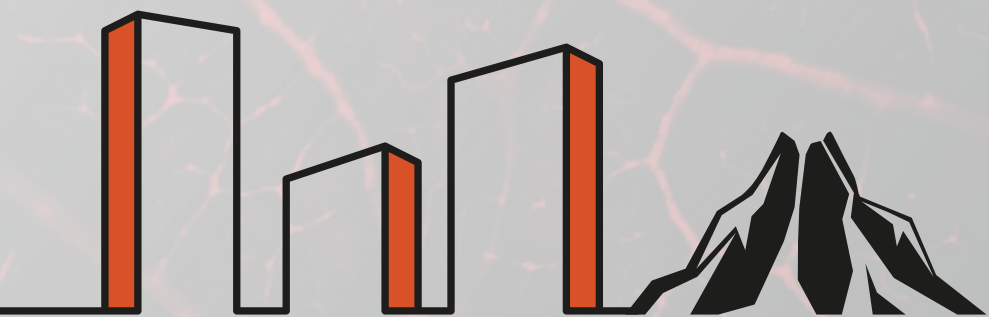




WATAD ZEOLITE

THE BOILING STONE

UNIQUE... MARVELOUS... WITHOUT COMPROMISING...



2019 »



AL WATAD AL ARABI
الواتد العربي

Specialized company founded for the exploration of basalt ores in the Al-Halabat Al-Azraq region.



Specialized logistics company for air, sea, and land freight to support the activities and expansion of the group.



Company specialized in marketing basalt, silica, and stones and processing them to cater to various industries.



A real estate development company that manages real estate portfolios for both global and local companies, as well as investors.

2020

2023

2024



The largest and the most modern volcanic soil company in Jordan and Middle East, which has the latest production line equipment factory in Al-Mafraq area in Jordan.



WATAD Transport. Specializing in a spectrum of transport services in Jordan.



Leading producer and supplier of the highest quality of silica products.

OUR BRANCHES :



- Opening of 3 branches in the Middle East:
- WATAD INTERNATIONAL – Doha, Qatar
 - WATAD GREEN – Riyadh, KSA
 - WATAD MINNING – Dubai, UAE

ABOUT WATAD GROUP

Since our founding in 2019, we have evolved from a family business operating in Mining to one of Jordan's largest companies. Today, the group owns multiple companies, quarries, and factories. With covering all aspects from mining, agriculture, transporting, manufacturing and trading, real estate, and shipping.

WATAD Group is producing and exporting high quality to almost 20 different countries. Our Greatest aim always has been to maximize and maintain esteemed clients' 100% satisfaction.

- **OUR GOAL**

To maximize and maintain satisfaction of our respectable customers.

- **AMBITION 2030**

To become the world benchmark for the sectors and services we provide.

With advanced organizational structure and high-level of technology, WATAD supplies high-quality and unique services to its clients all over the world. Our customers benefit from our export quality record that meets global standards.



April 16th, 2024

WATAD was honored by His Majesty King Abdullah II bin Al-Hussein with the Silver Jubilee Medal in view of what we offer to our beloved country, Jordan.

**“Our Society deserves the
best services and the
highest quality products”**



**King Abdullah II Awarding
Chairman "Mohannad Al Manaseer"
Silver Jubilee for Agricultural Development**

بسم الله الرحمن الرحيم

عبد الله



نحن بنعمة الله عبد الله الثاني ابن الحسين ملك المملكة الأردنية الهاشمية

تقديرًا للدور الريادي الذي تقوم به شركتكم ونذكر الزراعة، ولما عرفنا في الثمانين على
إدارتها والعاملين فيها من إخلاص لنا، وذلك لبيتنا الهاشمي، ولانتماء للوطن العزيز، ولدورها
في قطاع الاسمدة الزراعية وإنتاج التربة الزراعية البديلة فلاس الجوده العاليه، وبمناسبة
استقلال مملكتنا الزاهرة باليوبيل الفضي لتعلمنا سلطاتنا الدستورية وجلوسنا على العرش
فقد أضعنا عليها بعبء اليوبيل الفضي، وأمرنا بإصدار هذه البراءة من يدينا الملكي
الهاشمي إيزانا بذكر.

صدر عن قصرنا بسماك الزاهر في حماك في اليوم العاشر من شهر شوال سنة
الخمسة وأربعين وخمسة وأربعين هجرية الموافق لليوم العاشر من شهر نيسان سنة
الفين وأربع وخمسين ميلادية.

بأمر جلالة مولاي الملك المعظم

رئيس الديوان الملكي الهاشمي



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THE BOILING STONE

UNIQUE... MARVELOUS... WITHOUT COMPROMISING...



INTRODUCTION

ABOUT US

Located in Jordan, WATAD Zeolite stands as a premier company renowned for its mining operations and provision of the purest zeolite.

Zeolite, a mineral valued for its diverse industrial and agricultural applications, is meticulously extracted by WATAD Zeolite, ensuring unparalleled purity and quality.

Beyond mining, the company offers a spectrum of services tailored to meet the varied needs of its clients. From product customization to expert consultation.

WATAD Zeolite remains dedicated to delivering excellence in both product and service.



ZEOLITE QUARRY

WATAD takes pride in owning the largest quarry in the Middle East for zeolite, tuff, and pozzolana. In addition, WATAD has produced volcanic soil mixtures from these stones to supply our clients with a diverse range of high-quality natural soil products that can be used in many fields.

These quarries are located in Al Safawi, Jordan, with a total area of 400.00 square meter. Our quarries are known for the huge quantities and high quality of the products, they are equipped with the required production lines for mining, crushing and grinding while considering all occupational safety requirements.

Volcanic Stones Types

- Zeolite
- Zeolitic Tuff
- Pozzolana

The image shows a vast desert landscape. In the foreground, there is a large, textured sand dune. In the middle ground, a prominent sand dune with a sharp peak is visible. The background features a flat desert floor extending to a distant horizon under a clear, light blue sky. The entire image has a warm, orange-red color overlay.

**— OUR CAPACITY IS —
100 MILLION TONS**

QUALITY CONTROL – QUALITY ASSURANCE

At WATAD Zeolite, our commitment to quality control is paramount in every facet of our operations. Through a comprehensive system that spans from extraction to distribution, we meticulously monitor and evaluate each step to ensure the purity, consistency, and performance of our zeolite products.

Utilizing advanced testing equipment and procedures, we conduct rigorous chemical analysis, physical property assessments, and thorough product testing to maintain compliance with customer specifications and regulatory standards.

Continual process optimization and our efforts to enhance efficiency minimize waste while upholding the exceptional defines

innovation drive
waste while
WATAD Zeolite.

QUALITY CONTROL
QUALITY ASSURANCE



To do this, we have placed research and innovation in the service of nature to

serves as the cornerstone of innovation and advancement in the zeolite industry.

Equipped with state-of-the-art facilities and staffed by a team of dedicated scientists and engineers, our R&D Center is committed to pushing the boundaries of zeolite technology.

Through collaborative research projects and cutting-edge experimentation, we strive to develop novel applications, improve production processes, and enhance the overall performance of our zeolite products.



ZEOLITE IMPORTANCE

We are guided by the principles of ethical behavior respect for people, safety and stewardship of our products & environment.

COST EFFECTIVE



Volcanic stones aim to attain superior performance compared to other products but at a substantially lower cost.

RESOURCE EFFICIENT



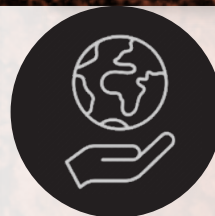
Optimize resource efficiency by carefully managing and gradually releasing nutrient content to align with the specific nutritional needs of diverse applications.

GLOBAL POTENTIAL



Natural volcanic stone segments is projected to lead the market. This is majorly due to the growing demand in various applications.

ABUNDANT INPUTS



Utilizing as a naturally abundant adsorbent, the sample, obtained from our mines in Jordan, showcases the increasing availability and eco-friendly nature of these materials.

Sourced from volcanic deposits, each piece of Volcanic Stone carries the unique imprint of geological processes.

Meticulously extracted from WATAD's reserves, ensuring premium quality and authenticity.

PROPERTIES :



Durability : Volcanic Stone is renowned for its innate durability, making it a resilient choice for various applications.



Heat Resistance: Withstands high temperatures, making it suitable for both indoor and outdoor applications.



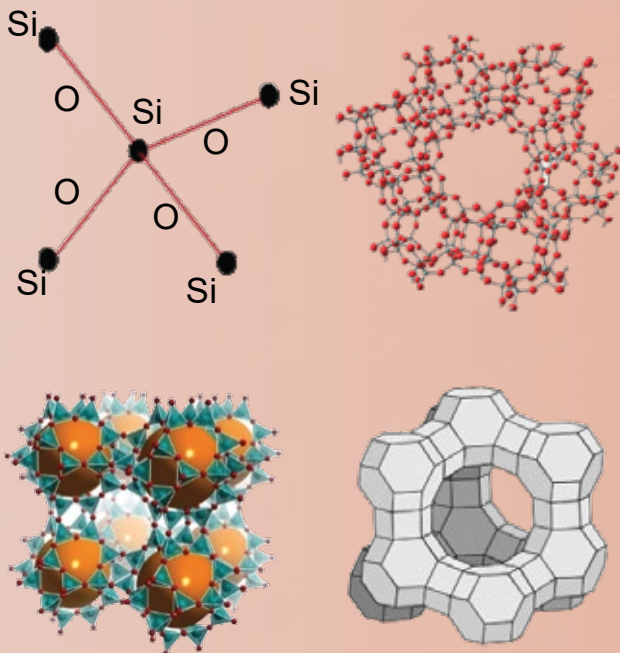
Natural Aesthetics: Distinctive textures and colors create an organic and visually striking appearance.

