



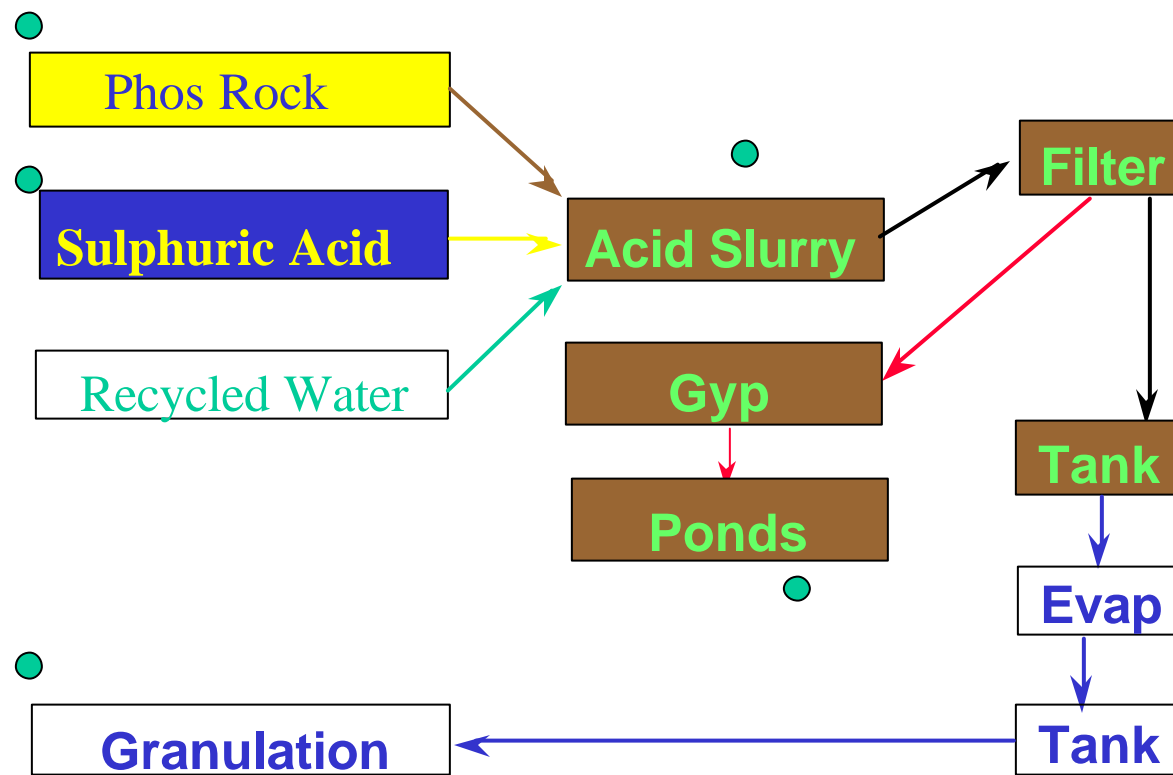
Redwater Phosphate Operation

Sulphuric Acid Overview

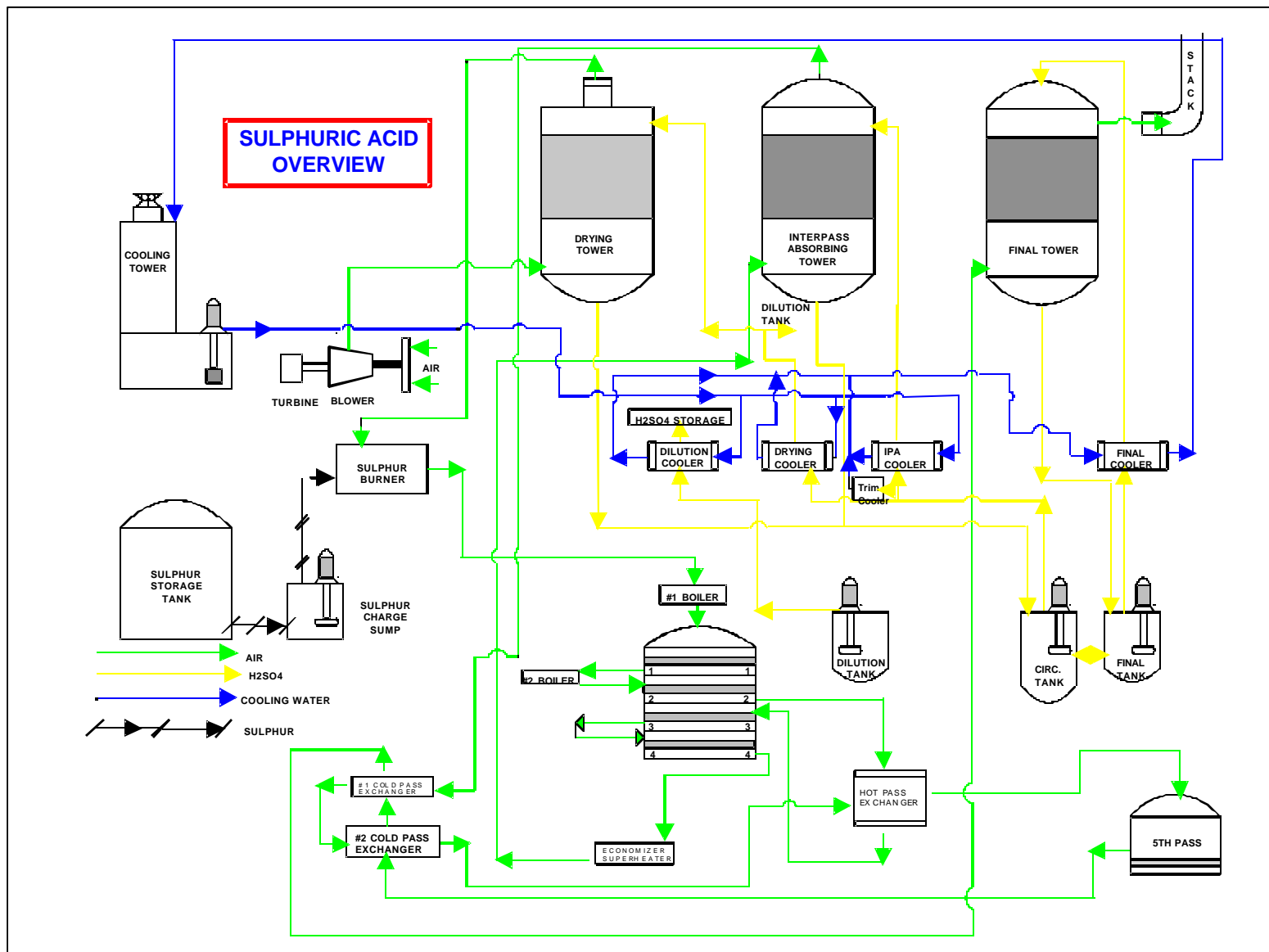
Phos Acid Overview

Granulation Overview

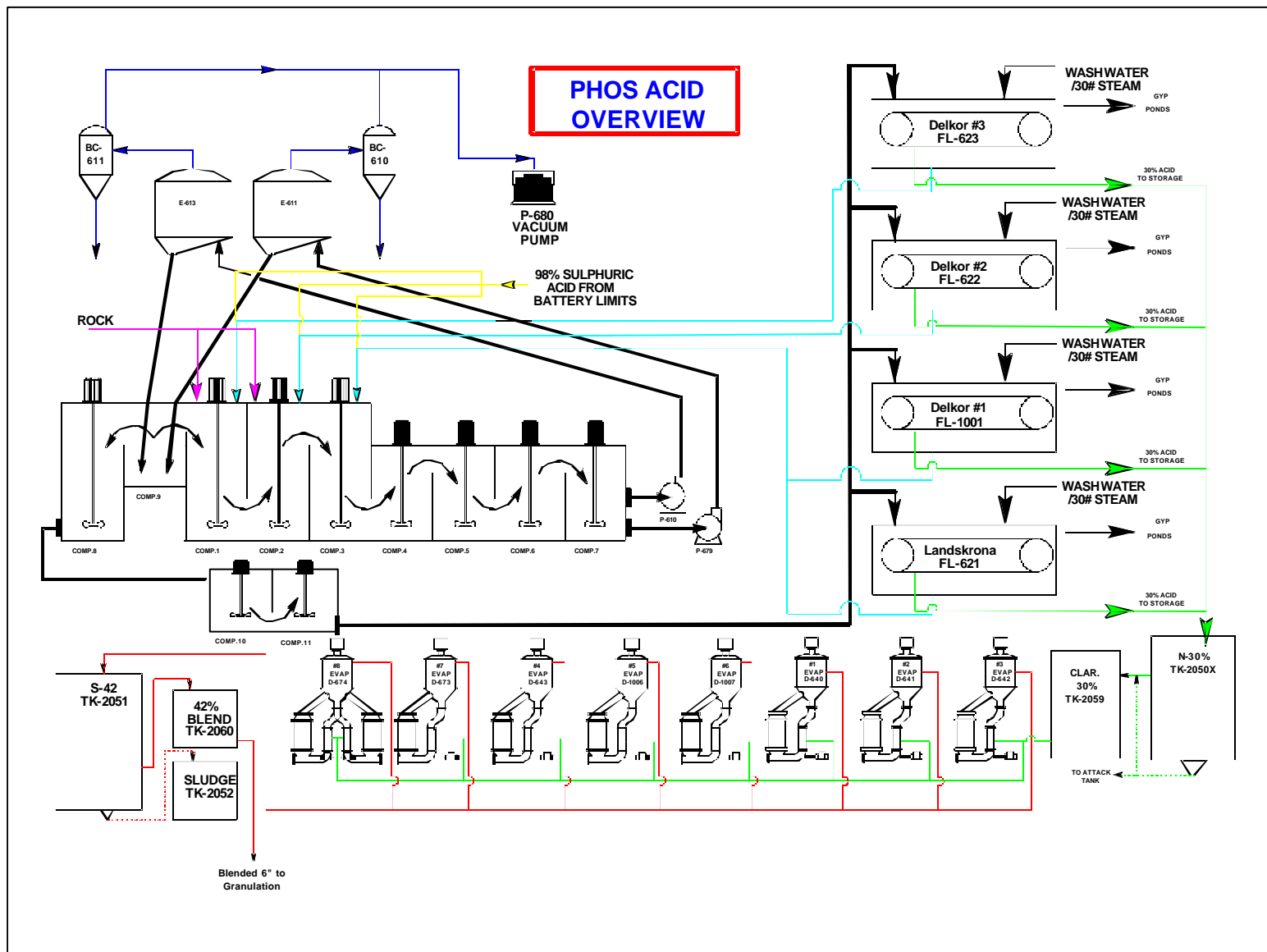
Phosphate Plant Overview



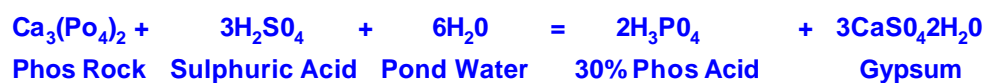
This slide is a very basic overview of the phosphate plant operation.



Sulphuric acid is manufactured using sulphur, air, and water as the raw materials. The principal steps in the process consist of: first burning the sulphur (S) to form sulphur dioxide (SO₂); second of combining the sulphur dioxide with oxygen (O₂) to form sulphur trioxide (SO₃); the third of combining the sulphur trioxide with water (H₂O) to form a solution containing 98-99% sulphuric acid.

