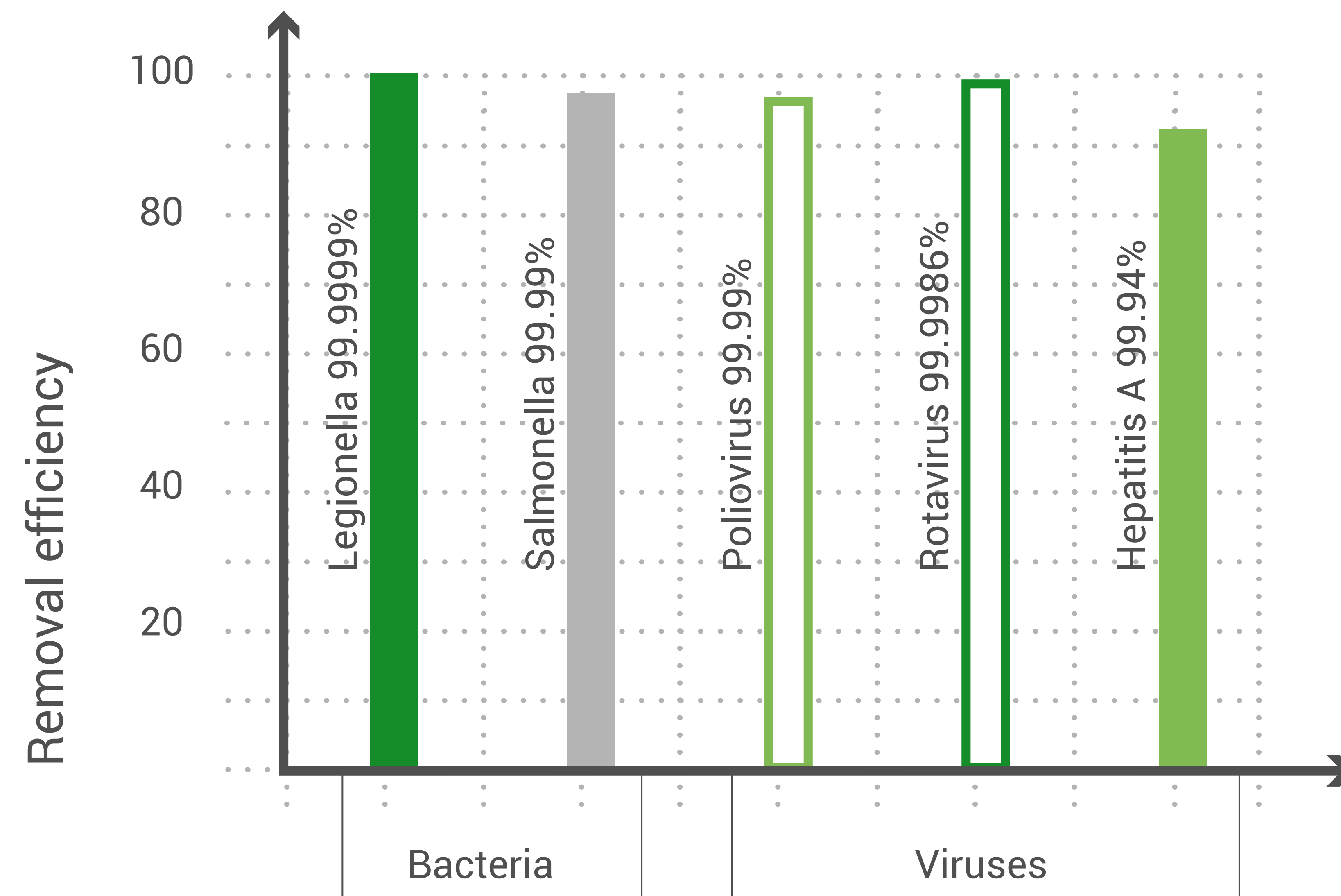


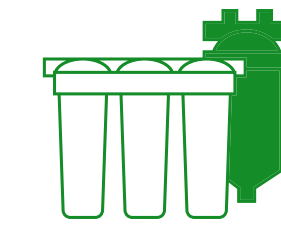
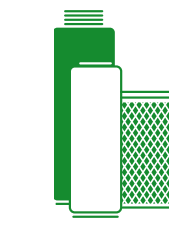
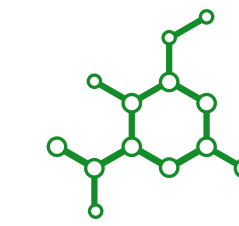
REMOVAL OF HEPATITIS A





BACTERIA AND VIRUSES REMOVAL EFFICIENCY





Institut Pasteur de Lille
Unité de Sécurité Microbiologique – Microbiological Safety Unit
1 rue du Professeur Calmette – BP 245 – 59019 Lille Cedex – France

REMOVAL OF MICROORGANISMS FROM WATER BY GEYSER FILTERS

According to a test protocol based on filtration of artificially contaminated ultrapure water, GEYSER filters ARAGON BIO were able to remove bacterial and viral contamination with the following values (obtained in separate experiments):

- *Legionella pneumophila* serogroup 1 (CIP 103854), mean removal 99.99987% (5.9 log)
- *Salmonella* Typhimurium (ATCC 14028), mean removal 99.998% (4.8 log)
- Poliovirus strain Sabin type 1, mean removal 99.84% (2.8 log)
- Rotavirus strain simiens SA114F1, mean removal 99.99% (4.0 log)
- Hepatitis A virus strain HM175/18f (ATCC VR-1402), mean removal 96% (1.4 log)

Lille, September 3rd, 2014



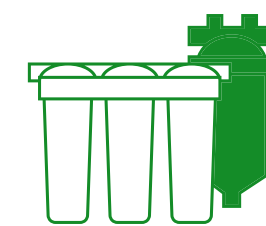
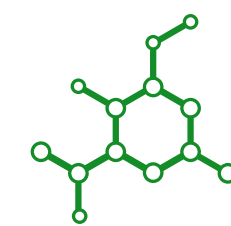
Dr. Michèle Vialette
Head of the Microbiological Safety Unit
Institut Pasteur de Lille

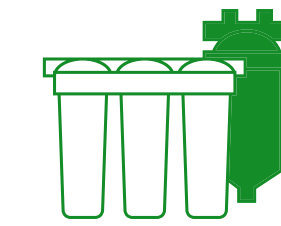
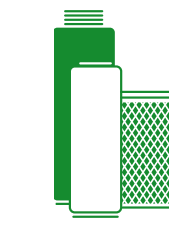
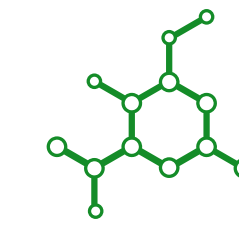


TESTING REPORT OF INSTITUT PASTEUR DE LILLE, FRANCE

ONCLUSION:

Geyser filters were able to remove the tested bacteria from water, with log removal ranging from 5,3 to 7,3. Virus removal efficiency was lower - with average log removal of 2.8 for poliovirus, 4,0 for ratavirus and 1,4 for Hepatitis A.