WHY ZEOLITE

Zeolite are hydrated aluminosilicate minerals made from interlinked tetrahedra of alumina (AlO_4) and silica (SiO_4).

In simpler words, they're solids with relatively open, three-dimensional crystal structure build from the elements aluminum, oxygen, and silicon, with alkali or alkaline-Earth metals (such as sodium, potassium, and magnesium) plus water molecules trapped in the gaps between them.

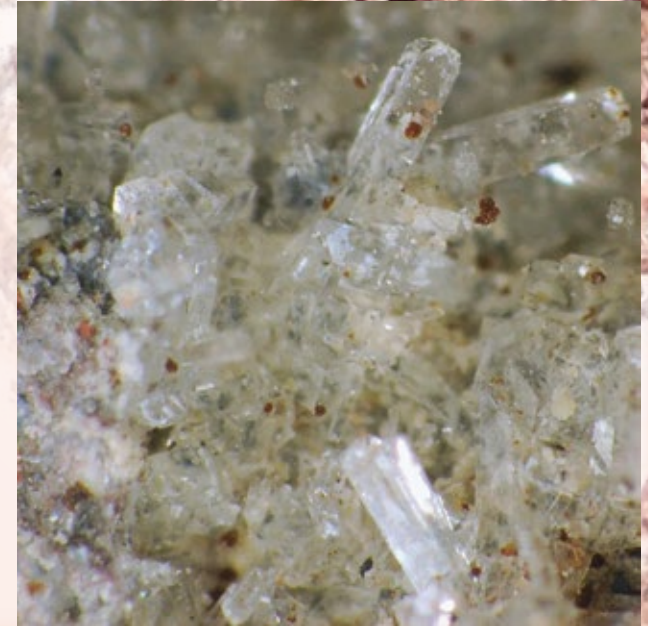
Zeolite form with many different crystalline structure, which have large open pores (sometimes referred to as cavities) in a very regular arrangement and roughly the same size as small molecules.



WHY ZEOLITE ?

- 1 Save water.
- 2 Remove toxins.
- 3 Trap odors such lingering cigarette smoke or shoestench.
- 4 Has the ability to absorb and dispel the nasty smell.
- 5 Give longer life to fresh food.
- 6 Can save on fertility consumption.
- 7 Can raise soil fertility.
- 8 Can reduce insects, fungal, and physiological diseases.
- 9 Has a high ion exchange capacity.
- 10 Removes odors in fish and relieves stress.

PHILLIPSITE



- It is a type of zeolite mineral belonging to the Aluminosilicates family.
- It has the chemical formula $(\text{Ca}, \text{Na}_2, \text{K}_2)_3\text{Al}_6\text{Si}_{10}\text{O}_{32} \cdot 12\text{H}_2\text{O}$.
- Is found in volcanic rocks formed from the reactions of volcanic magma
- in alkaline freshwater lakes.
- Phillipsite possesses a unique crystalline structure that makes it valuable in various agricultural, industrial, therapeutic, and other applications.
- It is characterized by high quality, surpassing other types of zeolites by several times.

Phillipsite الفلبسايت



Al Safawi, Jordan



Family
Aluminosilicates



Color Red

ZEOLITE PROPERTIES

Zeolite possesses several distinctive properties that set it apart from other minerals, including the following:

1

SUSTAINABILITY

Zeolite is a sustainable product that stays in the soil for more than 30 years.

2

CATION EXCHANGE CAPACITY

Zeolite has a high ion and cation exchange capacity, it is a valuable mineral in various fields. Its ability to selectively replace ions allows for the removal of contaminants or the addition of useful elements making zeolites suitable for applications.

3

WATER RETENTION

Zeolite has an exceptional ability to absorb water and moisture thanks to its unique porous structure, allowing it to retain water for long periods. This property makes zeolite an excellent choice for use in effectively meeting prolonged water needs.

4

ADSORPTION

Zeolite has exceptional adsorption/adsorption properties, which means that it can adsorb molecules on its surface, especially in gas-phase reactions, which makes it effective in many applications such as gas storage and purification, as well as chemical catalysis.

5

NITROGEN FIXATION

The high porosity, the ability of zeolite to absorb ammonia and its high oxygen content promote the growth of beneficial nitrification bacteria on the surface of zeolite granules, which convert nitrogen ions into nitrates and in turn raise the utilization factor of ground nitrogen for plants.

6

POROUS NATURE

It is characterized by high porosity that enables it to absorb and release molecules, as it has cage-like cavities and channels connected within its crystal frame.



ZEOLITE PROPERTIES

SIZES OF ZEOLITE



45 MICRON



**500- 2000
MICRON**



0-1 MM



1-4 MM



4-8 MM



8-16 MM



16-30 MM



OVERSIZE



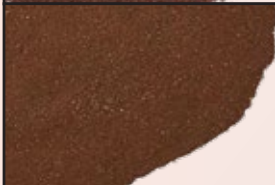
45 MICRON

Finely milled to exacting standards for optimal performance in a variety of applications. Our 45 micron zeolite exhibits exceptional purity and uniformity, making it a versatile solution for industries ranging from agriculture to environmental remediation.



500 - 2000 MICRON

It's a versatile solution across industries, from enhancing soil quality in agriculture to facilitating water filtration and pollution control in environmental remediation. Additionally, it serves as a catalyst in industrial processes, ensuring efficient operations with minimal environmental impact.



0-1 MM

High-quality 0-1 mm zeolite, meticulously sized for precise applications in agriculture, water filtration, and industrial processes. Our finely graded 0-1 mm zeolite offers excellent absorption properties and optimal porosity, ensuring superior performance in diverse environmental and industrial settings.



1-4 MM

Carefully calibrated to meet the specific requirements of various industries including wastewater treatment, gas separation, and soil amendment. It offers excellent CEC and moisture retention, making it an ideal solution for enhancing agricultural productivity and improving water quality in a sustainable manner.



4-8 MM

Used in diverse industries such as construction, petrochemical, and aquaculture. Our precisely sized 4-8 mm zeolite boasts exceptional thermal stability and ion-exchange capacity, making it an ideal choice for applications ranging from concrete additives to water treatment solutions, where reliable performance and consistent quality are paramount.



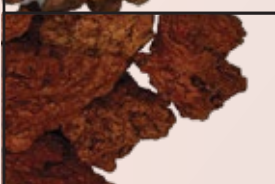
8-16 MM

Meticulously calibrated for industries like wastewater treatment, gas adsorption, and soil improvement, offers superior porosity and ion exchange properties. It serves various applications requiring efficient filtration, adsorption, and cation exchange, ensuring high-performance results and sustainable solutions.



16-30 MM

Precisely calibrated for optimal performance in water treatment, gas separation, and soil conditioning applications. With exceptional porosity and ion exchange capabilities, our zeolite ensures efficient filtration, adsorption, and cation exchange, contributing to sustainable solutions and superior outcomes across diverse industries.



OVERSIZE

WATAD zeolite particles over 30 mm are specifically suited for applications requiring larger sizes, such as construction, landscaping, and soil stabilization. With their robust structure and enhanced porosity, these particles excel in filtration, drainage, and odor control, offering versatile solutions for various industrial and environmental challenges.

