

"B" Phosphoric Acid Plant - Clarifier Permitting (Current)

This detailed process flow diagram illustrates the operations of the "B" Phosphoric Acid Plant, specifically focusing on the clarifier permitting. The process begins with the input of Wet Rock Slurry (65% Solids) from A&B Mills and Sulfuric Acid (93%/98% H₂SO₄) from C&D SAP into the Reactor/Attack Tank (Prayon Mark II). A Defoamer is added to the reactor. The reactor output flows through a No. 9 Compartment and a Hot Well before entering the Filter Feed (#7 & #8 Compartments). The filter feed output goes to the Vacuum Filtration 30C-Bird Tilting-Pan Filter. The filter produces Cake Wash (1% - 2% P₂O₅), Gypsum Sluice Water, and Gypsum Slurry (20% Solids) to the Gypsum Stack. The filter also produces Reactor Slurry (26% P₂O₅ & Gypsum) and four Filtrate Boxes (#1, #2, #3, #4). The filtrate boxes output Weak Wash (2% - 8% P₂O₅) and Strong Wash (8%-14% P₂O₅) to the Vacuum Filtration Belt Filter. The belt filter produces Cake Wash (1% - 2% P₂O₅), Gypsum Sluice Water, and Gypsum Slurry (20% Solids) to the Gypsum Stack. It also produces Reactor Slurry (26% P₂O₅ & Gypsum) and four Filtrate Boxes (#1, #2, #3, #4). The filtrate boxes output Weak Wash (2% - 8% P₂O₅) and Strong Wash (8%-14% P₂O₅) to the Vacuum Filtration Belt Filter. The belt filter also produces #2 Filtrate Recycle (16%-22% P₂O₅) which is recycled back to the Filter Feed. The filtrate boxes output Clarifier Sludge (From: ACU [9.3-SK-7] 28%/40% P₂O₅) to the 40% Clarification Rake Clarifier. The rake clarifier output goes to the Forced Circulation Vacuum Evaporation (40% to 54% P₂O₅ Typ. #3, #4, #6). The evaporator output goes to the Condensate Collection Tank. The condensate collection tank output goes to the Hot Condensate To: A&B SAP [9.0-SK-86]. The evaporator also produces 40% Sludge which is recycled back to the 40% Clarification Rake Clarifier. The evaporator output also goes to the North 54% Acid Storage Tanks and South 54% Acid Storage Tanks. The storage tanks output Phos-Acid 54% P₂O₅ To: XYZ DAP/MAP [5.1-SK-57]. The process also includes a Horizontal Cross-Flow Fume Scrubber, Flash Coolers, and various steam inputs (LP 45# Steam, 21# Steam, HP 265# Steam) and outputs (To: Atmosphere, To: Cooling Pond, To: Gypsum Stack).

<p>Legend</p> <p> Fume Ducts ——— Pond Water ——— 26% Phos-Acid ——— Misc. ——— 40% Phos-Acid ——— Sulfuric Acid ——— 54% Phos-Acid ——— Condensate ——— Steam (21# & 265#) </p>		<p>By</p> <p>Randy Charlot</p>	<p>Date</p> <p>6/19/09</p>	 <p>CF Industries, Inc. Plant City Phosphate Complex P.O. Drawer L Plant City, Florida 33564 Phone: (813) 782-1591 Fax: (813) 715-0851</p>	<p>Title</p>	<p>DWR. NO</p>
					<p>"B" Phosphoric Acid Plant Block Flow Diagram</p>	<p>2.1-SK-119</p>
					<p>Clarifier Permitting Schematic (Current)</p>	