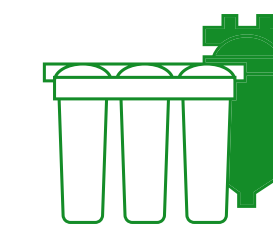
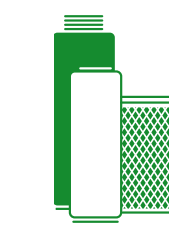
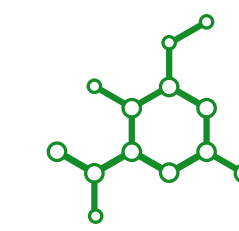




FILTERELEMENT ARAGON



WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Iron-rich water	Ion-exchange polymer material Aragon in H ⁺ modification	Used for pH improvement in filters for iron-rich water. Feed water temperature +4...+75°C	



ARAGON



WATER TYPE

Iron-rich water

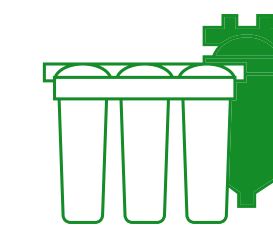
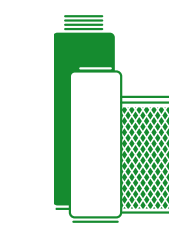
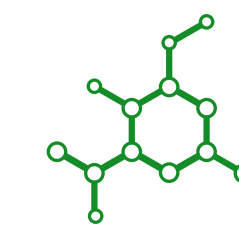
COMPOSITION

Ion-exchange polymer material Aragon in H⁺ modification

FUNCTION

Used for pH improvement in filters for iron-rich water.
Feed water temperature +4...+75°C

APPLICATION



ARAGON H



WATER TYPE

COMPOSITION

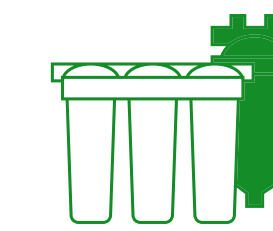
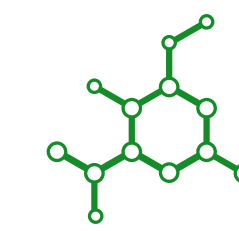
FUNCTION

APPLICATION

Hard water

Ion-exchange polymer material Aragon in Na⁺ modification

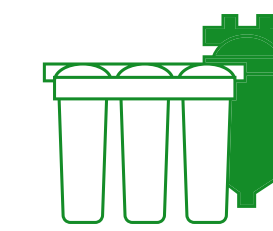
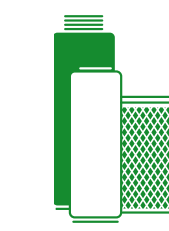
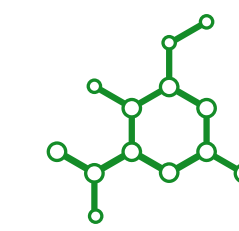
Overall removal of iron, heavy metals and hardness salts.
Feed water temperature +4...+75°C



ARAGON M



WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Soft water	Ion-exchange polymer material Aragon in Ca+ modification	Does not remove hardness salts from water, preserves natural mineral balance. Feed water temperature +4...+75°C	



ARAGON EM



WATER TYPE

Soft water

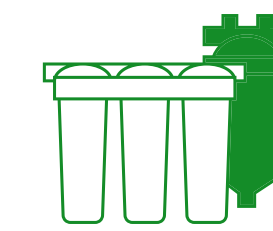
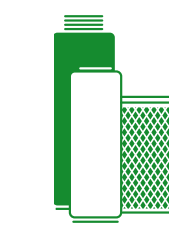
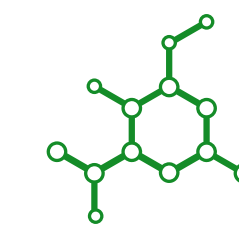
COMPOSITION

Ion-exchange polymer material Aragon in Ca+ modification

FUNCTION

Does not remove hardness salts from water, preserves natural mineral balance.
Feed water temperature +4...+75°C

APPLICATION



ARAGON EH



WATER TYPE

COMPOSITION

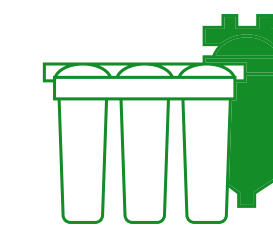
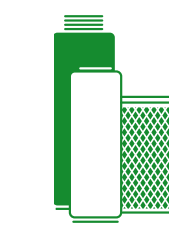
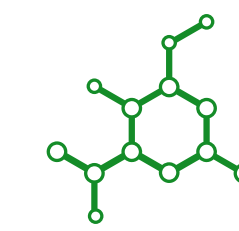
FUNCTION

APPLICATION

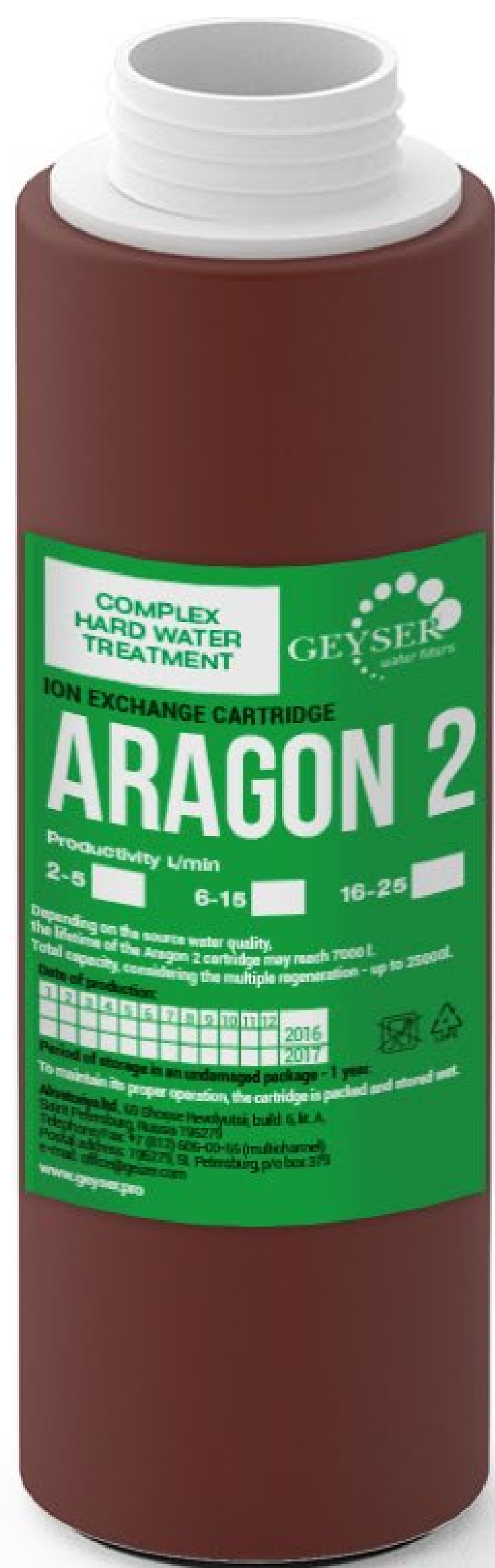
Hard water

Ion-exchange polymer material Aragon in Na⁺ modification

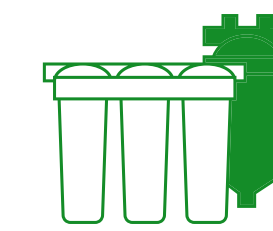
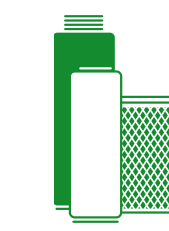
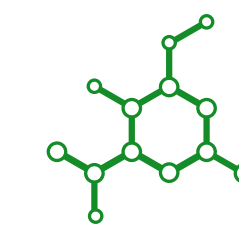
Overall removal of iron, heavy metals and hardness salts.
Feed water temperature +4...+75°C