TECHNICAL DETAILS

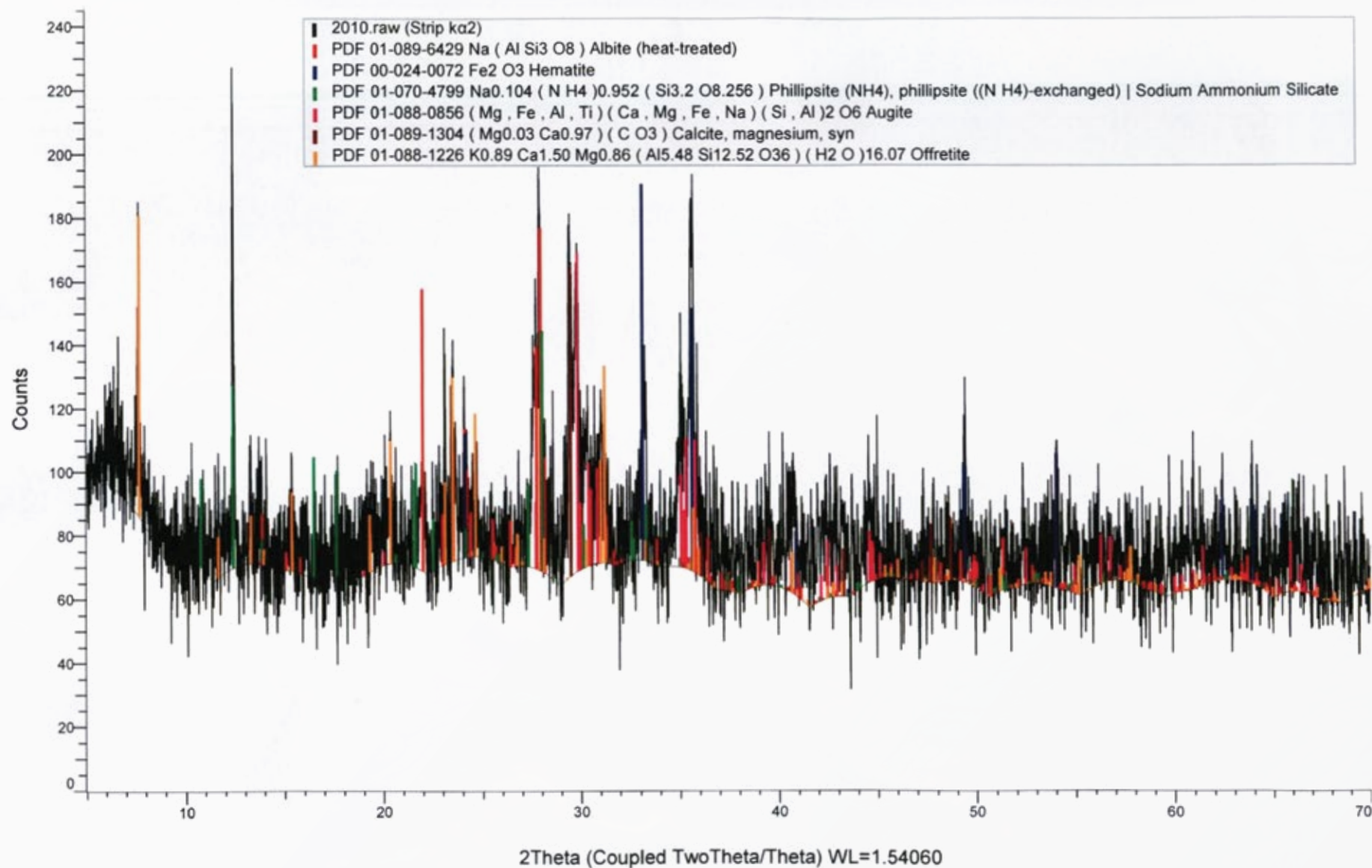
CHEMICAL ANALYSIS

N ppm	K ppm	P ppm	Mg Wt%	Mn ppm	Ca Wt%	Fe Wt%	Na ppm	Cl ppm	Zn ppm	Cu ppm	Ni ppm	Cr ppm	Co ppm
64.7	5889.6	1424.2	2.9	864.5	5.5	4.3	2491.9	35.3	74.1	37.1	164.8	16.6	39.5

PHASE IDENTIFICATION

<i>Sample Identity</i>	<i>Major</i>	<i>Minor</i>	<i>Trace</i>	<i>Uncertainty</i>
Zeolite	Phillipsite, Augite, Albite, Offretite	Hematite	Calcite	NA

X-RAY SPECTROMETRIC ANALYSIS



The background of the slide is a photograph of a rural landscape. It features rolling green hills under a clear sky. In the middle ground, there is a line of trees with green foliage. The foreground is a lush green field. A semi-transparent brown rectangular box is overlaid on the center of the image, containing the word 'AGRICULTURE' in white text.

AGRICULTURE



HORTICULTURE

Zeolite finds extensive use in horticulture, field crops, green landscaping, and protected crops, offering a range of benefits

ENRICHING AND IMPROVING SOIL QUALITY :

Zeolite's unique capacity to retain essential elements such as potassium and nitrogen prevents their loss from the soil, ensuring that plants can access these nutrients as needed.

FERTILIZER AND SOURCE OF NUTRITIONAL ELEMENTS :

zeolite serves as a valuable fertilizer and source of essential nutritional elements for plants. Its composition includes a group of fertilizer elements, including those crucial for plant development.

INCREASE SOIL WATER CAPACITY :

Zeolite's water-absorption ability boosts soil water retention by absorbing excess water and gradually supplying it to plants. This adaptive quality is beneficial for plant growth, enabling them to thrive in various conditions.

ENCOURAGE ROOT SYSTEM GROWTH :

Zeolite's unique properties benefit plant development in nurseries. By raising the root zone temperature and improving soil conditions, it enhances the rooting process, encourages root system growth, and supports early plant production.

IMPROVE STORAGE CONDITIONS:

Zeolite's moisture-absorbing and deodorizing properties enhance fruit and crop storage. By absorbing excess moisture and neutralizing harmful elements, zeolite prolongs storage periods and preserves the freshness and quality of stored produce.

PLANTATION

Beyond the improved Zeolite use efficiency, other benefits from Phillipsite Zeolite can include.

1

Advanced growth stages.

2

Early plant establishment with in-furrow use.

3

Consistent availability of nutrients throughout the growing season, particularly at critical growth stages.

4

Better ability for plants to withstand stressors including drought stress.



BENEFITS OF ZEOLITE IN PLANT PRODUCTION

- Achieving excellent and healthy plant growth.
- Maximizing biological effectiveness and germination capacity by promoting vegetative growth.
- Increasing the efficiency of fertilizer use by increasing plant absorption of nutrients.
- Increasing plant resistance against biotic and abiotic stresses. Ideal for use in organic farming.



Soil



Roots

- Improving soil structure contributes to the development of healthy and strong root growth.
- Increase soil aeration.
- Providing important nutrients for growth in the root area.
- It increases the water retention capacity of the soil, thus preventing water stress and increasing the efficiency of irrigation water.

improvement and sustainability

- Increase production in quantity and quality.
- Enhances the concentration of active substances in fruits such as olive fruits and organic acids in citrus fruits.
- Reduces dependence on the use of chemical fertilizers and pesticides, leading to safe and healthy products.
- Improves the taste of fruits and increases their shelf life after harvest.



Production

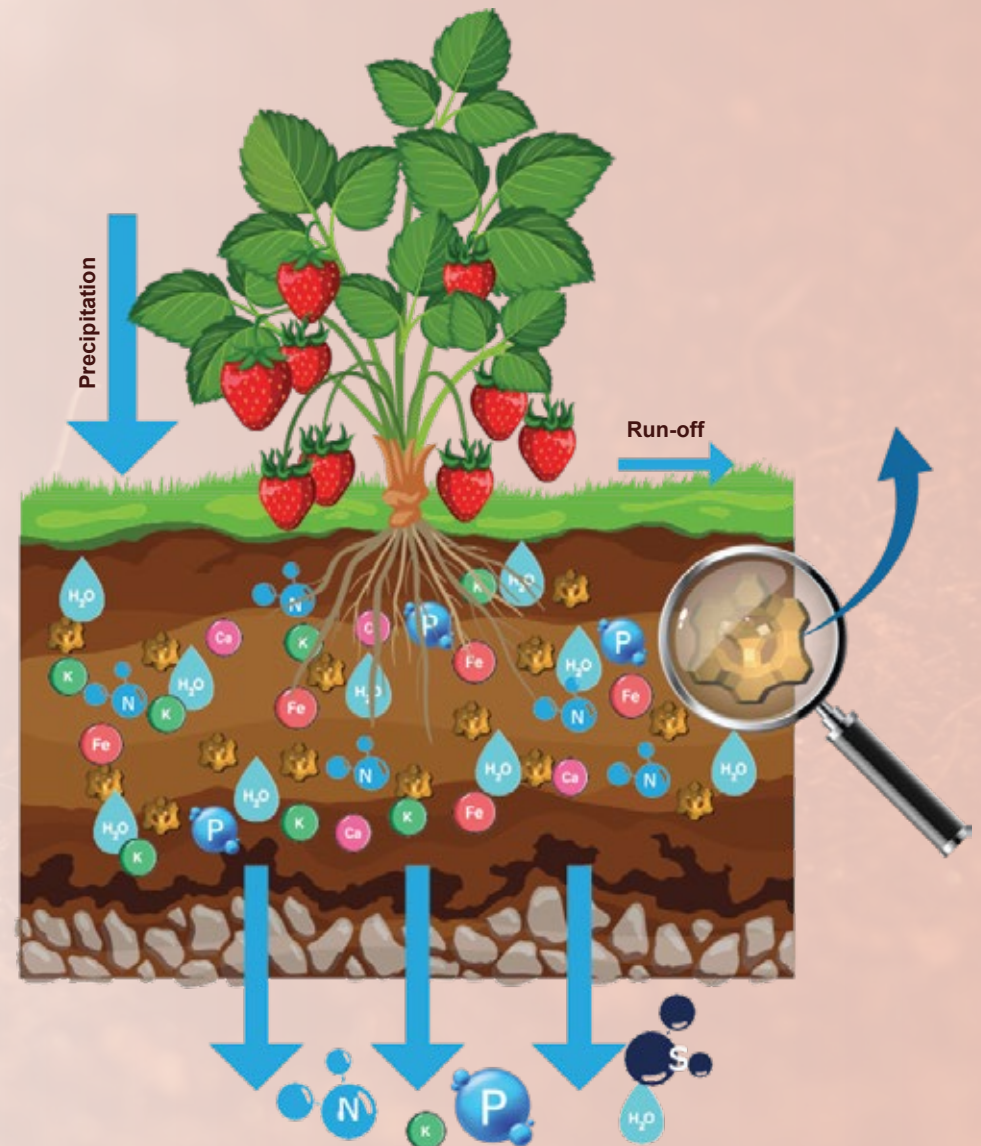
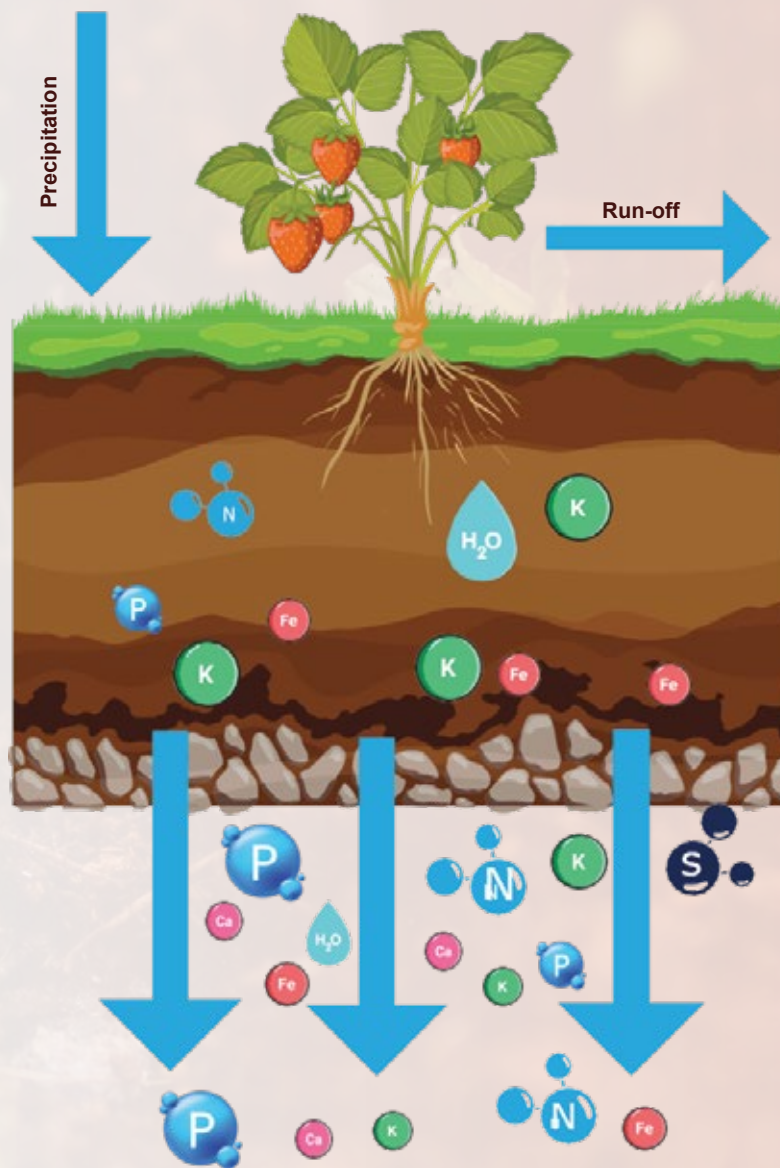


