Acidulation Applications for the Broadfield Processing System

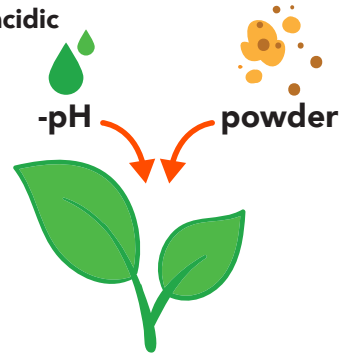
Bradley PULVERIZER

ACIDULATION PROCESS DEFINED

Making something slightly acidic

Fertilizer Applications:
Using acid to make rock more soluble water

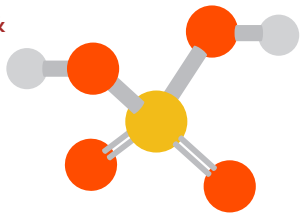
Phosphate Fertilizer:
Convert insoluble Phosphate Rock to soluble Phosphate-Rich Fertilizer



COMMONLY USED ACIDS FOR ACIDULATION

Sulphuric Acid: Phosphoric Acid & Single Super Phosphate (SSP)

Phosphoric and Sulphuric Combined: ESP



Phosphoric Acid: Triple Super Phosphates (TSP)

Nitric Acid: Nitro Phosphates

COMMONLY ACIDULATED PRODUCTS

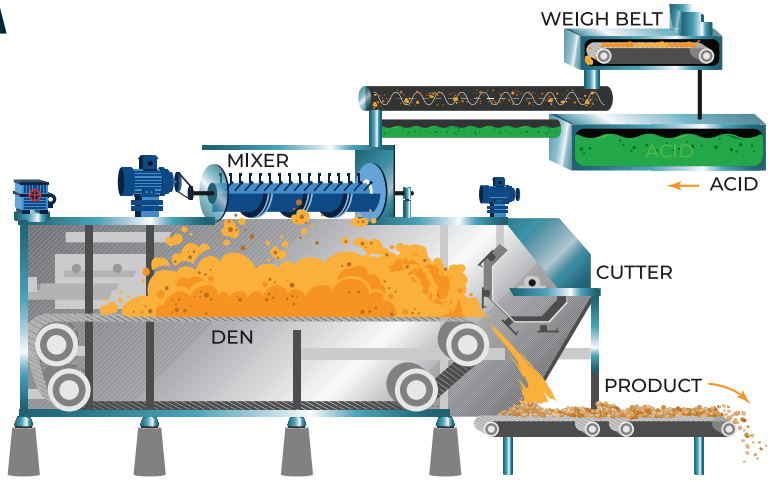
Sulphuric Acid + Limestone: Synthetic Gypsum

Sulphuric Acid + Iron Oxide: Iron Sulphate

Sulphuric Acid + Jaderite: Lithium Extraction

Phosphoric Acid + Salt of Ammonia: Mono Ammonium Phosphate (MAP) & Di Ammonium Phosphate (DAP) – Manufactured by spraying the Ammonia and Phosphoric acid directly into the Den

Phosphoric Acid + Limestone: Mono calcium Phosphate (MCP) & Di Calcium Phosphate (DCP)



MATERIALS COMMONLY ACIDULATED

- Phosphate Rock
- PCP (Precipitated Calcium Phosphate)
- Bones
- Sewage
- Salt of Ammonia
- Iron Oxide
- Jaderite

FUN FACTS

Plants can only absorb nutrients in solution, only O2 & CO2 can be absorbed as gasses.

If all minerals were soluble, they would have leached out long ago and the seas wouldn't be salty.

Many minerals can be reacted with acid to make them soluble.

A BRIEF TIMELINE OF PHOSPHOROUS

1669

Hennig Brand discovered Phosphorus in 1669 by processing (many) gallons of urine.

1769

In 1769 Calcium Phosphate discovered in bones and fossils.

1774-1779

1774 – Phosphoric Acid discovered and first produced in 1779.

1840

In 1840 Justus von Liebig theorizes "acidulation", and John Lawes proves it can be done.

1873

In 1873 First SSP made in USA at the Bradley Fertilizer Co. in Massachusetts