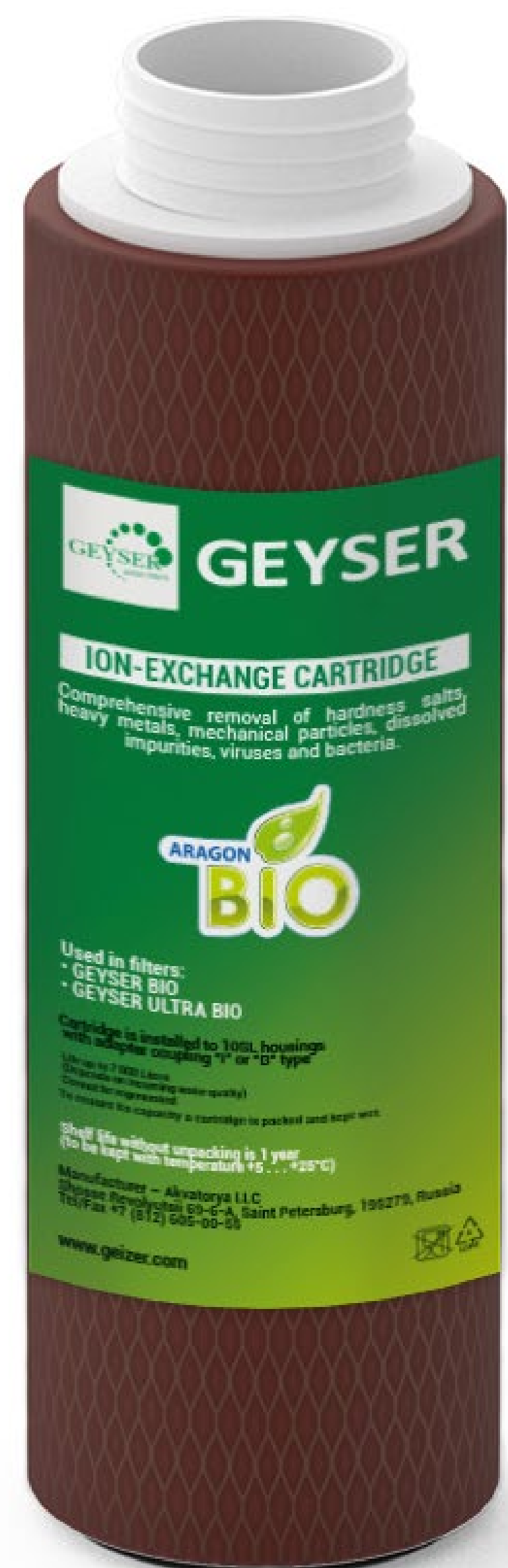
ARAGON 2



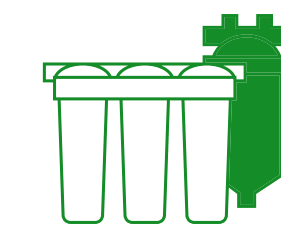
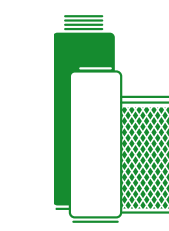
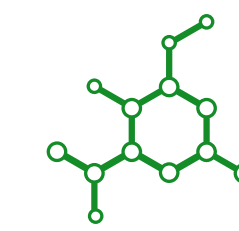
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Hard water	Aragon H and cation-exchange resin combined cartridge	Five-fold increase in hardness salts removal capacity compared to cartridge Aragon H. Feed water temperature +4...+75°C	



ARAGON BIO



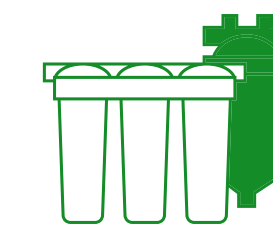
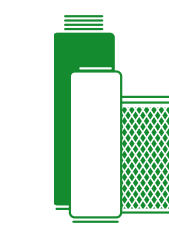
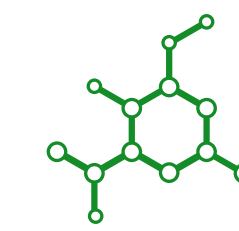
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Soft/ hard water	Modification of cartridge Aragon with a high surface charge (ζ -potential)	100% removal of bacteria and viruses. Used in systems Geyser Bio, Ultra Bio. Feed water temperature +4...+75°C	



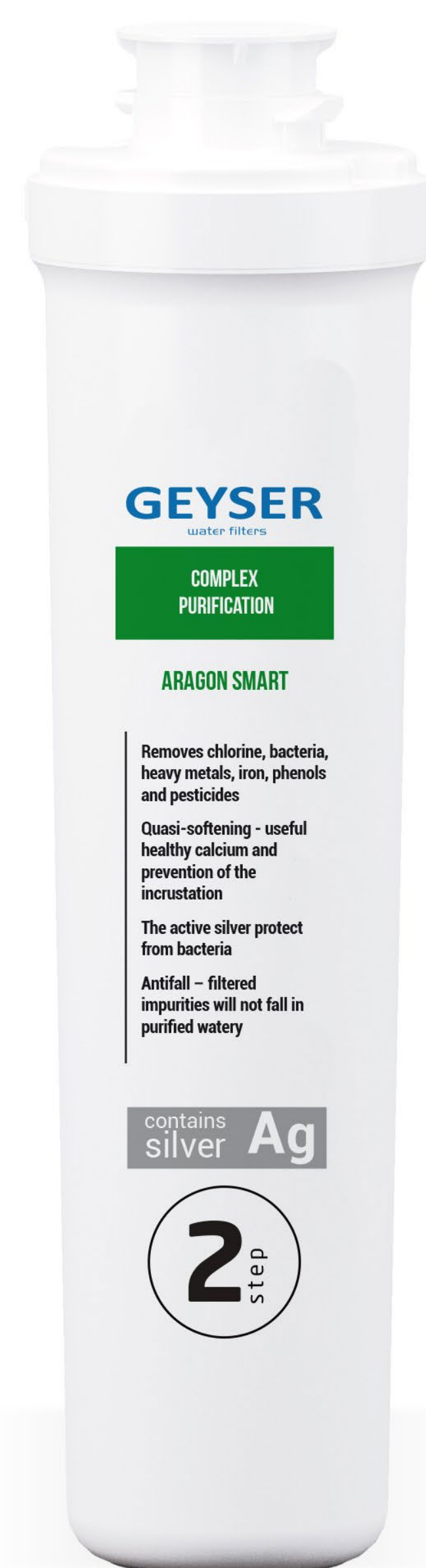
ARAGON MAX



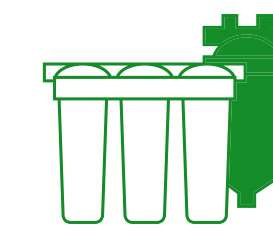
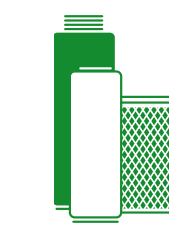
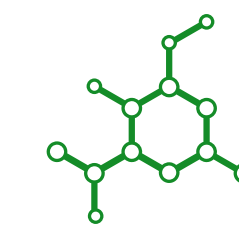
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Hard water	Aragon and special ion-exchange resins combined cartridge	Enlarged filtration area provides a high capacity and uniform softening. Filter life is up to 12 months without regeneration. Used only in combination: Aqua Soft, Aragon Max and CBC. Feed water temperature +4...+75°C	