Plant

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- Increasing the efficiency of fertilizer use by increasing plant absorption of nutrients.
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ZEOLITE MECHANISM IN SOIL



TECHNICAL MANUAL

The image shows the cover of a technical manual. The background is a dark, reddish-brown landscape with jagged, rocky terrain and a hazy, orange-tinted sky. The title "TECHNICAL MANUAL" is centered in a large, bold, white sans-serif font. The text has a subtle drop shadow, making it stand out against the complex background.

TECHNICAL MANUAL

Application Rates of Zeolite			
Plant	Unit	Dosage Kg/unit	Mixing methodology
Palms	Piece	20-25	Depending on root depth & pit size
Trees	Piece	15-20	Depending on root depth & pit size
Large Shrubs	Piece	1-3	Depending on root depth / volume
Small Shrubs		0.5-1	
Flowers	Piece	1-2	Depending on root depth & pit size
Grass	m ²	3-5	Mixed in the upper 8-10 cm of the top soil
Ground Cover	m ²	3-5	Mixed in the upper 10-15 cm of the top soil
Ornamental grass	Piece	2-3	Depending on root depth & pit size

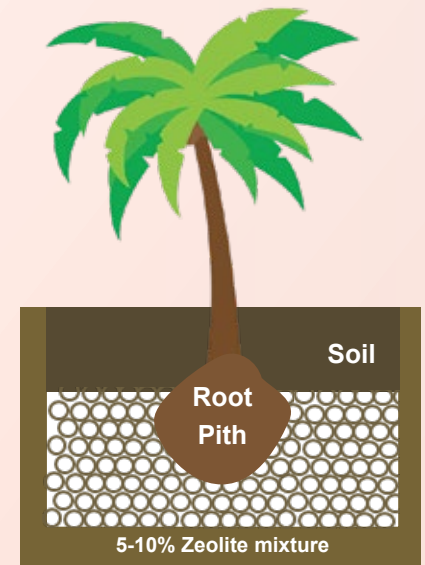
Guaranteed savings by using zeolite

- Saving 50% of irrigation water.
- Saving 70% of NPK fertilizer.
- Saving in energy cost for pumping, storage & maintenance cost for irrigation.

Adding Zeolite for new plantation

Palm & Trees

Mix 25-30 kg of zeolite with soil taken out of the tree based on the size. Fill the mix back to the pit at 20-30 cm layer; then place the tree on this layer and fill the rest of the zeolite-soil mix around the tree-root until its fully covered. Fill the upper pit with soil.



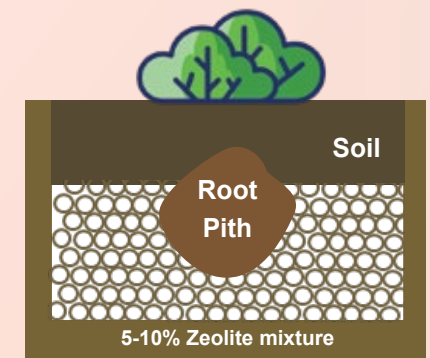
Lawns

Apply 3-5 kg/m² on the soil and mix at a depth of 8-10 cm
Apply leveling of the zeolite mixture, grass can be planted.



Shrubs & Ground Cover

Mix zeolite with soil and fill around the roots of the plants.
For planting beds mix zeolite 3-5 kg/m² in the soil a depth of 15-30 cm.



Zeolite applied once and no need or any reapplication later.

Existing plantation

Palm & Trees

Add 25-30 kg of zeolite to the tree bed and mix manually carefully and gently with the soil to try to approach with the zeolite to the root zone or as close as possible.

Shrubs, flowers & groundcovers

Add 3 kg zeolite for each shrub and for small shrubs add 1 kg as a top dressing then mix it gently without harming the roots, for ground covers spread the zeolite (3-5 kg/m²) on the top of the soil.

Turf and sport fields

Turf injection with zeolite Make holes in the turf by using the aeration instruments, add the zeolite with 5-10 kg/m², then irrigate the lawn and zeolite will insert inside the holes.

COMPOSTING

Composting is a process that converts organically bound nitrogen to ammonium nitrate and ammonia, both of which are plant-accessible nutrients. It also kills pathogens, dries manure, and kills weed seeds. Ultimately, the goal is to produce high-quality compost that can be used as a bio-based soil amendment.

Natural zeolite has two methods of holding cations such as ammonium. The first method is absorption, made possible by the mineral's high surface area and porosity. The second method is by cation exchange. Natural zeolite can sequester nitrates, sulphates, and hydrogen ions, which can prevent methane and nitrous oxide production during the composting process.



Benefits of using zeolite in compost

▶▶ **Improve moisture retention :**

It absorbs and retains water molecules, which helps maintain the moisture of the compost and reduces the need for frequent watering.

▶ **Nutrient retention:**

It absorbs and retains nutrients such as nitrogen, potassium, and phosphorus. Thus preventing the loss of these nutrients through leaching or volatilization, and making them more available to the plant.

▶ **Reduce ammonia odors :**

It absorbs ammonia molecules and retains them. It reduces the strong smell of ammonia by 95%, which is produced by organic fertilizers and contains a high percentage of nitrogen.

▶ **Exceptional CEC :**

Zeolite has a high CEC, which enables it to attract and exchange ions with the surrounding environment. This helps improve soil fertility and absorption of nutrients by plants.

▶ **Improved aeration and less soil compaction :**

Zeolite has a porous structure that helps increase air penetration into the compost which promotes aerobic decomposition, producing less odor.

Mulching and Landscaping

Zeolitic tuff serves as a beneficial material in mulching and landscaping applications. In mulching, zeolitic tuff can be spread around plants and garden beds to provide a range of advantages. The porous structure of zeolite allows it to absorb and retain water, promoting better soil moisture retention. Additionally, it helps regulate nutrient availability by acting as a cation-exchange medium, making essential minerals more accessible to plants.

In landscaping, zeolitic tuff can be used as a decorative element or as part of hardscape features. Its natural color and texture can enhance the aesthetic appeal of pathways, rock beds, or garden borders.

The water-retaining properties of zeolitic tuff can contribute to soil health, particularly in arid or drought-prone areas. The versatility of zeolitic tuff makes it a valuable addition to landscaping and mulching practices, providing both functional and aesthetic benefits to outdoor spaces.



