



# SMAP NEWSLETTER

Third Quarter, 2023

Salt Manufacturers Association of Pakistan's Quarterly Newsletter



Meeting of SMAP delegation with IPO Pakistan for implementation of Pink Salt GI tag

**SALT MANUFACTURERS ASSOCIATION OF PAKISTAN** is a non profit organization instituted to represent and protect the rights and forward fair demands of salt manufacturing community through global representation.

## Inside This Issue

### Chairman's Message

Page 2

### Regional Salts

Page 4

### Sea Salt for your teeth and gums

Page 5

### Natural Garbage Disposal Cleaner-Salt

Page 6

### Salt used to Kill Cancer Cells

Page 7

### Grilled Corn in a Salt Bath

Page 8

### Industrial Salt and its Applications

Page 9

### Five Largest Salt Mines in the World

Page 10

### Truffle Salt

Page 11

### Honeycomb Patterns of Salt Deserts

Page 15

### Salt Roller

Page 16

# Chairman's Message

Nature has gifted Pakistan with innumerable wealth in terms of mineral resources still, we find ourselves plunging into the dept of foreign debts. Pakistan is converted from once an industrialized state to a trading state and the setback of this trade is the import of highly valuable chemical products that are putting a constant strain on our trade balance.

If we ever wish to get out of this current economic turmoil, we must develop the minerals sector of Pakistan as an active export industry through value addition on war-footing basis.

Mineral sector has always been highlighted as a basis of economic strength. Several developed countries like China, United States of America, Turkey, Italy, Chile, Australia etc. has always valued the significance of mines and minerals sectors and hence this sector has contributed greatly to their GDP.

Taking an example of Chile which developed the export of 2 billion USD from Non-Metal mineral based chemicals. While Australia and Brazil implemented chemical import substitution policies in early 1900s and have now export earnings of more than 80 billion USD through chemicals only.

Minerals to Chemicals division supports many state departments and encourage better trade, improve per capita income, generate employment opportunities, attract foreign direct investments, boost economic growth, and much more.

Earlier in August I was invited to Pakistan Mineral Investment Summit: "Dust to Development". hosted by Pakistan Military and the Government to discuss development strategies of the minerals sector of Pakistan and I am very excited to witness that the caretakers of the country has finally shown keen interest in the minerals sector of the country, the seminar was attended by many foreign dignitaries, stakeholders, and foreign investors. The summit covered all areas of potential investments in the areas of mining and mineral value-addition.

I would also like to appreciate the Pakistan Military for actively partaking in the seminar and developing a working committee to ensure stability in project operations. It is important to note that the financial value of Pakistan's minerals amounted to \$6.1 trillion, surpassing the total net worth of corporate giants such as Apple, Amazon, and Google. The 'Dust to Development' is the commencement of a new era of mining in Pakistan as its scope is not limited to mining but smelting and exports of value-added products.



Ismail Suttar, Chairman of SMAP

# Chairman's Message

The seminar focused on revealing the mining vision of the Government and pledged to develop smart industrial clusters in the mineral rich province of Balochistan where raw minerals from the soil would be extracted and converted into value-added export items multiplying the economic advantages manifold.

The Government has now instituted a One Window Operation after understanding the ground realities of the mining rules complexities in Pakistan and has come to a solution that the mining rules and regulations would be harmonized into one general rule in order to make foreign investment smooth and easier with multiple tax incentives for investors.

Salt Manufacturers Association of Pakistan, representing the entire Salt community of the country is steadfast in its mineral research program and is ready to help the policymakers to come up with business and investor friendly ideas to promote the growth of salt industry in Pakistan.

Salt has always been misunderstood for its consumption in food industry only. However, that constitutes only 7% of total salt production, the rest of salt is used to manufacture industrial chemicals which can fetch far more better export prices.

We as an Association are single handedly working to develop new value-added products from salt and are encouraging our traders to start small scale operations to promote value-addition in this industry. The idea is to make a strong socio-economic fabric for Pakistan and make it self-reliant in the areas of manufacturing value added chemical products by utilizing our own minerals which involves zero imports.

This is a promise to the country that we will IN SHAH ALLAH make Pakistan the hub of the chemical industry very soon with just a little help from the top offices of the country and that too in policy making.

