



**WE CREATE SOLUTIONS
THAT RISE ABOVE**

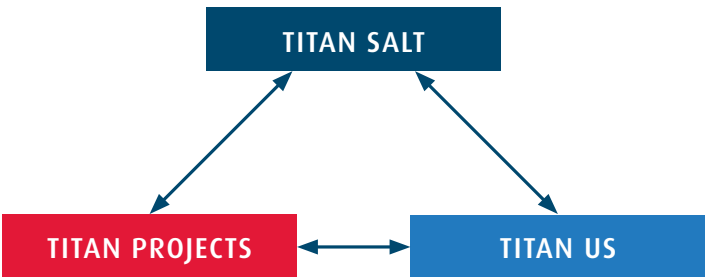


**DESIGN, FABRICATION, DELIVERY AND INSTALLATION
OF SALT PRODUCTION SYSTEMS**

1. COMPANY PROFILE

1.1. About Titan

Titan Salt is committed to preparing salt plants for the future, creating innovative solutions that help salt plants rise above. Our company has its own production facility, site support staff, and installation crew to manage turnkey projects. We were founded as an independent system provider with an in-house engineering department for process and mechanical development. We are the combination of two leading international salt production system suppliers: Titan Projects (Netherlands) and Titan US (Chicago). Our founders and engineers have decades of experience in optimizing salt plants with energy efficient equipment designs.



1.2. Mission and Vision

Titan Salt is dedicated to improving the functionality of today's salt plants. It is our mission to help salt plants become easier to operate, more sustainable and energy efficient. We recognize the current void of innovation, devotion and experience in the salt industry, which is why our company strives to make a difference.

Our vision is to be a market leader in transforming small and Mid-sized production plants into durable, cost-efficient factories.

‘WE LOVE TECHNICAL CHALLENGES’

1.3. Our Team

Our multidisciplinary team of no-nonsense professionals has years of experience in design, fabrication and operations within the salt industry. We take pride in developing and implementing ingenious solutions to not only produce mineral salt, but also perfect the treatment of brine and industrial waste water. Titan Salt delivers a cost-effective, durable and high-performing system, going above and beyond expectations.



**MULTIDISCIPLINARY AND NO-NONSENSE TEAM:
WE DEVELOP AND IMPLEMENT INGENIOUS SOLUTIONS**

2. MARKETS

2.1. New Built Salt Plants

Titan Salt is your dedicated partner for the design, fabrication, installation and start-up of your new salt plant. We offer the latest technologies and innovative designs for the production of:

- NaCl
- CaCl₂
- KCl
- K₂SO₄
- Na₂SO₄
- Combined Salts
- Other mineral products

We offer decades of experience within a modern team of dedicated engineers. Our state-of-the-art evaporation and crystallization equipment is specially designed for a long life of smooth and easy operation with the highest efficiency. All key equipment is produced by our highly qualified production staff in the Netherlands. Our team of experienced engineers will take care of a swift installation, start-up and training to make your salt plant profitable in no time.

Our experience covers:

- Multi-effect Vacuum Salt Plants
- Vapor Recompression Salt Plants
- Solar Salt Plants
- Salt Wash and Upgrading Plants



2.2. Remodeling Existing Plants

Many existing mineral salt plants battle their competition in the marketplace and feel pressure to deliver highly pure salt for a competitive price. In order to do so, these plants are forced to get the maximum out of their existing plants and always search to improve throughput, energy consumption, salt quality and equipment lifetime.

Titan Salt is highly experienced in upgrading existing salt plants. By integrating our innovative designs in the crystallization process, we optimize operation with your staff, maximizing up-time and boosting your evaporation. Within our references, we can present cases where we have improved capacity up to 20% with a minimum investment.

2.3. Industrial Waste Water Purification (ZLD)

Changing economic and environmental demands have sparked a need for the recovery of process water and salts from industrial waste water. Titan Salt is at the forefront of this growing market. With our Evaporation and Crystallizer systems, we are able to produce a highly cleaned condensate suitable for reuse in the production process or released in the environment.

3. PROCESSES

3.1. Brine Treatment and Purification

Titan Salt has a wide range of experience in designing, optimizing and building brine purification systems for the production of evaporated salts of high purity. A good functioning brine treatment system has the following advantages:

- Less downtime of the plant for cleaning cycles
- More efficient evaporation and crystallization process
- An increased product quality and purity
- Increased plant lifecycle (life time)

Our brine treatment systems can be designed as a continuous type, batch type, or a combination of both. This hybrid system is enhanced with our Pulse filtration system to bring your brine to the highest quality. Within our design, we keep a close eye on reduction of chemical consumption, mixing efficiency, shorter reaction time and settling times to an optimal result.



