



Part of a bigger picture



AluSalt™

Salt Slag Recycling Process

It has been proven around the world that the use of salt when operating Rotary Furnaces provides optimum control and maximum recovery of aluminium from dross and scrap. The output from this process is salt slag, a low aluminium content hazardous waste. Altek have addressed the big issue of salt slag treatment by developing an 'in-house salt slag recycling solution' to extract aluminium, recover the salts and turn non-metallic 'waste' into saleable products.

- On-site processing provides excellent operational control
- Treat fresh salt slag or landfill slag piles in the same facility
- No transportation costs
- Maximise aluminium recovery
- Improved flexibility and control of operations
- 98%+ salt recovery in the same KCl:NaCl ratio and particle size
- Saleable end product (NMP) into several available markets such as cement, glass and steel
- No waste solution to a global problem

ALTEK
AN ENVIRI COMPANY

AluSalt™ Plant

Alusalt™ is ALTEK's economically viable solution to the global issue of salt slag (salt cake) processing and can be set up locally within a company's curtilage. The benefits this can provide, operationally and financially, are significant and Alusalt™ is the most economical process available in the market for small, medium and large producers.

1. First it is best practice to cool the salt slag out of the furnace as quickly as possible to prevent oxidation of the last remaining aluminium. A specially designed mechanical crushing plant recovers the aluminium via eddy current separation, whilst also grading the non-metallic quantity to 2mm and below.
2. The crushed salt slag is processed first in a water leaching system, using water that has been recovered from the filtration washing stage, and is mixed for only minutes to dissolve all the salts before the newly created slurry passes to the filtration stage.
3. A vacuum filtration system separates the salt water (brine) from the non-dissolvable materials and is washed with fresh water via a multi-stage washing system. A proportion of fresh water is recovered from the salt crystallisation stage, and supplemented by an external source.
4. At the end of the vacuum filter belt, the filter cake is quickly transferred to a rotary kiln to drive off any moisture and treats the high aluminium oxide material to create a stable, output product called NMP (non-metallic product). This NMP can be widely used in the cement, steel, ceramics and rockwool industries.

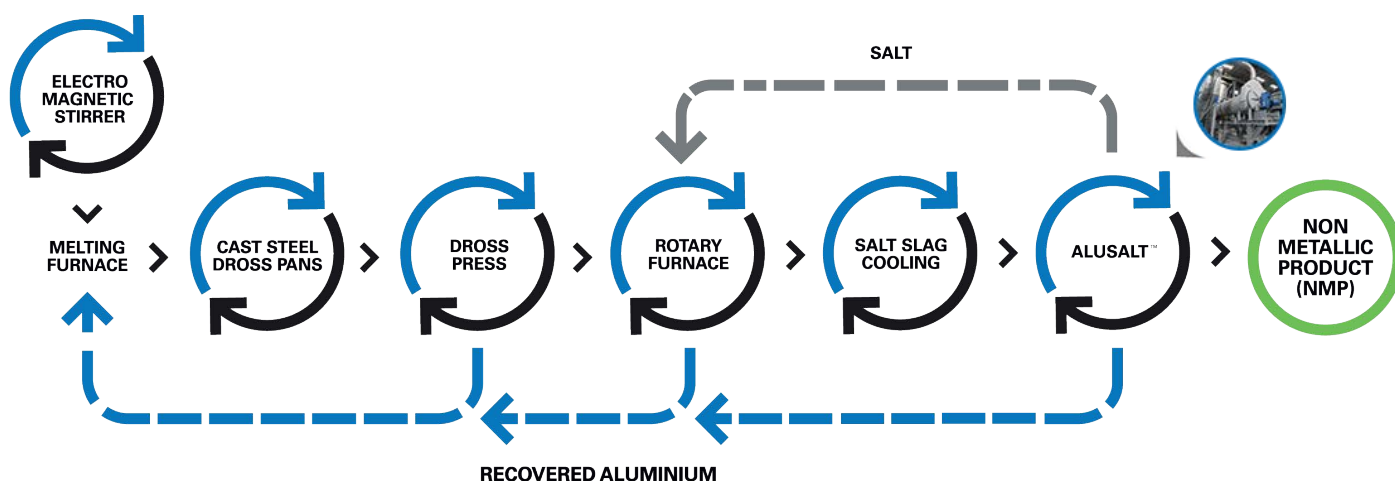


5. The salt water separated at the filtration stage is stored in a tank and fed to a multi-stage crystalliser, using heat recovery and pressurised vessels to minimise energy consumption. The recovered salt crystals are very clean, in the same NaCl:KCl ratio, and can be immediately re-used in the rotary furnace again in a circular economy.
6. All gases emitted from this process are treated with BAT to ensure output from the chimney are well below BREF and even stricter regional requirements. The most abundant gas produced is ammonia, treated using a sulphuric acid scrubber to form an output product of ammonium sulphate. This by-product is free from contaminants and a highly valuable product for salt in the fertiliser industry.

AluSalt™ is an extremely clean operation requiring minimal operators due to an intelligent control system which automatically modifies itself depending on readings from sensors around the plant. Operators do not need to use gas masks or be trained in chemical engineering, and the process is highly flexible allowing different salt slag types from fresh sources or landfill piles to be processed in the same plant.

ALTEK's End-To-End Dross Management Solution

AluSalt™ Salt Slag Recycling plays a vital part of a larger cost effective sustainable End-To-End Dross Management Solution that can help give a faster return on investment over a much shorter period of time. Typically as little as two years.



DISCOVER MORE...

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