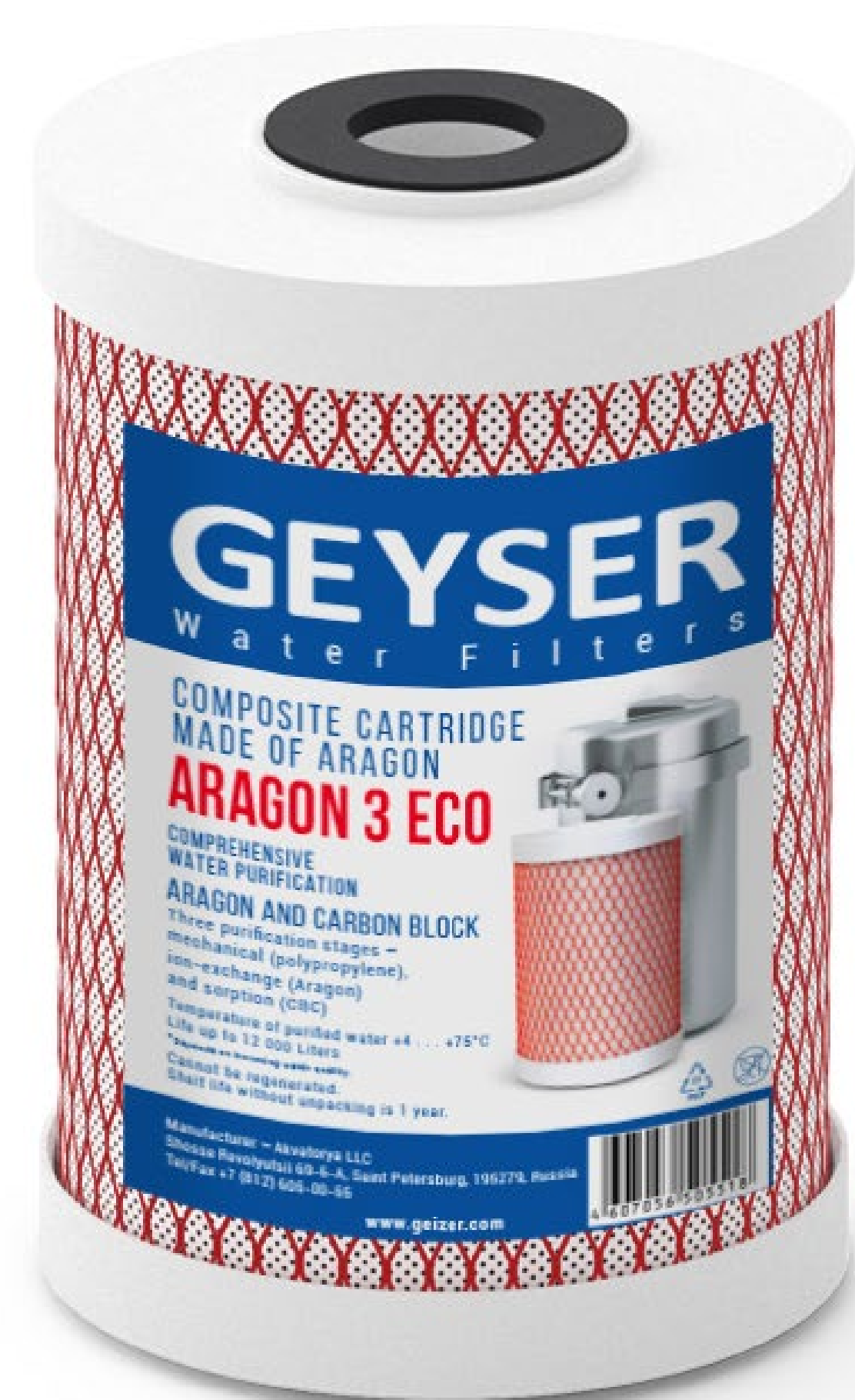
ARAGON SMART



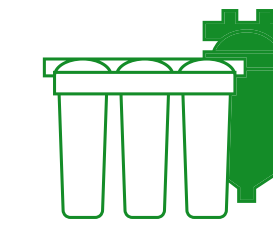
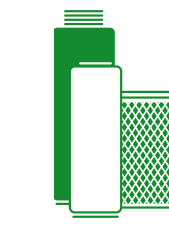
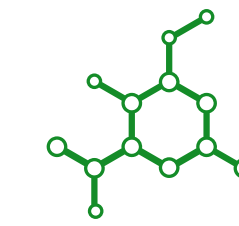
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Hard water	Ion-exchange polymer material Aragon in Na+ modification	Overall removal of iron, heavy metals and hardness salts. Feed water temperature +4...+75°C	