# Regional Salts

Salt is one of the oldest and most widely used seasonings – archeologists have found evidence of salt production that goes as far back as 8000 years. Saltiness is also one of the basic flavors we experience. Here are some regional salts:

## 1. *Truffle Salt:*

Truffle salt is an ingenious invention that aids us in adding the taste of truffles to a dish without needing to spend money to actually buy them. There are various versions of salts that integrate both black and white truffles. A plethora of salt brands mix different amounts of tiny truffle bits to bring out a unique flavor in their salt. The white truffle salt is made with Fleur de sel (French Sea Salt) and is exceptional in seasoning a special dish for a special occasion.



Truffle Salt

Cyprus Black Lava Salt



## 2. *Cyprus Black Lava Salt*

Hailing from the Cyprus Island in the Mediterranean Sea, this large grained crystallized salt is made from natural solar evaporation and is over millimeter in size. Moreover, mixed with activated charcoal, this salt looks like real pieces of charcoal and have a very mild salt flavor. It can be used to add great texture when needed to finish a dish without overwhelming our palate with the saltiness.



### **3. Persian Blue Diamond Salt:**

Extracted from salt mines in the Semnan province of ancient Persia (now Iran), the mineral content of this unique salt gives it small flecks of blue on some of the crystals. In flavor, it has a strong initial saltiness to a subtle lingering aftertaste. Its lovely appearance makes it excellent for a 'bespoke' dining table. One Popular way to use Persian Blue is to use it to coat the glass rim when making a Margarita.



Persian Blue Diamond Salt

### **4. Kona deep water sea salt:**

Water from a depth of about 2,200 feet off the Hawaiian coastline is used to produce this distinctive salt. It is then evaporated in the sun. Consisting of about 78% of sodium, this salt tastes very "clean" despite its rich mineral concentration. It is a unique sea salt made from pure, 900-year-old deep ocean water.



Kona Deep Water Sea Salt

### **5. Sal de Gusano**

Dried worm larvae are toasted and grounded with rock salt and chili peppers to make this traditional Mexican salt. It is used as a smoky seasoning and as a companion of mezcal (Beverage famous in Mexico). Sal de gusano is not meant to cover up the taste of this infamous beverage, but rather meant to complement it. The gentle smoke and spiciness of the salt adds an extra flavorful dimension to various dishes like salsas, cocktails, and ceviche's. One can serve it the way so many indigenous Mexicans do: in a little bowl on the dinner table so it can be sprinkled on any and every little thing to bring forth the traditional flavor still present in the hearts of many Mexicans.



Sal De Gusano

# Sea Salt for your Teeth and Gums

Salt, or sodium chloride, is a naturally occurring mineral essential for human and animal survival. Sodium is crucial for nerve and muscle function, as well as regulating fluids in the body. But what we are most interested in is how sea salt benefits your teeth and gums. We're talking about the mineral-rich, unrefined sea salt, which is full of healing properties that are of great benefit to one's oral health.

A salt water rinse is great to alleviate any inflammation in the mouth, which makes it a great remedy for seasonal sore throats and colds. Moreover, this salty mixture prevents the infection from returning. A clinical study suggests that a salt rinse is very effective at drawing out harmful pathogens present on our gum tissues and creates a salt barrier to prevent the risk of superinfection. According to Eric Shapria, D.D.S, the presence of salt in the mouth temporarily increases the mouths pH levels, creating an alkaline environment in which bacteria cannot survive. Harmful bacteria prefer an acidic environment, so using some salt daily will prevent these unhealthy bacteria from growing.

Due to sea salts amazing anti-bacterial and acid neutralizing properties, it's an excellent remedy for combating bad breath as well. Using a salt rinse after lunch also helps to remove food particles and debris that get stuck in between your teeth. If these food particles stay put, they begin to release an odor that contributes to bad breath and can cause irritation and inflammation to your poor gums. So, give your mouth a good swish with sea salt and let the salt zap away that disease-inducing, odor-causing bacteria.

People prefer to use French Grey Sea Salt for oral health, the evaporated sea salt crystals that been formed in shallow mineral-clay pools along the ocean shoreline. The purity of the salt ensures no further processing is required.



Sea Salt for Teeth and Gums

# Natural Garbage Disposal Cleaner – Salt

In as much as the garbage disposal is intended for the out – channeling of debt, it is important that the garbage disposal itself is cleaned out from time to time so as to not to harbor too many bacteria that may cause health and environmental hazards. One doesn't need to spend a lot of money to clean their garbage disposal. Instead, there are domestic, cheaper sources that you could optimize to clean your garbage disposal canal.