ANIMAL HUSBANDRY



BENEFITS

LIVESTOCK

Toxin & Pathogen Adsorption

- Reduced aflatoxin B1
- Reduce aflatoxin M1 in milk
- Reduce flora levels

Metabolism

- Increase milk production
- Lower Stomatic cell count
- Buffers pH
- Better nitrogen utilization

Nutrition

- Available dietary nutrition
- Stable hematological parameters

Productivity & Health

- Reduce incidence of hypocalcemia & ketosis
- Improve animal energy
- Increase absorption of igg from colostrum
- Decrease calf diarrhea

Manure Management

- Reduce of ammonia loss
- Moisture & odor control
- Increase manure nitrogen value

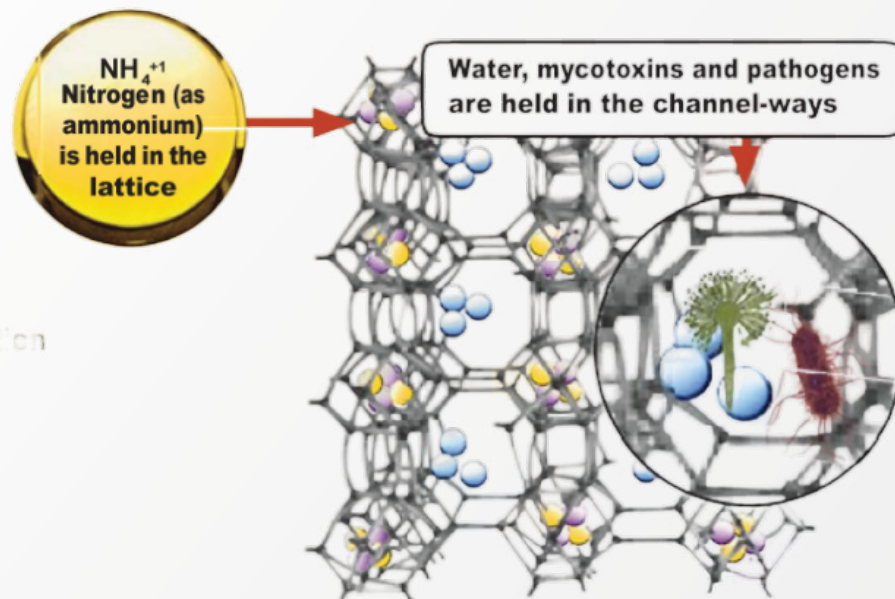
METABOLISM

Milk Production

Adding zeolite to diet four weeks before calving

- Increase milk production
- Lower somatic cell counts

An increment of propionate the rumen and the increment in intestinal assimilation of starch with zeolite incorporation progressed the vitality status required for drain generation.



Zeolite lattice and channel-ways



Nitrogen Efficient Utilization

Zeolite has the ability to capture ammonium from feed through its cation exchange capacity (CEC).

- Release of ammonium when it comes back to the rumen (Saliva sodium exchanges with the ammonium)
- “Time release” of the ammonium for
- better utilization of nitrogen.

Buffers pH

Feeding high calcium zeolite buffers rumen pH.

MANURE MANAGEMENT

Increase nitrogen retained in manure

Ammonia (NH_3) from agriculture is estimated at 90% of the total NH_3 emissions in the U.S., Western Europe and Middle East. The loss of NH_3 has become a major focus for air quality and has prompted support for regulatory policies. Additionally, economic loss occurs on farms when NH_3 ends up in the atmosphere instead of the slurry used to fertilize fields.

Cation Exchange Capacity (CEC)

Zeolite has a high cation exchange capacity, which enhance ammonium capture before it vaporizes to ammonia (gas). Dairy slurry treated with 6.75% zeolite reduced NH_3 losses by about 55% and reduced water-soluble P (Phosphorus) losses by 35%.

Odor and moisture control

Ammonia gas from urea and manure which become the aerosol for odors is one of the major causes of animals odor. Capturing ammonium by zeolite reduces the odor, which can also help in handling animal slurry as it absorb the moisture.

POULTRY

POULTRY

POULTRY

POULTRY





PROTECT YOUR FLOCK WITH CONFIDENCE

Efficient and sustainable poultry solutions

Protecting your birds against health and nutritional challenges at every life stage is essential for successful production.

we address the challenges you face to help protect your flocks with confidence.

**Zeolite raises the
immunity of chickens**



Tackling your biggest challenges with our natural Zeolite

At WATAD we recognize the challenges in today's poultry industry and strive to find solutions that create a brighter future for generations to come.

- Safe to use either as feed additive or as poultry bed.
- Environmentally Friendly.
- An Excellent Natural Alternative.
- Relatively low cost compared to its advantages and benefits.
- Supporting bird health.
- Control of waste.
- Anti-caking and anti-toxin in the feed rations.
- Improving Air Quality in poultry barns.
- Contribute to regulate the PH in the digestive system of poultry.



A photograph of a cow in a field with a body of water in the background. The cow is on the right side of the frame, looking towards the camera. The background is a blurred landscape with a body of water and some trees. The text "BARN BEDDING" is overlaid on the image in a large, bold, dark red font.

BARN BEDDING

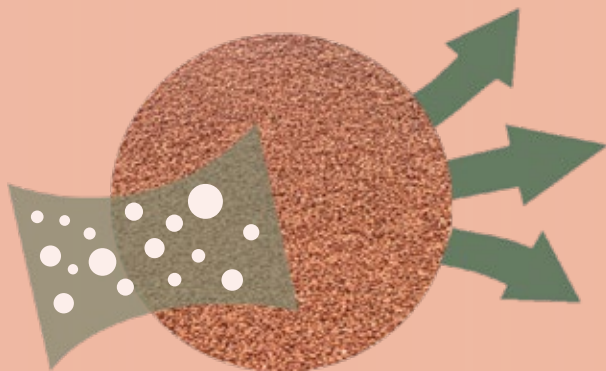
BARN BEDDING

BARN BEDDING

BARN BEDDING

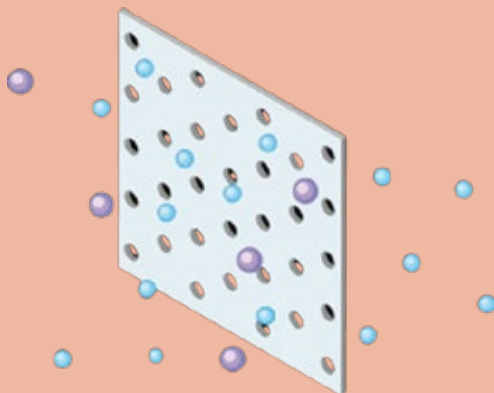


Zeolite can be a useful component in barn bedding for a number of reasons



Odor control

Utilizing zeolite in barn bedding can effectively absorb ammonia, a common component of animal waste known for contributing to unpleasant odors in barns. This incorporation of zeolite helps mitigate odors by absorbing the ammonia present in the animal waste.



Moisture control

Zeolite's porous structure enables it to effectively absorb moisture, making it useful for controlling moisture levels in barn bedding. This moisture-absorbing capability of zeolite aids in keeping the bedding dry and mitigating the potential for bacterial and fungal growth.



Nutrient retention

Zeolite possesses a high CEC, making it adept at retaining nutrients like nitrogen, phosphorus, and potassium. Incorporating zeolite into barn bedding allows these nutrients to be retained within the bedding and gradually released over time. This creates a potential source of nutrition for plants or crops that may utilize the animal waste-enriched bedding as fertilizer.



Environmentally Friendly

Incorporating zeolite into barn bedding can effectively decrease the amount of ammonia released into the environment. This reduction is especially crucial in regions where animal agriculture significantly contributes to air and water pollution.



Cost Effective

Due to its high absorbency, zeolite can effectively decrease the amount of bedding needed in the barn. This reduction not only leads to cost savings for the barn owner but also contributes to reduced labor and disposal expenses. Additionally, by helping to maintain a clean and hygienic environment, zeolite aids in preventing diseases among the animals, further enhancing the cost-effectiveness of its use in barn bedding.



Easy to Use

Zeolite can be effortlessly blended with existing bedding materials without the need for specialized equipment or training, making it a convenient and straightforward addition to barn bedding.

BENEFITS

Poultry house

1. prevent infection of coccidia diseases.
2. Bed moisture control.
3. Reduce ammonia gas in barn which reduce respiratory system diseases.

A photograph of a livestock house, likely a sheep pen, with several sheep visible. In the background, a tractor is parked. The image is overlaid with a semi-transparent orange gradient. The title 'Livestock house' is written in white, bold, sans-serif font on the left side of the image.

Livestock house

1. Reduce odor which is very annoying by ammonia absorbing.
2. Prevent udder inflammation incidence related to poor bedding.
3. Reduce bed moisture.
4. Reduce hoof inflaming.
5. Reduce lameness.

FISH FARMING



zeolites can be beneficial in the following ways

1. Ammonia Removal

have a high affinity for ammonia ions, helping to reduce ammonia levels in the water, which can be harmful to fish.

2. Water Filtration

act as a filtration medium, removing suspended particles and organic matter from the water, thus maintaining water clarity and quality.

3. Ion Exchange

can regulate water chemistry parameters such as pH, hardness, and nutrient levels, creating a more stable environment for fish.