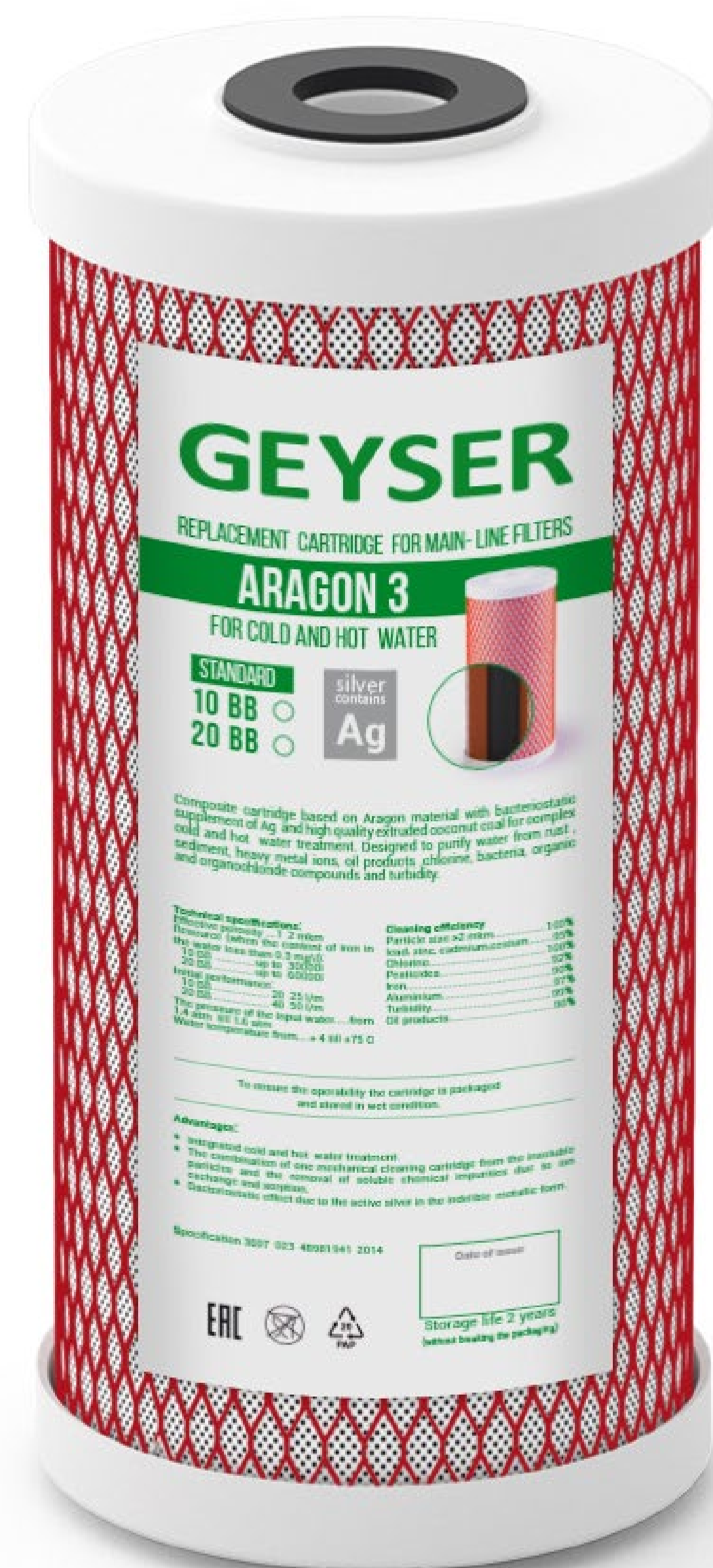
ARAGON 3 ECO



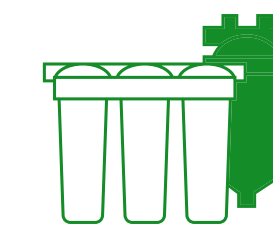
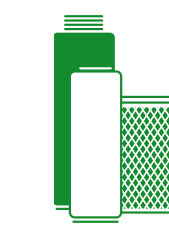
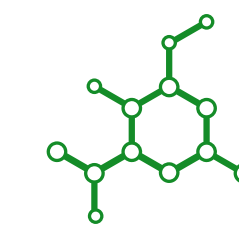
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Soft, hard water	3-layer combined cartridge from polypropylene prefilter (5 µm), Aragon (0,1µm) and carbon block (10 µm)	Comprehensive water purification. Used only in Geyser Eco filter. Feed water temperature +4...+75°C	



ARAGON 3 (10"BB)



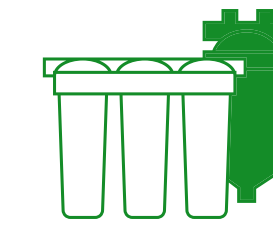
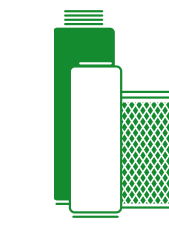
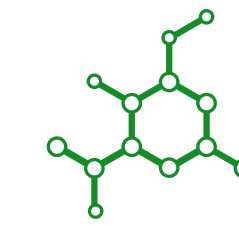
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Soft, hard water	3-layer combined cartridge from polypropylene prefilter (5 µm), Aragon (2 µm) and carbon block (10 µm)	Cartridge for in-line filters provides overall purification. Feed water temperature +4...+75°C	

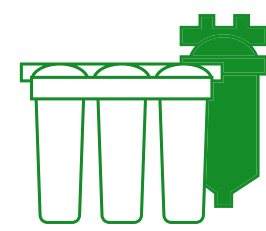
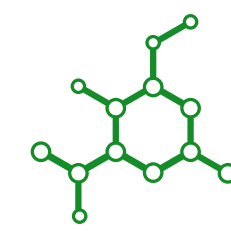


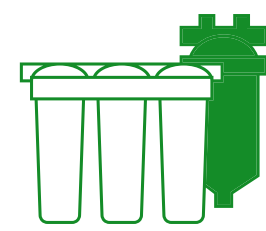
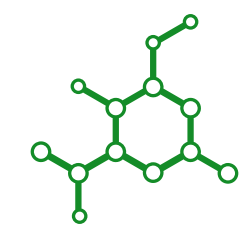
ARAGON 3 (20"BB)

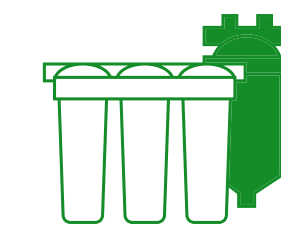
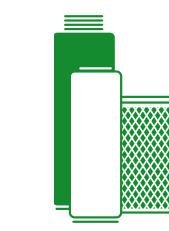
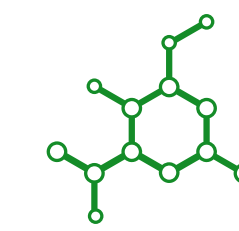
WATER TYPE	COMPOSITION	FUNCTION	APPLICATION
Soft, hard water	3-layer combined cartridge from polypropylene prefilter (5 µm), Aragon (2 µm) and carbon block (10 µm)	Cartridge for in-line filters provides overall purification. Feed water temperature +4...+75°C	

APPLICATIONS









GEYSER – EURO

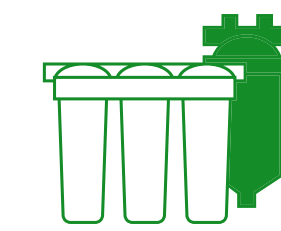
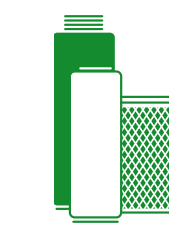
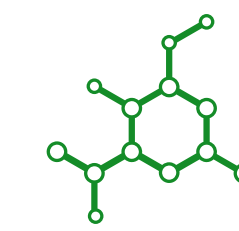
Inexpensive stylish compact filter for water filtration and conditioning. It is easily attached to any type of faucet and comes with all required adaptors.

FILTER LIFE

up to 3 000 L

CARTRIDGE





GEYSER – BIO

Geyser BIO system has no analogues in Russia.

It makes water safe to drink without boiling!

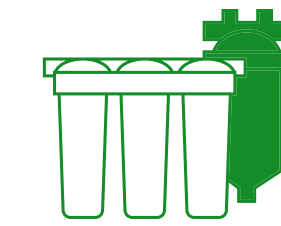
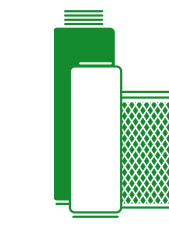
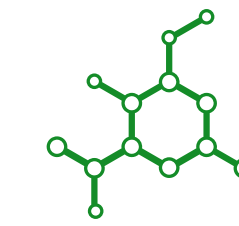
The comprehensive water purification by Geyser BIO provides potable water 100% clear of all contaminants, including bacteria and viruses.