Over time a smelly slime builds up over the regions that do not get scrubbed with the aid of using the disposal's grinding action. Weekly cleaning can preserve the rubbish disposal easily and free it from smells.



Ice and Salt are very effective cleaning tools in this case. With these two, not only do we get a sparkling sink, but we can also get to enjoy a bacteria-free garbage disposal area. This also helps you, as a person, to create, adapt and maintain a regular cleaning culture and habit whether you are a full remote worker or you have very little time for domestic needs.

Pour two cups of ice cubes into the garbage disposal followed by one cup of rock salt. It is preferred to use rock salt for its coarse texture, but kosher or table salt will work just fine as an alternative. A cup of salt more than to clean the canal thoroughly. After that run cold water down the garbage disposal for 5-10 seconds while it crushes the ice. While being crushed, the ice will clean the blades of any slimy residue that has stuck to the blades, while the salt will help to deodorise it. Cleaning with salt helps to eliminate bacteria and tiny insects that may want to breed in the garbage disposal. Hence, it is safe to clean garbage disposal with salt. Moreover, salt can also be used with ice and fresh lemons for cleaning.

Learning how to clean garbage disposal with ice and salt is very important. This is because it will not only leave your garbage disposal clean, it will also help to sharpen your garbage disposal blades which often times get worn out because of constant use. Not only using salt and ice is efficient but is also incredibly affordable.

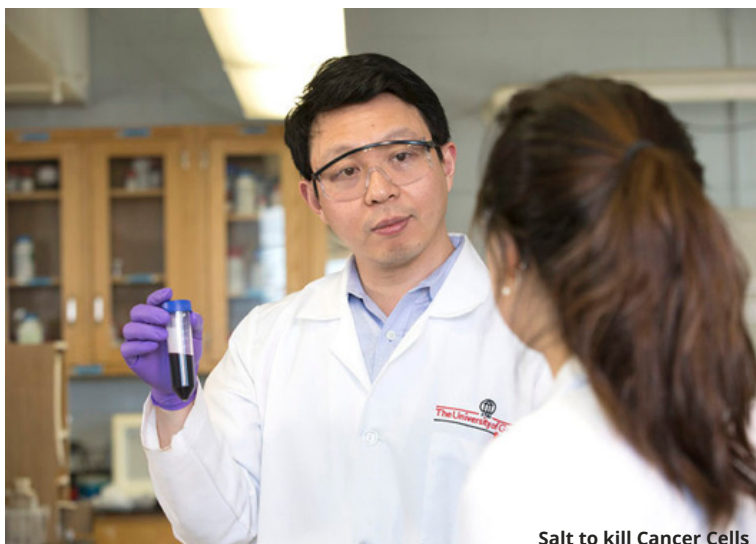


# Salt Used to Kill Cancer Cells

A recent study at the University of Georgia brought forth a new way to kill cancer cells which is less harmful to the human body unlike chemotherapy. Sodium Chloride nanoparticles - more commonly known as salt – are harmful to cancer cells and offer potential therapies for that have fewer side effects in comparison to current treatments. A team led by associate chemistry Professor Jin Xie found that SCNP (sodium chloride nanoparticles) can be used as trojan horse to deliver ions to cancer cells and disrupt their internal balance in turn killing these harmful cells. SCNPs just break down into simple sodium chloride when their job is done, so they are basically harmless to the patient.

“This technology is perfect when it comes the destruction of localized cancer cells, we aim to develop it to such levels that it can be used to cure various types of cancer.” Cell membranes maintain a concentration gradient inside and outside the cells, the concentration is a lot less inside the cell as compared to the outside.

The plasma membrane doesn't allow sodium to enter inside the cell, but SCNPs are able to pass through because the cell doesn't acknowledge them as typical sodium ions. Once these ions are inside the cells, they degrade into sodium and chloride ions which are trapped inside by the gradient. Moving on, these ions overwhelm the protective mechanisms of the cell and rupture the cells membranes instantly killing these injurious cells.