3.2. Filtration

Titan Salt offers a state-of-the-art, fully automatic, brine filtration system which removes suspended particles to keep brine in clean condition. The brine filtration system uses heavy duty candle filters that withstand high sludge loading, high pressure back pulsing and are resistant to acids. The filter housings are constructed out of a carbon steel shell that is rubber-lined to allow chemical cleaning. Titan Salt's brine filtration systems are supplied with a compressed air system for back pulse cleanings, as well as a Cleaning in Place (CIP) acid system.

Advantages:

- No sedimentation time needed
- Complete removal of suspended solids
- No more carryover towards the final product
- Reduction of heater fouling
- Increased product purity



3.3. Evaporation and Crystallization

Titan Salt is dedicated to innovative solutions for the salt industry. We utilize salt crystallization to meet our client needs in purity, steam economy, power consumption and availability. We are leading the way in crystallization technology, utilizing the latest equipment and innovative designs in our system. Our focus is to provide a plant that performs to its maximum with respect to operability, up-time, energy consumption and throughput. We have experience and references in the following system types and equipment:

Type of Systems:

- Multiple Effect
- Mechanical Vapour Recompression
- Thermal Vapour recompression
- Flash/Cooling Crystallization

Types of Crystallizers and evaporators:

- Forced Circulation Crystallizers
- Draft Tube Crystallizers
- Cooling Crystallizers
- Falling Film Evaporators

3.4. Slurry Handling

Titan Salt offers the most comprehensive slurry handling system in the industry. Our team has decades of experience in designing and operating salt plants. We have honed in on this knowledge and developed a new slurry 'multi feed' handling system, overcoming the many operational issues salt plants endure today.

Titan Salt's Slurry Highway is a low maintenance, reliable and user-friendly slurry transport system. It can be used to transfer slurries from one crystallizer to another, or to the head tank in order to feed the centrifuge.

Advantages of our slurry transfer system:

- Fluids and solids continuously stay in motion with benefits of smooth operation
- No intermediate holding tanks with agitators required
- Fewer mechanical parts
- Fewer Pumps
- Easier control setup
- System can stay in operation without emptying or flushing during emergency shut-downs or unplanned process obstructions

Head Tank and Slurry Thickener

If you want to continuously operate a centrifuge at peak performance, Titan Salt's head tank feed system is the best decision for your facility. We design our head tanks with our clients in mind. This type of centrifuge is able to feed with constant flow and highest density.

3.5. Dewatering

Once crystals are made to perfection in our crystallizer system, they have to be separated from the mother liquor. Titan Salt has developed the most advanced and operation-friendly dewatering system.

Our dewatering system uses one of the best performing pusher centrifuges manufactured by Ferrum. Our extensive experience with integrating these centrifuges has resulted in innovative dewatering system solutions, both for the feed and discharge process sections, that allow for the best performance and easy operation.

Some of our innovative features:

- In-line pre-thickening upstream of the centrifuge or Integrated thickener (Ferrum patented)
- Centrifuge solids discharge connection
- Wash water switch box or Rinsing water flap
- Improved raceway channel
- Wet-cake discharge conveying
- Screw feed inlet as a salt wash feature (upstream of the centrifuge?)



3.6. Drying Systems

Salt is our passion and that's why we are at the forefront of drying technology. Our knowledge in fabricating, installing and operating dryers has been used to craft Titan Salt's easy-to-operate systems. We're confident in our equipment and can guarantee our customers a continuous flow of dry, clean and undamaged salt.

We can offer the following dryer technologies:

- Static fluid bed dryers/coolers
- Vibrating fluid bed dryers/coolers
- Steam-driven, gas fired or oil heated
- Several techniques for heat recovery of reuse of available energy
- Design optimized and dedicated for salt

Emission Reduction

Titan Salt always keeps energy consumption and the environment in mind. We offer several options to keep exhaust air free of contaminants and particles. A clean exhaust flow reduces emissions and provides better air quality for your facility's environment.

We offer the following technical solutions focused on emission reduction and product recovery:

- De-dusting Cyclone
- Multi De-dusting Cyclone
- Multi-stage De-dusting Cyclone
- Scrubber
- Bag Filters
- Multi Stage Scrubbing Cyclone®
- A combination of the options above

3.7. Dry Salt Processing

Solids Handling

Efficiently transporting large volumes of material can seem like a daunting task. Dry handling different types of salts, from fine flour to coarse rock salt, can present many logistical challenges. Titan Salt has decades of experience when it comes to moving products in and around production facilities. From custom storage discharging systems to intricate layouts of conveyance, we can meet the needs of any production facility.