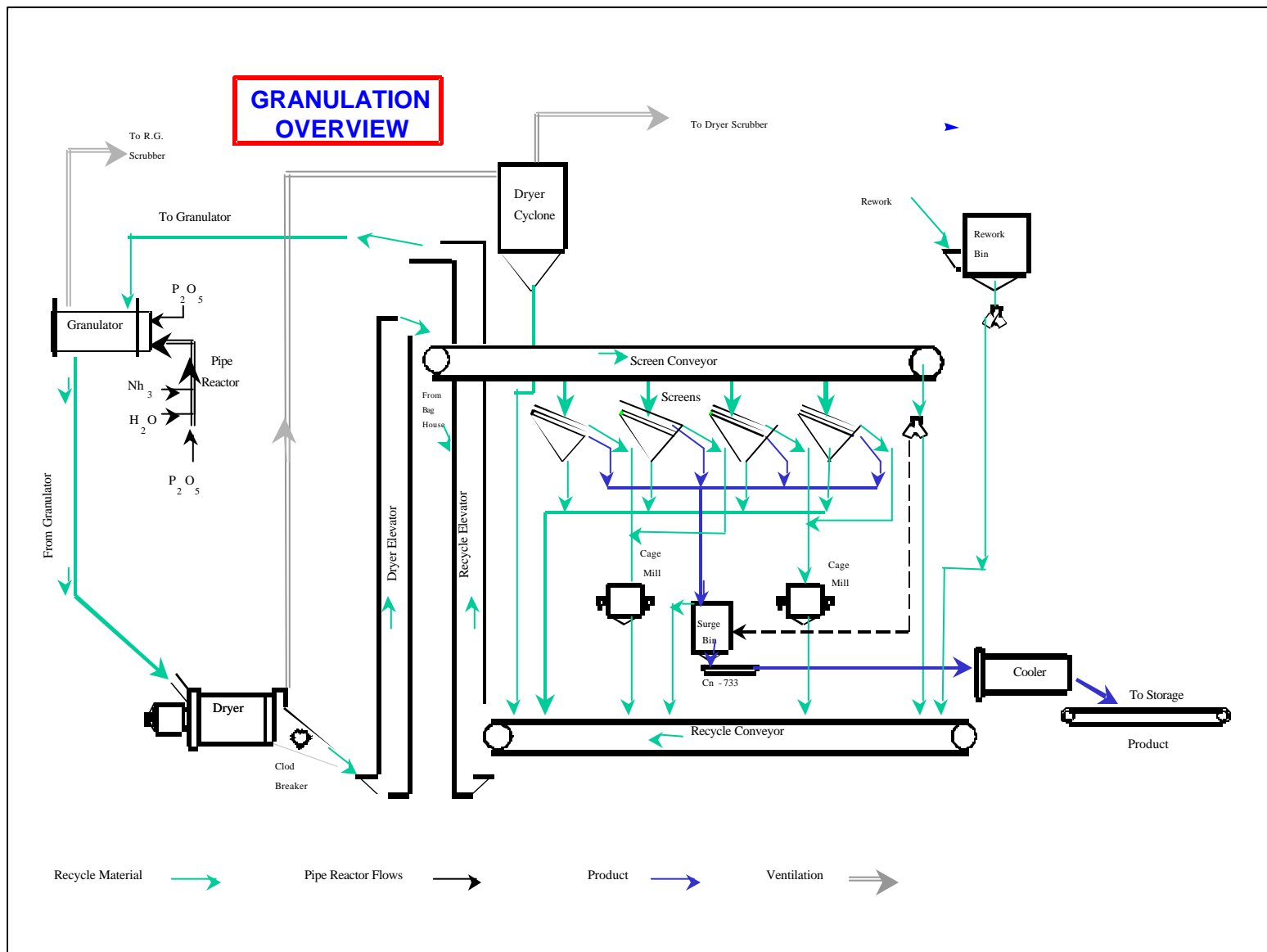


The purpose of the Phos Acid unit is to produce Phosphoric Acid of the desired grade for the production of Mono-Ammonium Phosphate Fertilizer. Raw materials used in the unit are: Sulphuric Acid, Phosphate rock provides the Phosphoric content of the acid. It is transported to the plant site by rail from the Agrium rock mine. Sulphuric Acid is used to react with the Phosphate rock to release the Phosphoric content. The acid is produced on plant site. Pondwater is used to add fluids to the mixture of Sulphuric Acid and Phosphate Rock to create a slurry of the desired solids content, volume, and specific gravity.



The Phos Acid unit is made up of five major systems:

- v Digestion
- v Filtration
- v Fume Scrubbing
- v Evaporation
- v Storage/Blending



Granulation is a manufacturing process producing ammonium phosphate fertilizer in a granular form. The dry, granular material is produced from a controlled combination of ammonia, phosphoric acid and in some cases, sulphuric acid. Fertilizer product from the granulation units is uniform in size and grade and easy to store and handle.

Raw materials used in MAP production unit are ammonia, phosphoric acid and sulphuric acid and water. Ammonia provides the nitrogen content of the fertilizer. Manufactured in the Nitrogenous Ammonia Unit, liquid ammonia is pumped from storage tanks or ammonia unit to the Granulation Unit.

Clarified, blended 42% phosphoric acid provides the P_2O_5 content of the fertilizer. Manufactured in the Phosphoric Acid Unit, blended phosphoric acid (H_3PO_4), is pumped from storage tanks east of the Granulation Unit.

93.0% - 98.0% sulphuric acid (H_2SO_4) is manufactured in the SA-1 and SA-2 Sulphuric Acid Units located east of the Phos Acid Unit, and is pumped from storage tanks to the Granulation Unit.