

Roll Compaction | Fitzpatrick Chilsonator

Custom Powders were one of the first contractors to see the potential of this technique that at the time was relatively new. Over 20 years we have built up a large experience with this technique involving a very wide spectrum of products and applications.

How does this technique work?

The main principal of roll compaction is that a fine powder or mixture of powders is fed between two rolls and is then pressed to a compacted slab or sheet. This slab/sheet will then be reduced to a manageable size by a breaker and from there will be milled by a specifically designed mill to the required particle size. The milled particles are then fed to a sieve where the product will be sieved according to the required specification. The end-product is packed off to the required end-packaging and the oversize and fines are recycled. This balanced continuous system enables us to

keep a tight control on the particle sizes that are being produced as well as over the density that is achieved. We own 7 different compaction systems differing in size and capacity. The processing capacity varies from 50 kg/ hr to 30 T per day depending on the size of the machine, the characteristics of the starting material and if recycling is required. Typically all the equipment is in stainless steel and set up in such a manner that material from big bags as well as sacks can be processed. Often the raw

materials for compaction require pre-blending followed immediately by compaction. For that reason in most of our compaction units you will find blending systems incorporated.

If specific product characteristics require it, we can also offer forced cooling with liquid nitrogen and/or we can control the humidity levels in the process area.



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Preferably the raw materials for compaction should not be too fine because this might make transportation of the raw material to the compactor difficult and require special feeding equipment. This may have an effect on processing capacity and thus influence the potential price per ton.

Next to the processing cost per ton we charge for changeover costs per order. These are the costs for setting up and cleaning down the required equipment. This cost component depends mainly on the size of the equipment, the complexity of the set up and of course on how easy or difficult it is to remove the material from the equipment after use. For that reason we also have smaller equipment and simpler set ups available for the processing of smaller quantities or trials.

The end-product from a compaction process consists of angular granules, varying in size from 200/300 microns to a couple of millimetres. Larger granules are also possible by changing the profile of the compaction rolls.

Why choose this technique?

This technique is often chosen for the following reasons:

- For producing a uniform blend of granules with similar sizes, shapes and densities. This eliminates the risk of material segregation.
- For producing a uniform particle size in order to live up to specific individual requirements.
- For controlling the amount of dust in the end-product in order to prevent processing issues like exposure to dust clouds, cross contamination and the loss of product.
- For improving the flow characteristics. Granulated powders do flow easier and faster and in many cases a higher filling rate can be achieved.



- For controlling the density (within certain limits) of a product which can be desirable for storing, transporting or packaging means.
- For controlling the hardness of the product so that a product for example can be pneumatically conveyed without being broken down.
- For improving the dissolving characteristics. Granules do often absorb liquids better than powders and therefore dissolve better.

Quality:

Our compactors are constructed with all contact parts in stainless steel. They are all suitable for the processing of chemical products, plastic additives, detergent products, animal feed as well as food.

Explosion rating:

The equipment is suitable for the processing of products with a low to high explosion rating (ST1 - ST2), ST3 products will be assessed but are rarely suitable for processing on our equipment.

Availability:

This equipment is available in Helmond (NL) as well as in Crewe (UK)