Upgrading

Whether you are producing rock salt, solar or vacuum salt, our team can provide the knowledge and tools needed within your industry. We serve manufacturers of pool salt, de-icing salt, food salt, agricultural salt and other mineral products. We offer equipment to size, classify, and qualify your product in an efficient and continuous way. Titan Salt ensures that the right salt, packaging and stream are used for further production and storage.

Product Shaping

What type of salt does your facility produce? Course, medium, fine, micro-fine, flour, dust, pellets, tablets, blocks or flakes? No matter the size, shape or composition, Titan Salt has the knowledge and experience to help you efficiently produce these products.

Packaging

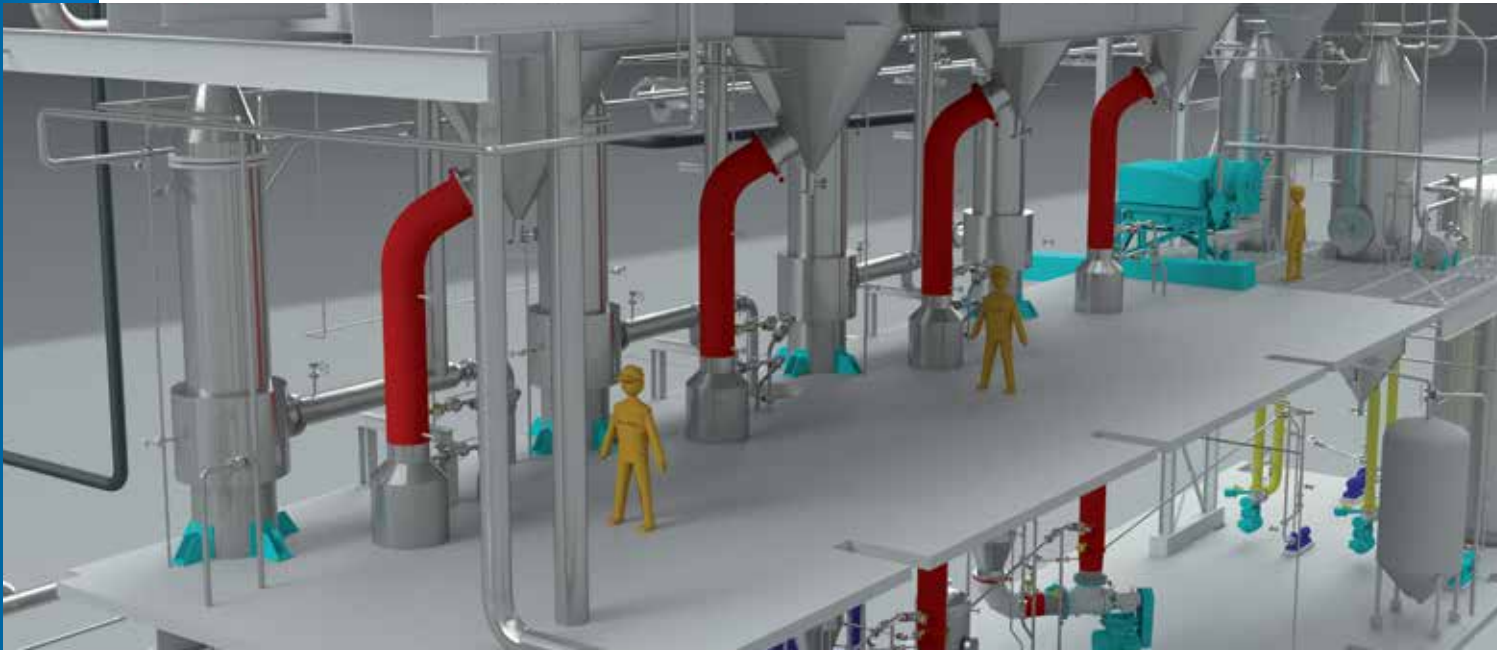
Efficiently packaging salt product presents its own unique set of challenges. Choosing the correct machines for the right product packaging can prove to be difficult. Additionally, integrating these equipment systems into an efficient layout is a challenge many salt plants face. Our engineers take these concerns seriously and work with each client to produce the most effective, efficient layout to package products in a cost-effective manner. Our unique solutions optimize floor layouts to make sure operator and forklift traffic stay safe and separate.