FILTER LIFE

up to 7 000 L

CARTRIDGE





GEYSER ECO

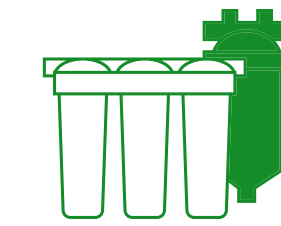
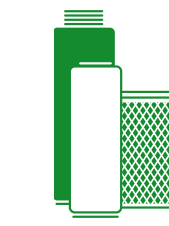
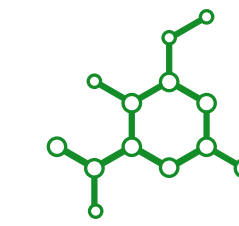
Geyser Eco - a modern effective compact system for a multipurpose water treatment. A food-grade stainless steel housing. Easily connected to a cold water pipeline with JG flexible hoses. Fast and simple cartridge replacement due to a clamp connection.

FILTER LIFE

up to 12 000 L

CARTRIDGE





GEYSER – CLASSIC

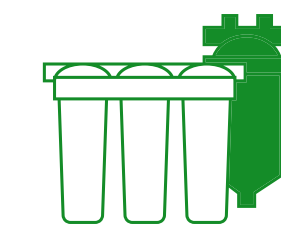
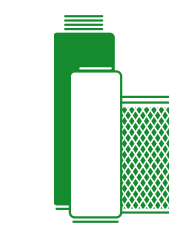
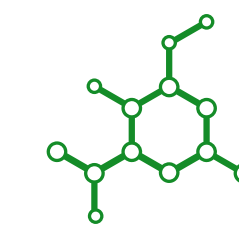
Water treatment system with an enhanced degree of purification due to the use of cartridges Aragon and BAF. The top of the filter is made in the form of a monoblock with the double-walled cups that guarantees no leakage. The cartridge installation system makes it simple to change the water flow direction - all to make installation easy!

FILTER LIFE

up to 10 000 L

CARTRIDGE





1U EURO

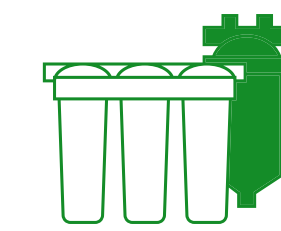
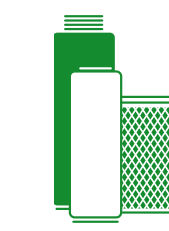
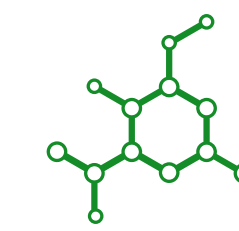
A countertop Geyser filter is a simple, economical and effective solution for tap water treatment. Installed near the sink.

FILTER LIFE

up to 7 000 L

CARTRIDGE





GEYSER – MAX

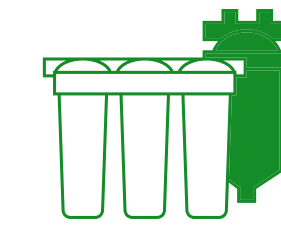
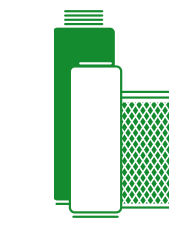
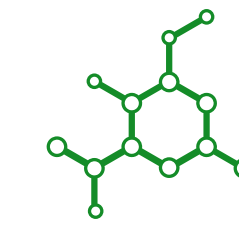
Geyser Max system is designed for hard water treatment. The combination of unique technologies "AquaSoft", Aragon Max extends the filter's life up to 1 year with no need of replacement or regeneration of the filter elements.

FILTER LIFE

up to 10 000 L

CARTRIDGE





GEYSER SMART

Geyser Smart has the so-called Qlck lock system which allows quick replacement of cartridges. Replacement of cartridge has never been easier. Perfect taste of pure water.

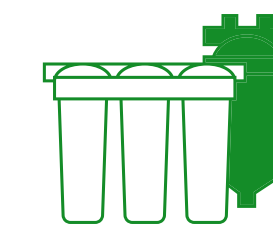
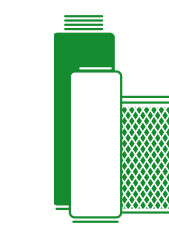
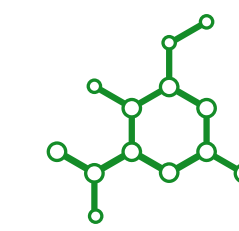
Quick cartridge replacement
Qlck lock system
Compact size

FILTER LIFE

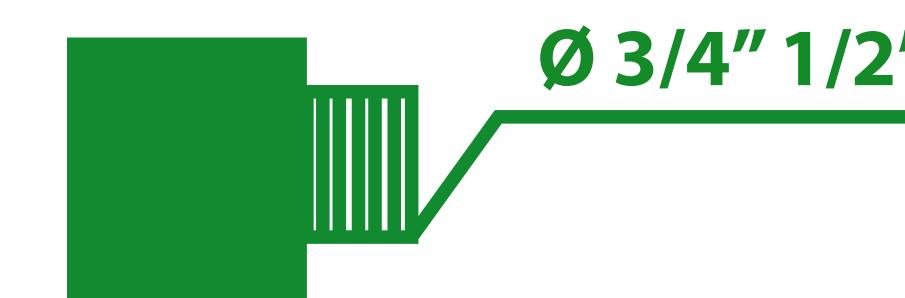
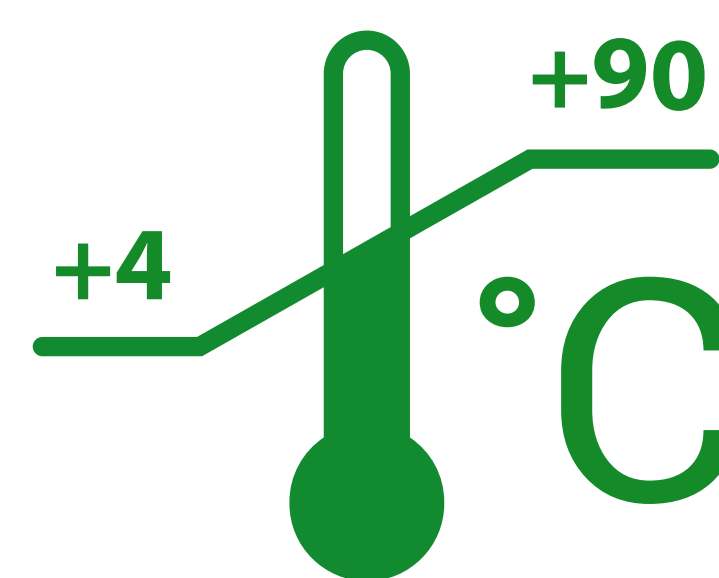
up to 10 000 L

CARTRIDGE

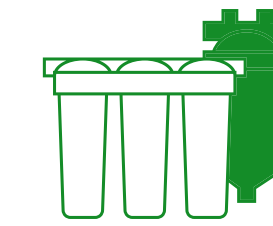
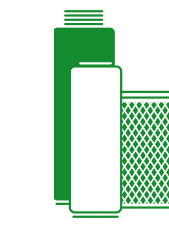
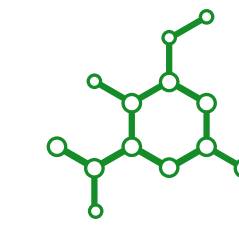