4. Detoxification

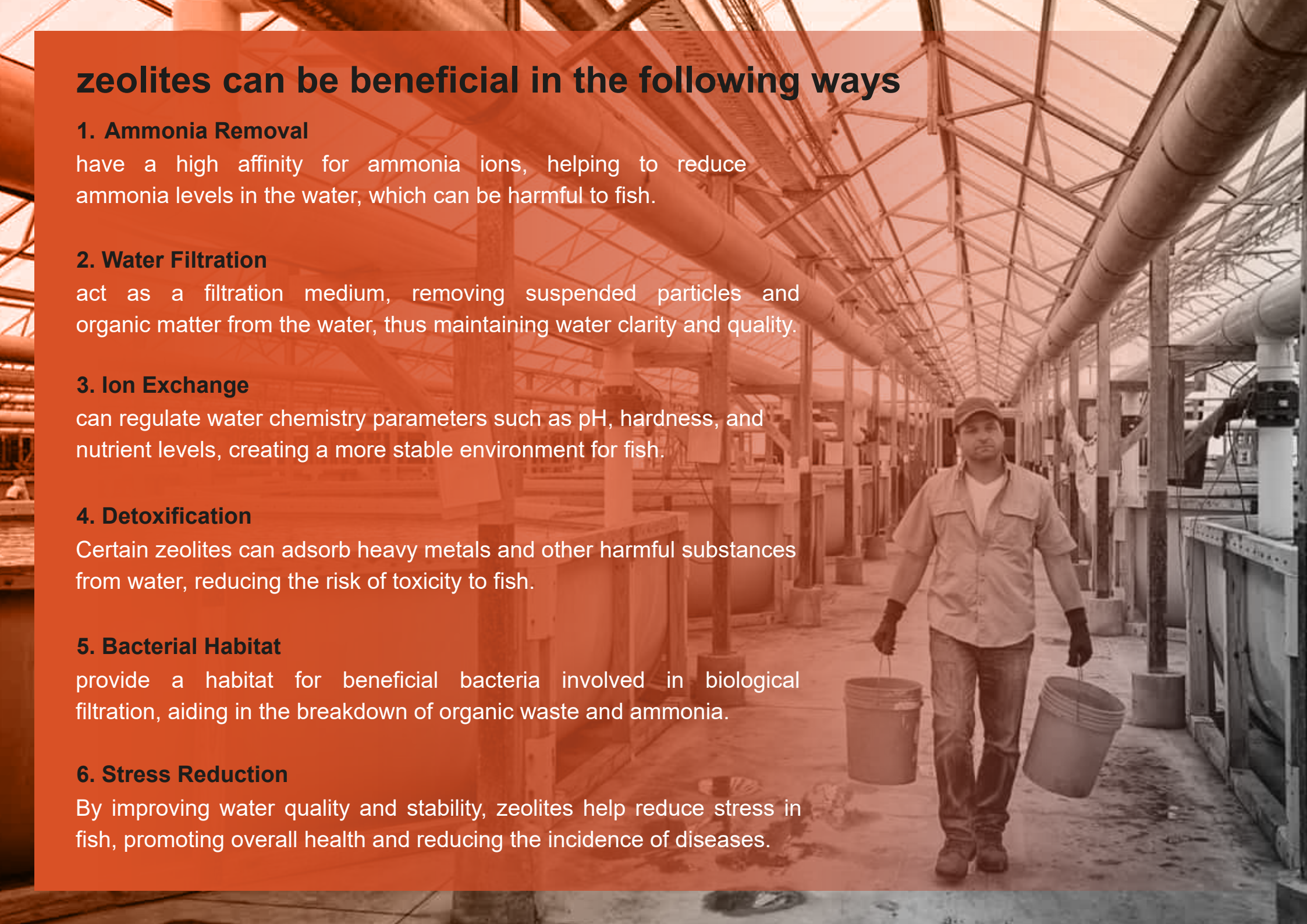
Certain zeolites can adsorb heavy metals and other harmful substances from water, reducing the risk of toxicity to fish.

5. Bacterial Habitat

provide a habitat for beneficial bacteria involved in biological filtration, aiding in the breakdown of organic waste and ammonia.

6. Stress Reduction

By improving water quality and stability, zeolites help reduce stress in fish, promoting overall health and reducing the incidence of diseases.



THE EFFECT OF ZEOLITE ON AQUACULTURE SYSTEMS

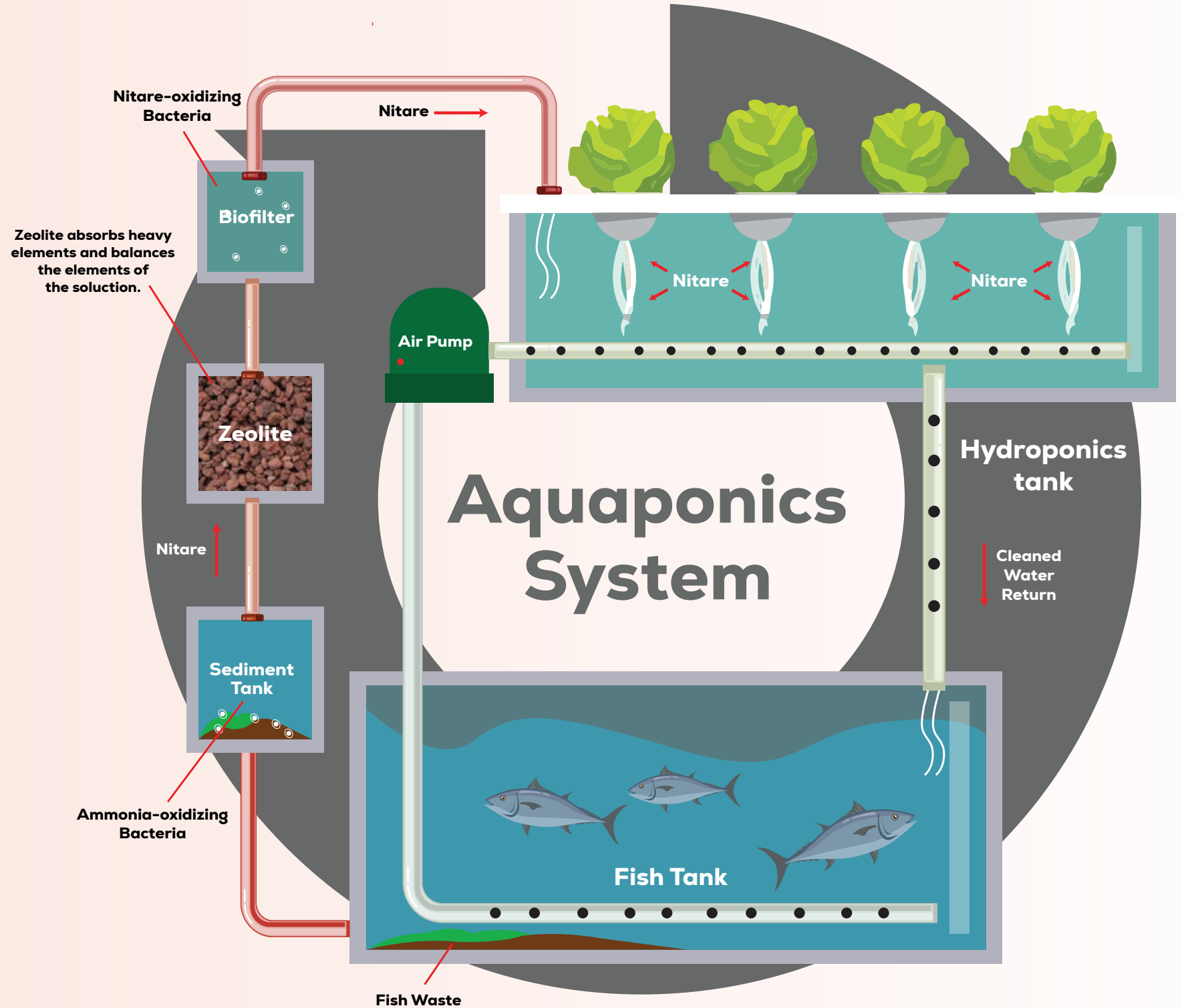
Globally, a substantial amount of commerce is generated by the commercial breeding of fish as a source of protein.

Because many species are extremely sensitive to changes in pH, oxygen and nitrogen levels, and water temperature, aquaculture systems' chemical and biological environments need to be regularly inspected and maintained.

Zeolite's inherent adsorption and absorption properties make it an ideal choice for sustaining the sustainability and well-being of aquaculture systems.

Zeolite has three main uses in these settings :

- Eliminates harmful nitrogen and ammonium ion concentrations from hatchery, transit, and aquarium waters.
- Supplies oxygen-rich air for breeding and transit.
- Purifies feedlot.