4. Services

4.1. Research and Development

Titan Salt continually seeks to develop the latest technology for our customers. Our knowledgeable staff utilizes various software and pilot skids to create innovative solutions. Titan Salt's research and development has a broad focus on improvement in equipment design, metallurgy, welding, manufacturing and operations. This dedication allows our customers to be energy efficient and cost-effective with maintenance solutions.



4.2. System Review

Our team of experts will perform a system review of your plant and develop strategies to improve your facility's production. System reviews are tailored to each of our clients' needs. Whether it's an inspection or troubleshooting, we have the tools and knowledge to properly evaluate your facility's operations. Our engineers will perform a detailed system review on site and work with the operation and maintenance teams to resolve any issues discovered. Upon completion of the system review, a detailed report, including a heat and material operational balance, will be submitted to help improve your plant's production.

What are the benefits:

- Increase in production
- Increase in operation uptime
- Product quality and purity
- Reduction in power consumption
- Equipment efficiency and functionality

4.3. Process Design

Titan Salt has acquired vast knowledge in process design, obtained over decades of working in the industry. We utilize this experience to design the most efficient, cost-effective, and user-friendly systems for salt facilities. Our team specializes in solar salt facilities, all types of evaporation system, and dry handling systems.

Titan Salt strives to continuously implement the latest technology to ensure our customer satisfaction. We utilize various software and bench scale testing to provide a proper working system. We pride ourselves on our broad knowledge across various disciplines which allows us to provide a complete package to our customers, from brine treatment and crystallization, to dry handling and packaging.

4.4. Plant Design

Titan Salt specializes in optimized plant design for both existing and new facilities. Our full-service mechanical engineering and design services are available in-house. We work closely with customers to ensure optimization throughout the entire design process. Using the latest 3D technology, our engineers will provide efficient solutions for both system design and facility layout.

‘OVERCOME INDUSTRY CHALLENGES THROUGH KNOWLEDGE AND EXPERIENCE’

4.5. Equipment Design and Fabrication

Titan Salt is always exploring new solutions when it comes to equipment design. Mechanical design and material selection are integral to our process. It is important to consider how these components work together to achieve the best design.

When working on a project, we always keep our clients' needs in mind. As energy efficiency becomes a greater concern in our industry, so do sustainable materials choices and budget-friendly options. We closely collaborate with clients to create equipment design that are easy on the environment and simple for the end users. We constantly look for new opportunities to improve our designs and enhance user experience.

All of our equipment is mechanically designed and manufactured according to the latest industry standards. All our equipment is produced in our production facility in The Netherlands or by one of our trusted suppliers of specialty equipment.



4.6. On Site Modifications and Installation

Our staff members are experts at launching, evaluating, and optimizing plants. We work with our clients to improve production and operations. Our modification process starts with a comprehensive review of your current systems, as well as process and equipment reviews. We look at overall plant engineering, equipment design, and manufacturing processes to advise any necessary adjustments. Modifications and installation jobs can be carried out turnkey by our own team of field engineers, mechanics and welders or we manage a local team of qualified personnel to do the job as efficient as possible to our specification and standards.



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IN DESIGN, FABRICATION, DELIVERY AND
INSTALLATION OF SALT PRODUCTION SYSTEMS’**

4.7. Commissioning, Start-up and Training

Titan Salt offers years of experience in system operation, commissioning and plant start-up to our clients worldwide. Our expertise in the mineral salt industry allows for a smooth and detailed start-up experience. Our dedicated team will work together with your operations group, training your staff both in the classroom and out in the field to ensure an easy handover of the system.

You are in good hands, even after we have completed your optimization and left your facility. Titan Salt is dedicated to helping our customers troubleshoot operation issues remotely or on-site. Our high level of experience can be offered in a full commissioning package or as stand-alone services.

4.8. Evaluation and Monitoring

Titan Salt is dedicated to providing a satisfactory experience well beyond the commissioning and start-up phase. Once our staff is off-site, our efforts do not stop. Titan Salt recognizes there will be upsets in operation at some point. Our team is dedicated to helping our customers troubleshoot these issues remotely, or on-site when needed.

**‘TITAN HAS THE COMPLETE PROCESS
FROM START TO FINISH UNDER CONTROL’**



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**'CHALLENGE US TO DEVELOP A NEW PLAN
IN SPEED AND COST REDUCTION!'**



TITAN SALT: A BRAND OF TITAN PROJECTS AND TITAN US