10" SLIM LINE



CARTRIDGE



GEYSER

Universal water in-line filter
TYPHOON
For installation on the pipe line of
cold or hot water

3 stage cleaning, mechanical, ion-exchange, adsorption	
Standard housing	
Specifications	
Housing material	stainless steel
Cartridge	Aragon 3
Working pressure, atm	up to 7
Temperature of cleaning water, °C	+4...+75
Height, mm	370 620
The diameter of the cover, mm	185 185
Productivity, l/min	up to 25 up to 50
Capacity, L	up to 30000 up to 60000

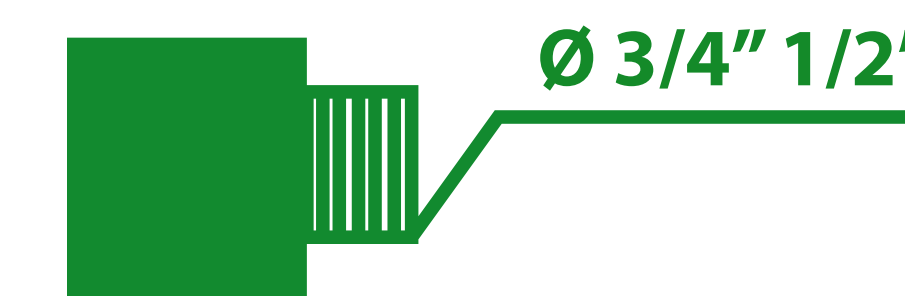
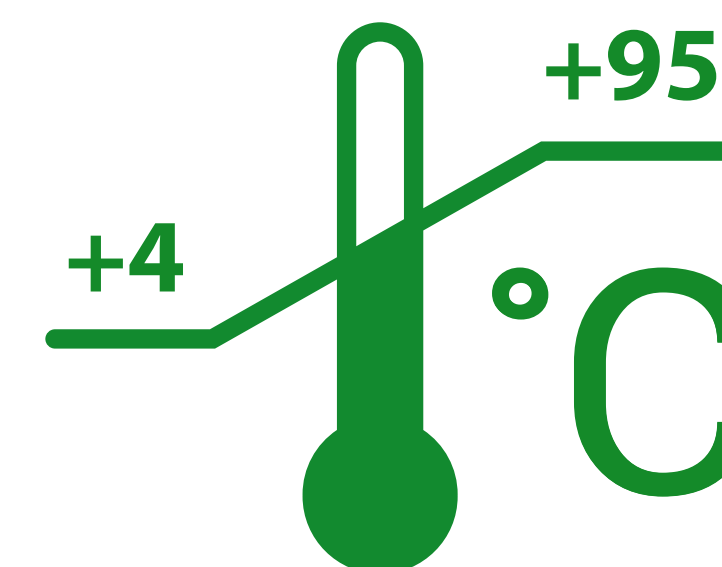
DON'T FORGET TO CHANGE THE CARTRIDGE!
Manufacturing date and storage period is indicated on the unit package

TU 3677-023-48981841-2014
MANUFACTURER: AVAKTORIYA LTD.,
69 Shosse Nevskiyts, build. 6, lit. A,
Saint Petersburg, Russia 195279
Telephone/Fax: +7 (812) 695-50-55 (multichannel)
Postal address: 195279, St. Petersburg, p/o box 379
e-mail: info@geyser.com
www.geyser.pro

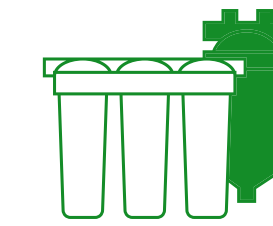
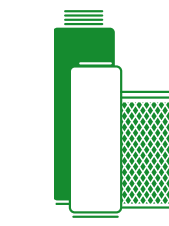
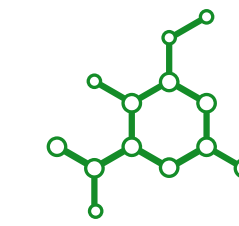
ERC

TYPHOON 10" BIG BLUE

- Bottom water discharge - easy and safe replacement of cartridge.
- Clamp connection of the cap.



CARTRIDGE

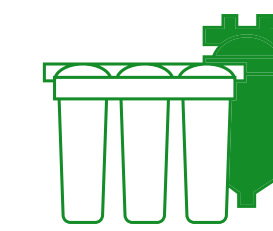
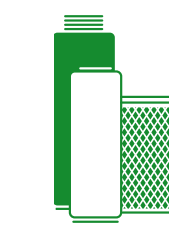
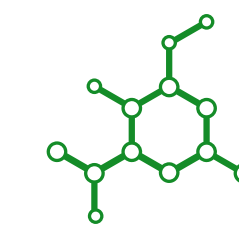


TYPHOON 20" BIG BLUE

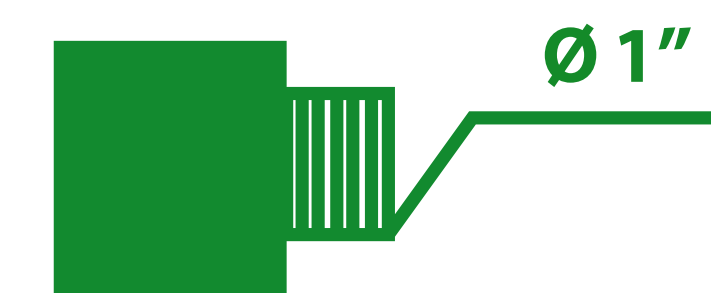
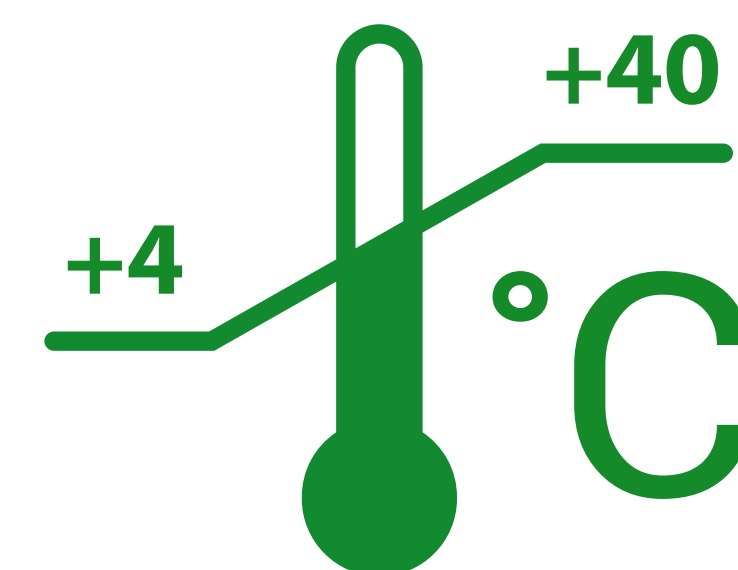
- Bottom water discharge - easy and safe replacement of cartridge.
- Clamp connection of the cap.