“This technology is more harmful and injurious to cancer cells as compared to regular cells because cancer cells already contain high concentrations of sodium.” Xie said. His team found that sodium chloride nano particles treatment dropped the chances of redevelopment of a tumor by 66% without causing any grief or damage to other major organs or body parts. The researchers also noticed that secondary tumor grew at a much slower speed than the control, showing an inhibition of approximately 55%. Collectively, the results suggest that SCNPs killed cancer cells and converted the distressing cancer cells to a potential vaccine.



# Grilled Corn in a Salt Bath



Baraghani's Persian-style grilled corn is a very common snack sold by street vendors in Iran. The key to Baraghani's Persian-style grilled corn is to shuck it, then get it really, really dark over hot coals. The objective is not to just get a few grill marks on the corn but rather a deep caramel, almost molasses color, as uniformly as possible over every kernel so that it is perfectly uniform. It takes about eight to twelve minutes of grilling, rotating the corn every two to three minutes. By the time one is done grilling the corn, the outside should be almost crispy, with the aroma of burnt sugar, but the inside will still be tender and sweet.

Then, instead of slathering with butter and sprinkling with salt, one gives the corn a bath. While the corn is still hot, fresh from the grill, dip it in a pitcher of hot, very, very salty water, almost like a brine. The water should be super salty—even more than pasta water. After this procedure, one stirs ½ cup of kosher salt into 10 cups of hot water until dissolved. This makes it more savory. As the brine gets into all the nooks and crannies between the kernels, every bite gets evenly seasoned.

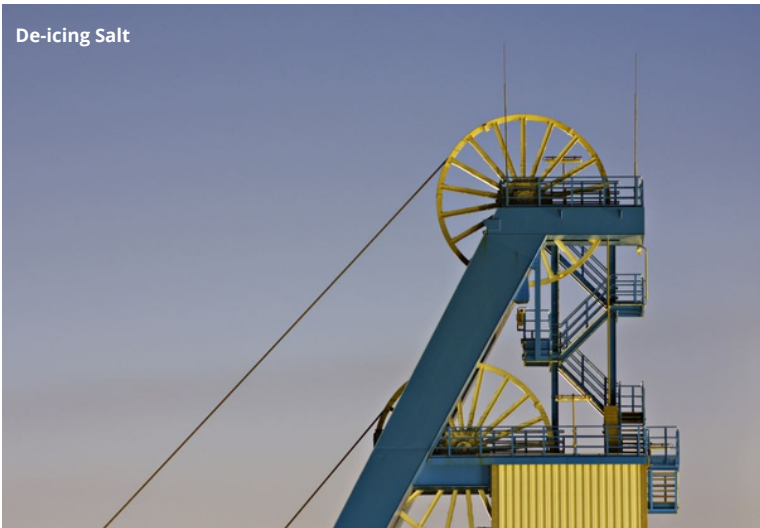
People can use gas grill to make this corn but they prefer charcoal as this does not only add smokiness to it but adds flavor complexity, using only three ingredients. The outside is crispy, the outer layers of naturally sweet corn caramelized almost like the crust on crème brûlée. That outer layer is full of deep caramel flavor; it's pleasantly smoky and bittersweet, while the inner layers are still bright and fresh. The salt penetrates the corn fully, giving it a taste like salted caramel.

People usually play with this dish by doing experiments with other elements such as unsalted butter. This adds a whole new layer of flavor and take it to a really special place.

# Industrial Salt & It's Applications

Salt is known to for its use to give flavor to food. However, salt's application is much more than just enhancing our food. One may not be aware of it, but sodium chloride is largely used in various industrial areas. Industrial salt is one of the most significant raw materials used in the various industries. Due to the diversity of this particular type of salt, it is high in demand.

De-icing Salt



## 1. De-icing Salt:

Industrial salts are widely used for the deicing of roads, walkways and platforms. They have the quality to lower the freezing point, thereby, melting the ice blocking our pavements every winter. De-icing road salt is usually spread over the roads creating a coating of brine before the surface of the road freezes. This particular application of salt counts for a big share of the overall industrial salt market.

## 2. Oil and Gas Industry

Industrial salts are used as an additive in mud used as drilling fluids. This mud lubricates while simultaneously acting like a coolant for the drilling head. The performance of said fluids depend on the salt concentration in them. The salt for this specific use is obtained from solar evaporation or conventional salt mining methods. The demand for industrial salts is expected to increase with newer oil and gas drilling wells projected to start.

