



SALT PROCESSING PLANTS – SODIUM CHLORIDE - SALTWORKS



Manfredini & Schianchi offers to Domestic & International investors the experience developed during the years, with technology providing the complete range of machinery for sea salt and rock salt treatment, in every processing stage:

- Washing
- Spin drying
- Milling
- Drying
- Screening
- Colour sorting
- Bagging
- Packaging
- Palletising

The above processing stages require machines and equipment capable of preventing the formation of impure particles and allowing a completely automatic work cycle.



Herewith you will also find the economic report of such investment capable to provide a high added value to the several final products.



Introduction to Salt Processing Plants

A plant designed with the abovementioned processing stages presents the following characteristics:

- An output of 30 Tons/hr. of washed salt and 15 Tons/hr. of dried salt
- An overall area of 13,000 m² of which 2,400 m² must be covered.

Under the covered area the drying, screening, packing and palletising machines will be installed, as well as the dried palletised products. The open area will include the washing plant, the stockpile of coarse salt to be processed, the water draining tanks and the storage of palletised bagged products.



There will also be an area for the main cabin with 600 kW power and supply group with 150 kW power, in case of power cut.



We hereby briefly describe the work phases that have been listed above:



Salt Washing

This can be considered as the most important stage during which the salt loses certain chlorides that precipitate in salt processing. At the beginning the salt is automatically placed in a vat previously filled up with saturated water, in order to be washed. I



In the vat, the salt is freed from all the impure particles, which are particularly light and rise towards the surface to pass into the draining tanks. Furthermore, by means of electro-pumps of appropriate power and pressure, 50% solution of salt and water is forwarded to the centrifugal unit.

Salt Spin Drying

This process is carried out through continuous charge 900 rpm. Speed hydroextractors that free the salt of the water it contains, in order to achieve approximately a 4% humidity. The abovementioned water-salt solution coming from the washing vat is then drawn into the extractor by the electropumps.



Krauss-Maffei Pusher Centrifuges SZ



The centrifugal force of hydroextractors provides the water separation and the salt falling with a very low relative humidity. The water retired returns to the washing vat and the salt is ready to be triturated or ground..

Salt Grinding

This is a particular stage, necessary to satisfy the market demands concerning the fine salt sector. This stage is obtained through a series of mills which receive the salt coming from the spin drying unit.



Here the salt is **milled** in order to considerably reduce its grain size and to produce table salt for household use, salt required for Industrial applications use and for leather tanning.



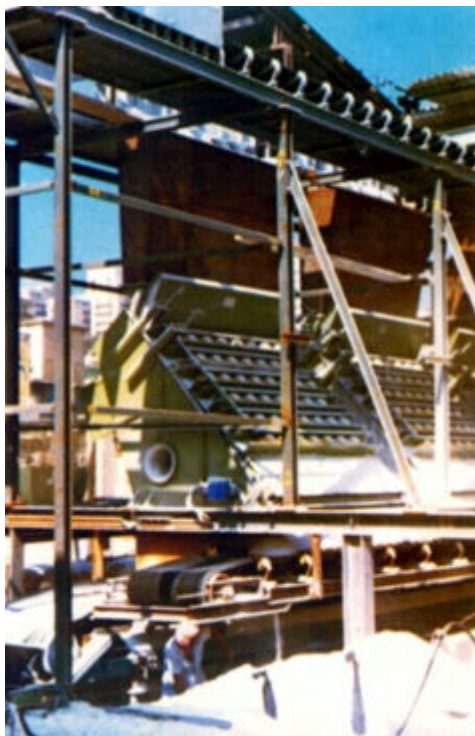
Salt Drying

This stage is performed by rotating or fluid bed type dryers. Both types of dryers have to reduce the humidity of the salt from 4% to 0.2%.

The machines dry the salt at a temperature of about 200° C. by means of previously heated hot air.

Salt Screening

This stage is carried out by means of **Vibrating Screens** with an appropriate screening-vibrating capacity, in order to grade different grain size ranges coming from the milling and drying stages.



Types of salt:

- Coarse dried salt
- Medium dried salt
- Fine dried salt
- Powder

The different types of salt with various grain sizes are stored in separate storage silos to be later bagged or packaged.



Salt Color Sorting

The sodium chloride can be available as rock salt or as sea salt combined with other salts. Therefore, it is possible to obtain salt on an industrial scale basis from either rock salt mines or through solar evaporation of sea water. In both cases a certain quantity of impurities still remain in the salt, due to the presence of residue of rock or grit from the sea bed.



Obviously such impurities affect the quality of salt and diminishing its market value.

The colour sorting machines represent an effective solution for the elimination of impurities.

Working on pre-determined size ranges (from 3 to 20 mm.) totally controlled by microprocessors, the colour sorting machines are provided with a continuous self-diagnosis so as to steadily maintain the calibration conditions required, with possibility to store an unlimited number of programs related to the different work typologies.



Salt Sacking

The industrial market requires the use of 50 kg or 25 kg bags.



By means of automatic bagging machines that have an output of 800 bags/hour, the salt is packed with the following configuration:

- Coarse salt in 50 kg. bags
- Washed salt in 25 kg. bags
- Whole coarse salt in 25 kg. bags
- Coarse dried salt in 25 kg. bags
- Medium dried salt in 25 kg. bags
- Fine dried salt in 25 kg. bags

Salt Packaging

This is one of the most important stages as the dried salt is removed from storage bins and packaged by means of automatic packaging machines, with an output of 200-300 packets/1', ready for household use.

The appeal to the market also depends on the type of packaging, aspect of the package, homogeneous grain size, the brightness of the product and the absence of foreign matters.



Salt Bags Palletising

In modern industry efficiency is guaranteed by automatic palletising and strapping lines, with a high degree of standardization and speed in the process.



These lines provide the formation of 1 ton air tight pallets so as safeguard shipment and avoid any economic loss.

Range of ordinary and special applications of treated salt

Tipology	Application	Volume Kg	Packaging	Market Trend
Industrial Salt	Roads in winter	50	Plastic Bags	High Volume
Whole Salt	Table salt	1	Plastic food Bags	Constant demand increase
	Food industry, Chemicals tanning	20-50	Plastic Bags	According to industry situation
Fine Dust	Water cleansing, Cattle breed	1500	Big Bags	Constant demand
		2 - 3	Tablets	
		25	Bags	
Coarse/Fine Salt	Table salt	1	Food cardboard packs	Constant demand
Coarse/Medium/Fine Salt	Food industry, Chemicals tanning	25	Bags	Constant demand in food industry
		1500	Big Bags	
Iodate Salt	Health Care	1	Bags	Select Customers
Saltcellar	Table salt	0,1	Plastic Saltcellar	Restaurants Supermarket
Salt Bags	Transports Restaurants	0,002	Bags	Demand for travellers meals

The data shown is indicative and may vary without notice