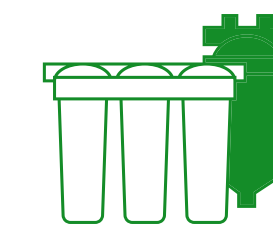
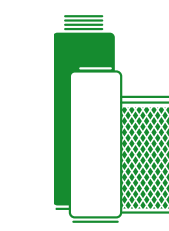
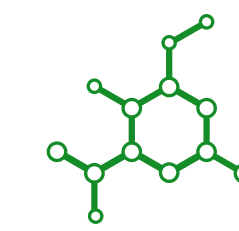
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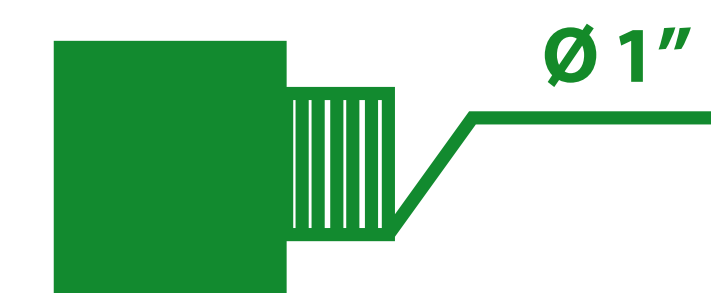
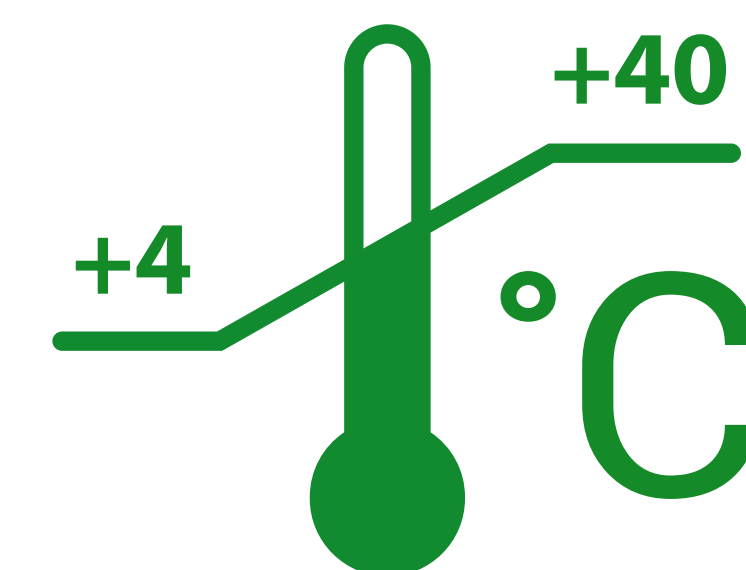
20" BIG BLUE



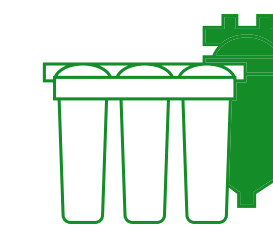
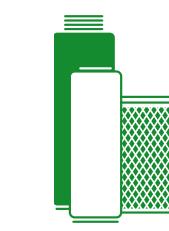
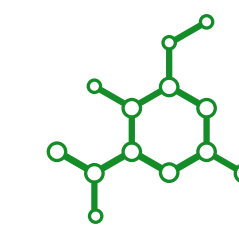
CARTRIDGE



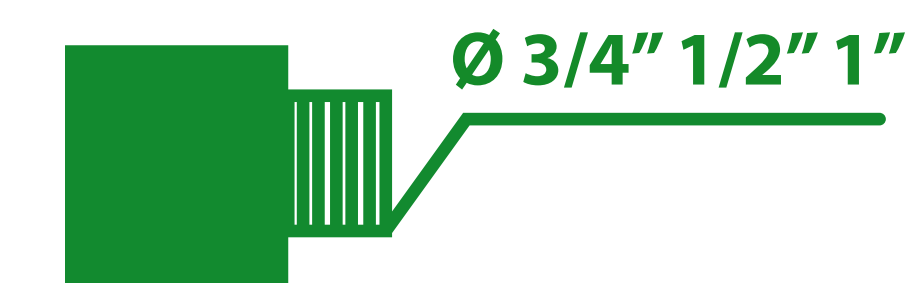
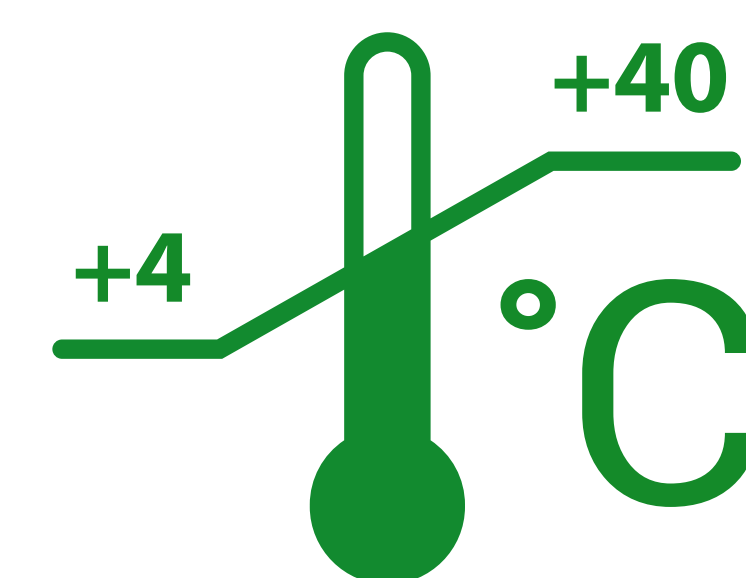
10" BIG BLUE



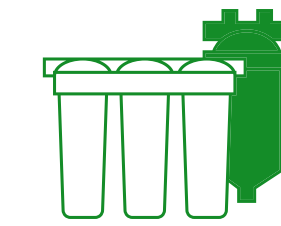
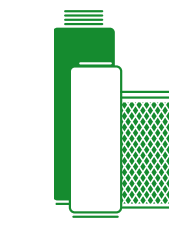
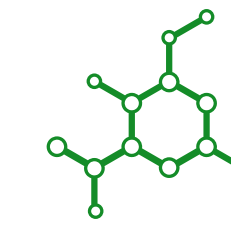
CARTRIDGE



10" SLIM LINE



CARTRIDGE



ADVANTAGES

All filtered out impurities are permanently captured in the labyrinth structure of the cartridge.

A drop of filtered water's pressure is a signal for replacement or regeneration of the cartridge.

Integrated into the cartridge in an unwashable form has an absolutely safe bacteriostatic effect. It is not washed out into the filtered water and guarantees 100% protection against reproduction of filtered out microorganisms.

Allows comprehensive water treatment in the temperature range of +4 to +75°C.

Removal of different groups of contaminants by using several treatment methods simultaneously allows to purify water from all harmful impurities.

A quality of the Aragon cartridge to transform the hardness salts' structure into aragonite - a healthy well absorbed form of calcium.

The cartridge creates an electric field which destroys the viruses' protection cover.

Home-made recovery of the cartridge's filtration properties allows to use one cartridge multiple times.

GEYSER

w a t e r f i l t e r s