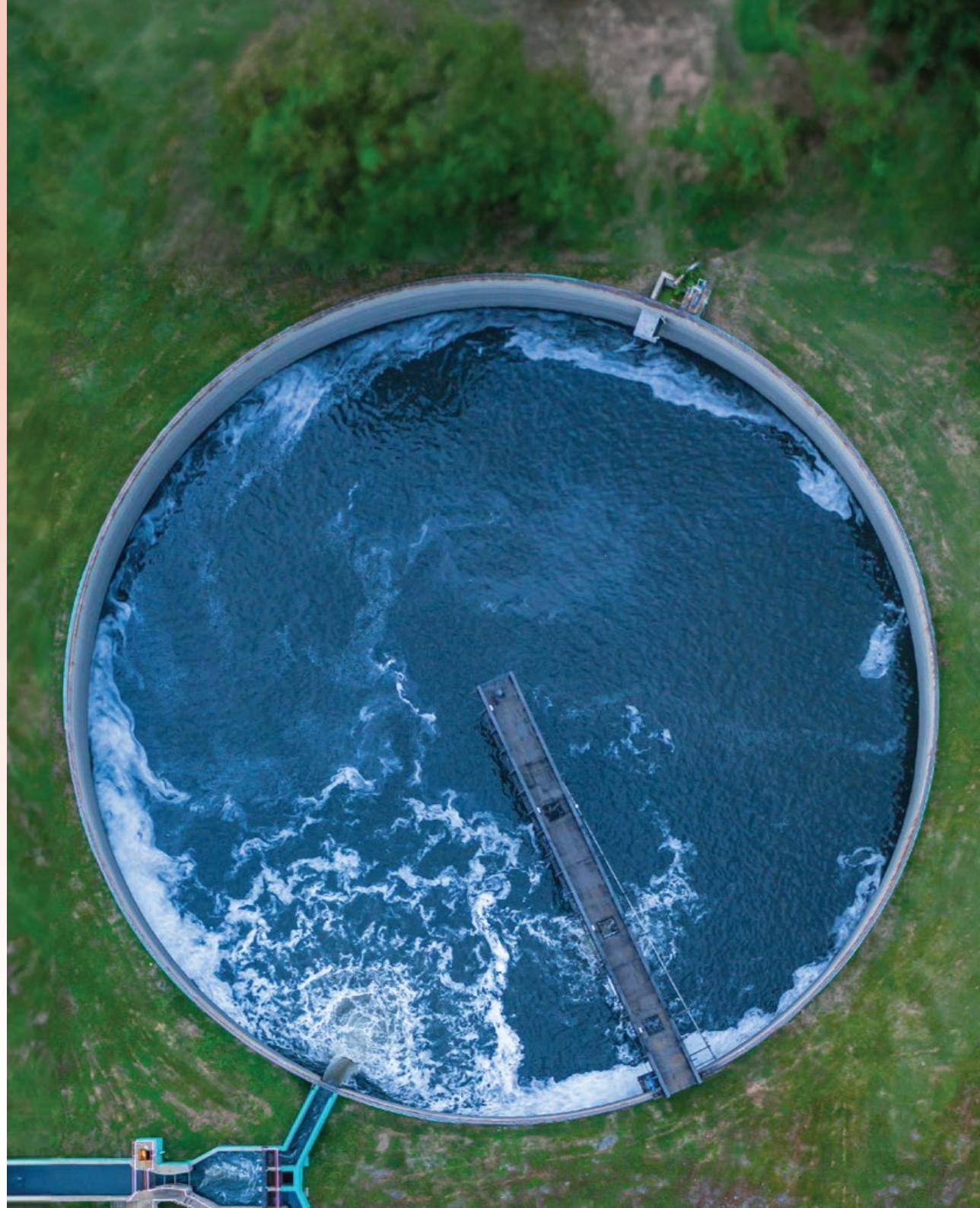
WATER TREATMENT

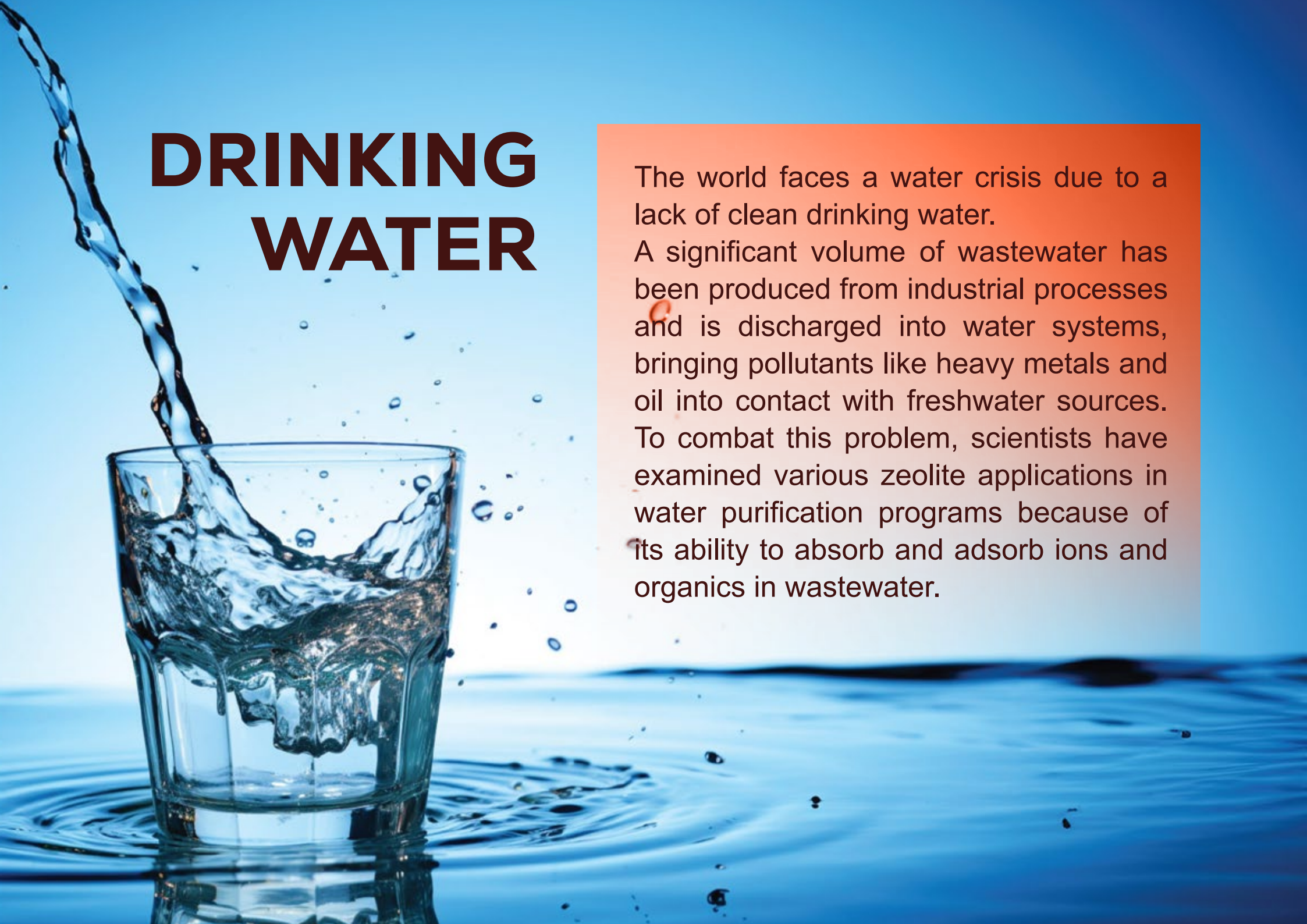


Zeolite is a valuable tool in water treatment and filtration due to its unique properties. Its high surface area and porosity make it effective in adsorbing contaminants like heavy metals and organic compounds.

Zeolite's porous structure also helps in trapping suspended solids and microorganisms, leading to cleaner water. Additionally, its cation exchange capacity allows it to selectively remove ions, making it useful for water softening.

Zeolite is environmentally friendly and cost-effective compared to synthetic chemicals, making it a sustainable option for water





DRINKING WATER

The world faces a water crisis due to a lack of clean drinking water.

A significant volume of wastewater has been produced from industrial processes and is discharged into water systems, bringing pollutants like heavy metals and oil into contact with freshwater sources. To combat this problem, scientists have examined various zeolite applications in water purification programs because of its ability to absorb and adsorb ions and organics in wastewater.

SWIMMING POOLS

Pools and hot tubs are widely used for recreational purposes. Upkeep involves combating the universal problem of water purification and many chemical products on the market strive to ensure water remains clear, sanitary, and odorless. The purification process often involves substantial amounts of dissolved chlorine and over time, high concentrations of the chemical can cause irritation to mucus membranes and eyes.

Of all water treatment products on the market, zeolite is of particular interest to scientists. Unique absorption and adsorption properties allow it to adsorb ammonia, nitrates, and phosphates, preventing the growth of algae and micro-organisms. Currently, adsorption is considered the best water treatment option because of convenience, low cost, ease of operation, and simplicity of design. Also, because zeolite is a natural, non-toxic mineral, it can be applied to pools and hot tubs without causing irritation to the eyes, skin, or mucus membranes.





AIR PURIFICATION



How does zeolite work?

When the contaminated air passes through the material, the hydrocarbons are adsorbed. The material can adsorb a certain amount of hydrocarbons before needing to be regenerated.

A smaller flow of hot air is then directed through the material so that the hydrocarbons release from the zeolite in a higher concentration. This enables more cost-effective incineration.

Completely regenerated The resistance to high temperatures and the structure of the material also allows the zeolite to be completely regenerated – meaning that the VOCs completely release from the zeolite when heated. This means that the system maintains its high purification rate year after year and that the material does not have to be replaced, which gives it a long lifespan and a minimal need for maintenance.