Industrial Salt



### 3. Water Treatment:

Salts are utilized in water treatment typically in water softening systems. They involve a process that efficiently removes calcium and magnesium ions present in the water by an ion exchange method which involves resins. Industrial salts are used for the restoration of resins, which would in turn refine the performance of the system as a whole. Coarse salt, granulated salt or salt pellets are used for this purpose.



Salt used in Water Treatment

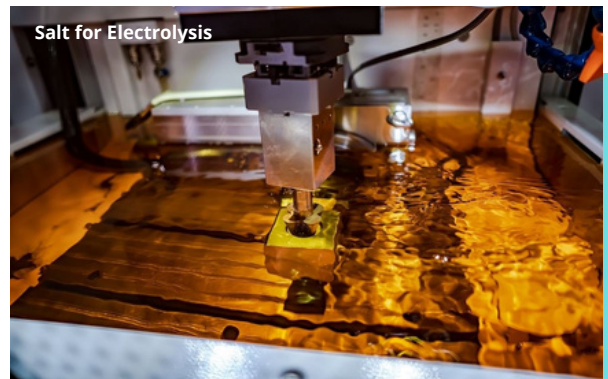


### 4. Textile Industry:

Typically used to fix batches of dyes, industrial salt plays an important role in reactive dyeing by improving the affinity of the dyestuff towards the fiber and acceleration of the dyestuff's association and lowering its solubility. Through this the textile industry achieves standardized dyes.

### 5. Salt for Chlor Alkali or Electrolysis:

Industrial salt is used for the production of chlorine, which is one of the chief components of any disinfectant or cleaning product. The electrolysis of salt solution results in the production of chlorine. In turn, this makes salt a raw material for the manufacturing of chlorine.



### 6. Chemical Industry:

Largely used in the manufacturing of various chemicals, industrial salt is used as a raw material often in the production of chlorine, caustic soda and soda ash. Other than these, industrial salt is used in the manufacturing of a variety of chemicals like caustic soda, sodium sulfate, sodium carbonate, hydrochloric acid, sodium bicarbonate, metallic sodium, nitrate and as stated previously – chlorine.



# Five Largest Salt Mines in the World

Salt used to be considered a delicacy and a mark of wealth in. Before the Industrial Revolution in the 18th Century, salt mining was believed to be dangerous and was done largely by hand. Now however, salt is a kitchen staple. Salt mining is considered to more affordable and commonplace. Counting down the top 5 largest salt mines in the world:

## 5. Wieliczka Salt Mine in Poland:

The Wieliczka salt mine is a World Heritage site and a Landmark of Poland. Table salt was excavated from this mine from the early 13th Century making it one for the longest operating salt mines of the world. Now it largely operated as a tourist attraction. The deep grey salt deposits formed in Miocene Era or approximately 13.6 million years ago. It even survived the occupation by the Germans.

The mine itself is famous for its chapel, the Chapel of the Holy Cross in the Franz Joseph I chamber. Covering approximately 178 miles in horizontal passages and chambers, this salt mine also features Crystal Grotto and saline baths in the lower levels making it a huge tourist highlight.



## 4. Atacama Salt Flat in Chile:

Atacama Salt Flat is the largest salt flat in Chile. The salt flat encompasses 3,000 km<sup>2</sup> (1,200 sq. mi), is about 100 km (62 mi) long and 80 km (50 mi) wide. It is surrounded by mountains and volcanoes with no drainage source. Although the Atacama Salt Flat is the largest in Chile, its output is a derivative of the salt present: lithium.

Salar de Atacama is the world most astronomical and purest source of lithium which is still active to date, containing approximately 27% of the world's lithium reserve base. As of 2017 it has provided 36% of the world's lithium carbonate supply.

Atacama Salt Flat





### 3. Prahova Salt Mine in Romani:

The Prahova Salt Mine has the significance of being the most majestic salt mine in Europe. This mine is made up of 2 levels – Unirea Mine and Mihai Mine. Both the levels were severely damaged in 1994 due to which it is no longer used for salt mining but is still in use for far better things which include healing and medical excursions. It is open to the public in 14 awe-inspiring galleries. Visits to this particular salt is mine endorsed as a remedy to breathing problems. These breathtaking galleries are said to be about 55 meters high which is greater than the Status of Liberty excluding its foundation.

