

**Case study:**
**Drying of bio sulphur waste into sulphur powder**
**Application:**

Upgrading of bio sulphur waste to valuable fungicides. The bio sulphur slurry like "Sulpich Sulphur" formed by the biological treatment of H<sub>2</sub>S must be converted into dry hydrophilic sulphur powder. Sulphur powder with hydrophobic properties originating from chemical waste treatment plants can not be used as valuable fungicide and has to be dumped at waste disposal.

**Requirements:**

Product	:	hydrophilic powder
moisture content	:	< 10 % W.B.
Process	:	safe operation, explosion protection and cope with the sticking properties of the sulphur powder.
Melting point	:	< 120°C


**Solution:**

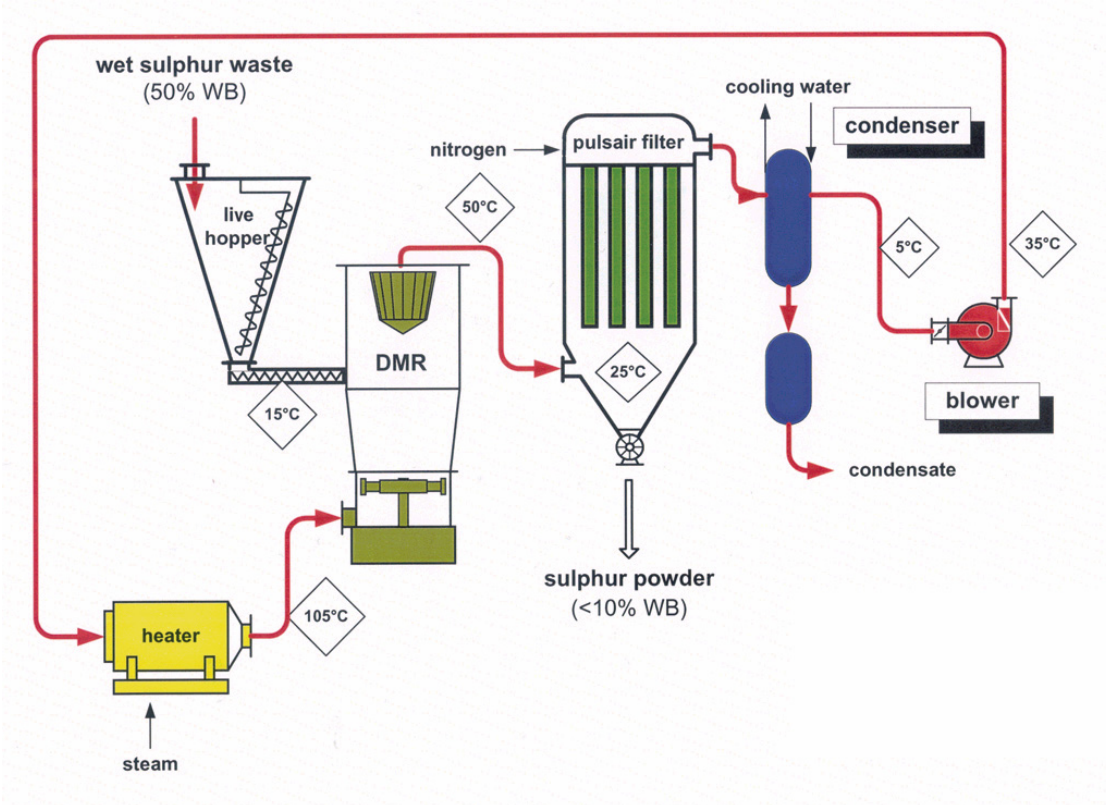
For handling this extremely difficult and dangerous sulphur we have selected a Drymeister, direct flash dryer with multi-blade rotor completely lined with PTFE. Wet feed is dispersed into very fine droplets for very efficient heat transfer. The sulphur is dried very fast at low temperature at dryer outlet. To prevent the possibility of explosion the system is working under nitrogen in closed loop and dryer and filter are in pressure shock resistance design.

A Vrieco-Nauta life hopper holds the wet sulphur waste to insure constant feeding. The thixotropic nature of the product requires a special slurry pump installed at the bottom of the conical mixer.

**Process data**

Feed capacity	:	63 kg/hr
Feed moisture content	:	45% W.B.
Product moisture content	:	1.8% W.B.
Inlet gas temperature	:	105°C
Outlet gas temperature	:	55°C
Particle size distribution	:	99% < 50µm

**Typical flow sheet of Micron Drying System in a closed loop**



**Safety**

The process runs under inert conditions with nitrogen and the dryer and filter have a pressure shock resistance design.