Resilient to high temperatures One of its strengths is that it is non-combustible – meaning it can withstand very high temperatures. This means that we are also able to purify volatile hydrocarbons such as fumes emitted from vulcanization, plastic smoke and styrene, all of which require very high temperatures during regeneration.





ABSORPTION
ABSORPTION
ABSORPTION

Waste Encapsulation

Encapsulating radioactive waste with cement raises integrity concerns. Natural zeolite, historically used to reduce environmental impact, improves cement's pore structures, significantly reducing cesium leaching. In waste encapsulation, zeolite stabilizes contaminants, enhancing concrete integrity through molecular sieving, adsorption, ion exchange, and immobilization.



Chemical Spills

Efficiently remove ammonium and heavy metals through ion exchange, preventing their entry into ecosystems. Chemical absorbent properties make it effective for spill absorption and odor elimination on surfaces like concrete, offering durability even when saturated, suitable for outdoor use in windy conditions.



Heavy Metal Absorption

Heavy metal contamination in soil and water, stemming from overpopulation and industrial activities, poses a serious threat to humans, animals, and plants. Zeolite, offer a promising solution by effectively trapping and preventing the transfer of undesirable metals in water treatment.



Mold Abatement

Efficiently eliminates musty odors and prevents mold by absorbing moisture. Its application is effective in damp areas without requiring complete drying. Anti-fungal mortars and concretes with zeolite inhibit toxic mold growth in building structures, addressing various issues.



A wide, straight dirt road stretches towards the horizon under a bright sun with lens flare. The road is flanked by flat, sandy terrain. In the distance, there are low hills or mountains. The sky is blue with some clouds. The sun is in the upper left corner, creating a strong lens flare effect.

**TRACTION
CONTROL**

TRACTION
CONTROL
TRACTION
CONTROL

Effective slip prevention media, both in icy conditions and when controlling spills.

Ice Melt

Zeolite presents a superior alternative to rock salt for ice melt purposes. Unlike rock salt, zeolite doesn't harm the environment or damage surfaces like concrete, stone, and metals. It absorbs water and utilizes solar energy to embed itself into ice and snow, preventing the expansion and contraction cycle that leads to cracks and pits in concrete. Its unique properties make it a highly effective and environmentally friendly choice for traction control and ice elimination on roads, driveways, and walkways.



Slip Prevention



Slip Prevention Zeolite effectively manages spills from oil, fuel, coolants, paints, degreasers, and mild acids. Its rapid absorption capabilities reduce slip hazards and environmental risks, ensuring a safe workplace. It also effectively captures coolant spills, prevents paint spills, and prevents acidic corrosion.



HOME USE



Odor and Moisture Control

Zeolite, a molecular sieve, effectively traps and removes odors due to its porosity and cation exchange capacity. It's used to absorb liquids and noxious odors in various home products, largely due to its surface-adsorption properties. Zeolite can be placed in various areas of the home such as closets, cabinets, refrigerators, and pet areas to absorb and eliminate odors effectively.



Nitrogen is crucial for plant growth but is a major nutrient concern due to water pollution. Scientists are looking for natural products that improve fertilizer quality and performance without polluting the environment. Natural zeolites are soil amendments with physical and chemical properties that make them suitable carriers of plant nutrients. They lock essential nutrients into their honeycomb structure, releasing them gradually into the soil and root system of plants.

House Plants

Pet care

Zeolite, a naturally occurring mineral, is beneficial for pet care due to its odor-absorbing properties, ability to prevent dehydration, trap toxins, and absorb ammonia. It also helps control humidity, promotes wound healing, and ensures overall well-being when used correctly.



Laundry and Dishwashing

Zeolite is included in laundry detergents and dishwasher additives to soften water, enhance cleaning efficiency, and remove odors from fabrics and dishes.



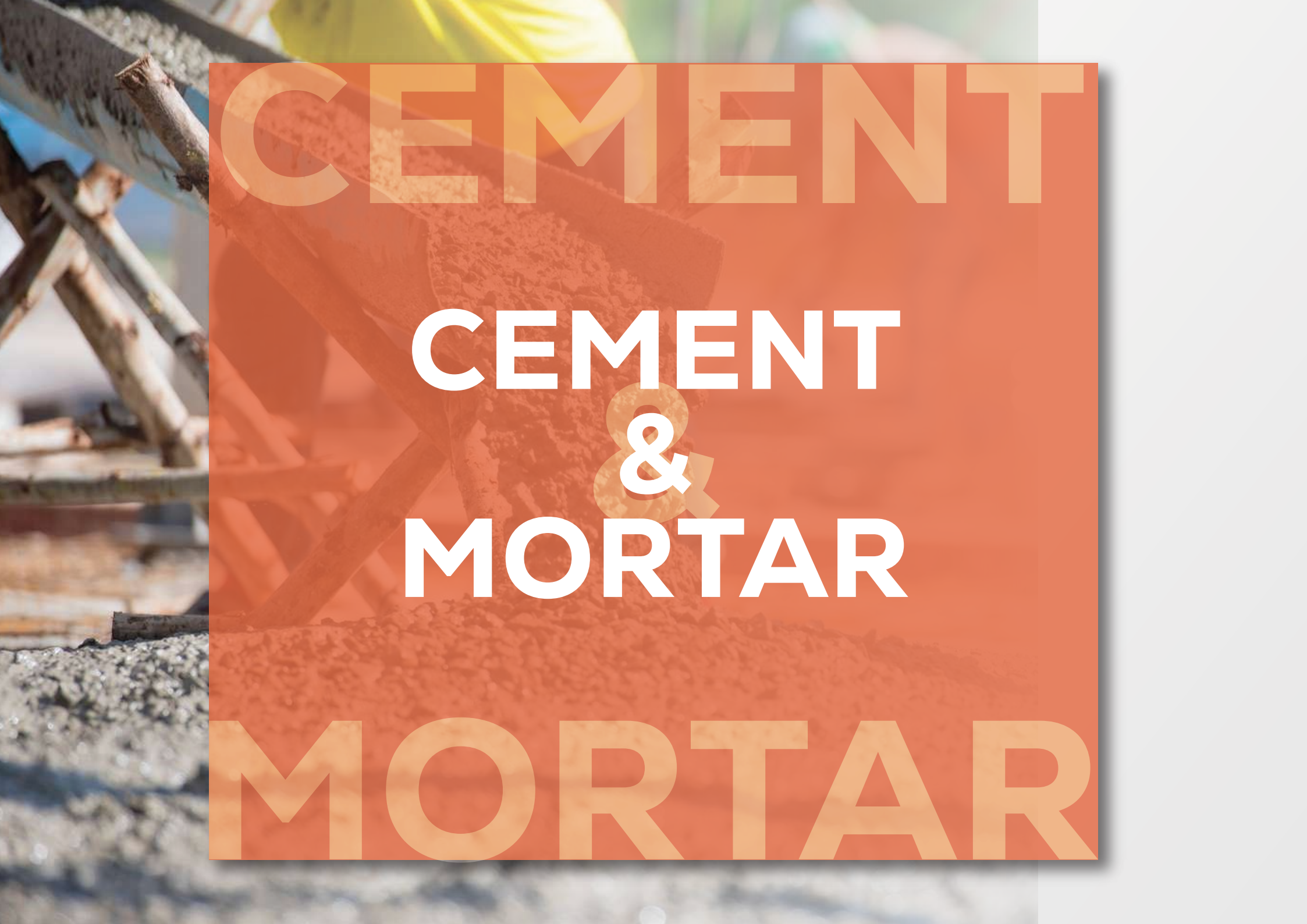
Zeolite is sometimes used in health and personal care products such as face masks, soaps, and toothpaste for its ability to absorb impurities and toxins from the skin and body.

Health and Personal Care Products

Detoxification

The ability of zeolite to detoxify from other heavy metals makes it a promising edible supplement. In a clinical trial with 33 volunteers, zeolite boosted the elimination of aluminum, arsenic, lead, mercury and other heavy metals. Participants who received liquid zeolite had significantly higher levels of these metals in their urine samples. Laboratory analysis confirmed that the results were due to detoxification of the body





CEMENT

CEMENT
&
MORTAR

MORTAR

Paint and Coating

Many consumers search for environmentally friendly alternatives to lead paints and coatings. One of the most widespread substitutes is zinc phosphate, which has also been flagged because of its environmental impact. Researchers found that zeolite coating was deemed to be wear-resistant, strongly adhesive, and compatible with paint. The research team determined that zeolite coating can serve as an environmentally friendly, corrosion-resistant coating for aluminum alloys.



Warm Mix Asphalt produces reduced emissions, allows for an extended paving season, and reduces workers' exposure to harmful toxins. Also, it reduced fuel and energy usage, reports indicated that burner fuel savings with WMA typically range from 20 to 35%.

On the other hand, it has many paving benefits, such as the ability to pave in cooler temperatures and still obtain density, ability to haul the mix longer distances and still have workability to place and compact, ability to compact mixture with less effort.

Warm Mix Asphalt

Stucco and Mortar

To reduce carbon dioxide emissions from Portland cement production, researchers explore environmentally friendly alternatives like natural zeolites in concrete. Concrete mixes with 15% and 30% natural zeolite were tested, finding improved properties in water/chloride penetration, corrosion rates, and drying/shrinkage compared to mixes without zeolite. Incorporating 15% natural zeolite was deemed a suitable option to enhance concrete strength and durability.



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