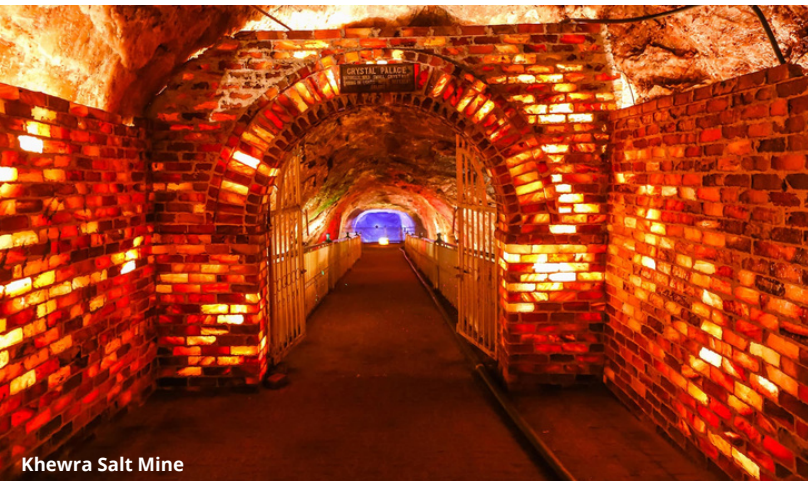
Prahova Salt Mine



### 2. Khewra Salt Mines in Pakistan:

The Khewra Salt Mines were said to be discovered by Alexander the Great in 326 BC. That is not exactly the truth, the true credit goes to his horse. When his army stopped at Khewra to rest after a long day's travel. Alexander and his soldiers' horses started licking the stones on the ground. After viewing their actions, the curious and brave warrior tried it himself.

Khewra mine is approximately 945 feet above sea level and roughly 2400 feet into the mountain from the its entrance, the underground mine covers the large area of 110 km<sup>2</sup>. Today it is considered to be the second largest salt mine in the world. They turn out about 325,000 tons of salt annually; the output of a lifetime is approximated to be about 220 million tons which is not even a dent in the 687 billion ton of salt estimated to be stored here.



Khewra Salt Mine

### 1. Sifto Salt Mines in Ontario:

The world's largest salt mine is right here, in Goderich, Ontario. This salt mine is located 1800 feet beneath Lake Huron. It's so extravagantly large that it's hard to visualize: the mine is as deep as the height of the CN Tower. In 2014, according to the Toronto Star, the mine was producing 2,600 pounds of salt per day - an amazing feat for any salt mine. The mine is operational since 1959, it is believed to be lifesaving. The salt mined here is used in the production of industrial chemicals and cleaning products.

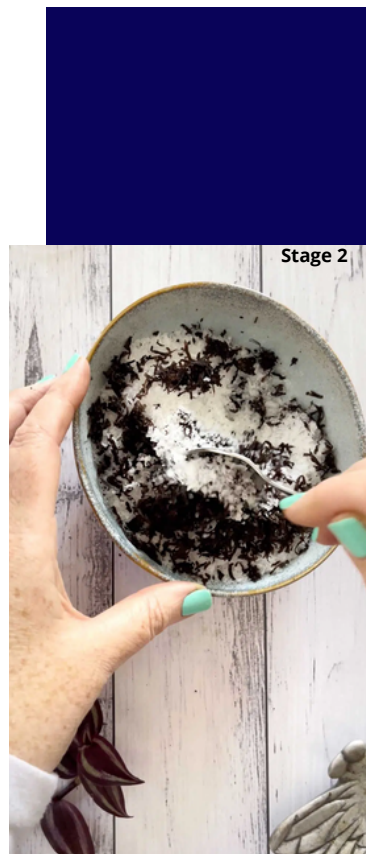


Sifto Salt Mine

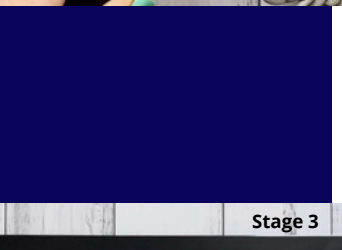
# Truffle Salt



Stage 1



Stage 2



Stage 3



Stage 4



Making truffle salt is an excellent way to extend the enjoyment of a seasonal bounty. Truffle season is relatively short, going from late June to early September. They're really at their best in the peak of winter, which is a few short weeks from late July to August. Making things like truffle salt and butter can help this wintery taste linger for many weeks and months.

You'll only need two ingredients and a little bit of patience to make this recipe. And as mentioned, given truffles are very much a seasonal food – you'll only be able to make this in winter. However, the final result will ensure you enjoy the taste of truffle anytime.

- Sea salt flakes – best quality you can find. You don't want that delicious truffle going to waste.
- Fresh black truffle – these are found at trufferies around Australia and are also stocked at many retail stores.

There are two simple methods. The first is simply putting a small piece of truffle into a jar of salt and letting the flavour infuse. The other is to grate truffle into the salt and this is my preferred method. Not only do you get the flavour and aroma of the truffle, you also get little flecks of it in your meal too.

## How to make Truffle Salt?

- Finely grate the truffle into the flaked sea salt.
- Mix the truffle and salt – you're looking for an even distribution.
- Spread the combined salt mix out on a silicone dehydrator sheet and dehydrate at 38°C (100°F) overnight (or for 8 hours).
- Pour the finished salt into a jar with a tight-fitting lid and keep in a cool dark place. It will keep this way for 2-3 months. It can still be used after this though the pungency of the truffle will be greatly reduced.

Drying out the mix is necessary because the truffle is quite moist once grated. Don't have a dehydrator? Give this recipe a go in the oven instead. Ensuring it stays on a low temperature is essential though. Anything over 40°C (104°F) could slightly cook the truffle and reduce its pungency.



# Honeycomb Patterns of Salt Deserts



From the Bonneville Salt Flats in Utah to the Salar de Uyuni in Bolivia, salt deserts around the world have become popular tourist destinations—vast, seemingly featureless, impossibly photogenic natural wonders. Although not all salt deserts are created the same, they appear to share a strange feature: what can be described as honeycomb-like patterns composed of low ridges emerging from the salty crust.

Salt deserts (also called salt flats or salt pans) form when a shallow, enclosed body of water evaporates in a place with little precipitation, such as a desert, leaving a flat surface of minerals behind, which can accumulate over thousands of years.

Lasser, a postdoctoral researcher at the TU Graz, was first introduced to salt deserts by her PhD supervisor Lucas Goehring, a physicist at Nottingham Trent University in England. “When he advertised the project, I became fascinated because during my bachelor’s and master’s I was doing theoretical physics programming, and I really wanted to explore the experimental side of physics,” she says. This project allowed her to actually go “see things in the wild.”

A couple hypotheses had been floated over the years about why these flat areas develop the crusty honeycomb shapes. One of them attributed the patterns to cracks that form as the ground surface dried. “The idea was that the surface would dry up and crack to relieve stress,” says Lasser. “And the mineral-rich water would well up in those cracks,” leaving ridges of salt crystals behind. A competing hypothesis posited that the edges of cracks might push upward to form the ridges.

Salt deserts aren’t as dry as their name suggests. “They’re actually completely filled with water,” says Lasser. “The groundwater reaches the surface and this water is moving and constantly evaporating through the surface.” As the salt water evaporates, a more mineral-rich layer builds up below the crust, and since it is heavier than the less salty water welling up from below, it begins to flow back below in “downwelling plumes,” Lasser says, around the water that rises to replace it. It is these circulating plumes, convection cells similar to what happens in radiators but driven by salinity rather than heat, that create the regular ridges. “What we see on the surface are the edges of the convection cells that sit in the underground,” Lasser says. The constant turnover of salty and fresh water beneath the surface seems to be a universal property of all salt deserts.

# Salt Roller

Salt Roller is versatile by design, simple & beautiful tool that can be used on both the skin & body & your pets.

Himalayan salt contains 84 trace minerals including magnesium, potassium, calcium & iodine which all aid in reducing inflammation.

The roller deposits these minerals into the skin which is what makes this tool a powerful healer.



It is recommended to keep the roller in the fridge for puffy eyes, headaches, blemishes & rashes. Moreover, one should warm the roller for bruises, sports injuries or anxiety.

**PRO TIP! Clean the salt barrel with alcohol, do not get the salt roller wet. With that in mind, it does great in the fridge & feels amazing when used cold.**



**The SMAP Newsletter** is published quarterly by the Salt Manufacturers Association of Pakistan and distributed free of charge by individual mailing. The Newsletter is distributed to email subscribers and appears on the SMAP website ([www.smap.org.pk](http://www.smap.org.pk)).

The Newsletter welcomes feedback, new information, and relevant articles on all aspects on salt industry.

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