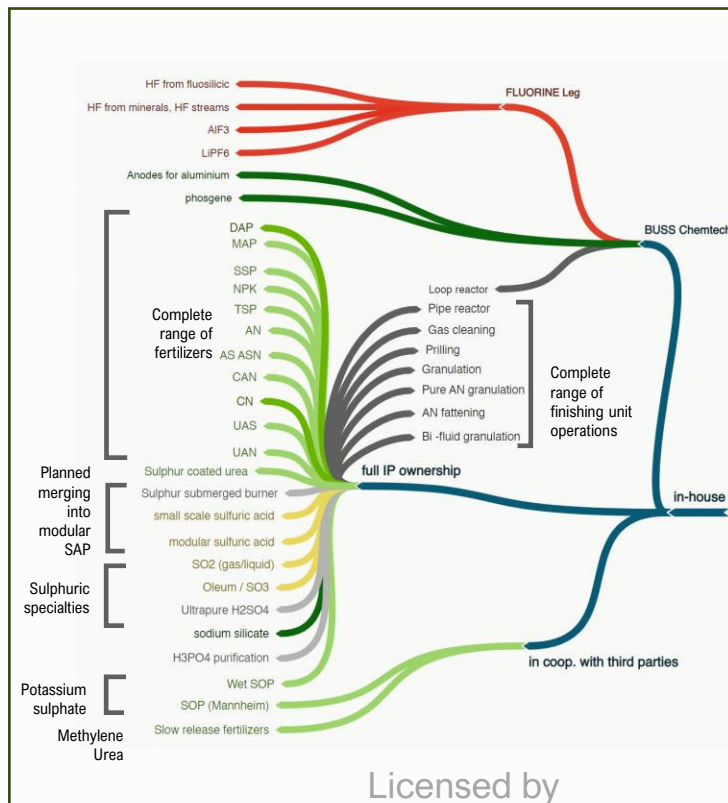




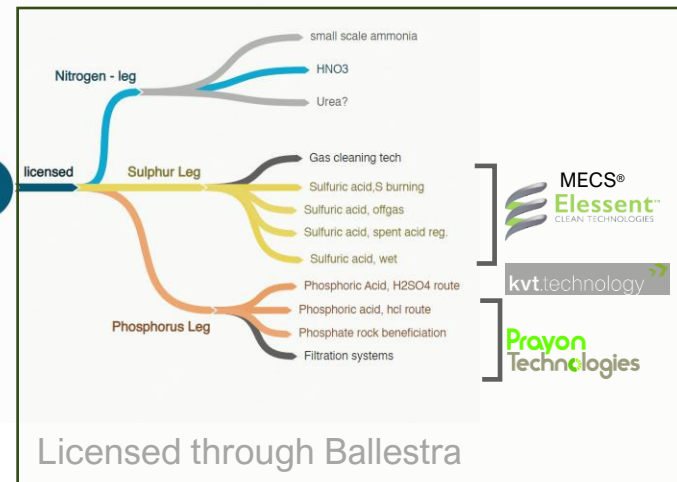
**Phosphoric Acid**

## CHEMICALS TECHNOLOGY PORTFOLIO



Licensed by  
Ballestra

- Sulfuric acid technologies
- Phosphoric acid technologies
- Fertilizer technologies
- Nitrogen technologies
- Other technologies
- Unit operations
- Hydrogen fluoride technologies
- Coming up



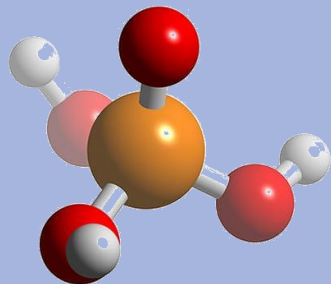
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CLEAN TECHNOLOGIES

kvt.technology

Prayon  
Technologies

# PHOSPHORIC ACID TECHNOLOGIES DOUBLING SUCCESS



- World class licensed technology from Prayon Technologies
- All configurations available (DH, HH, CPP, DA-HF)
- Access to Purified Phosphoric Acid technology with recently developed technical experience
- N. 9 projects awarded since 2011, 2 ongoing and the balance ALL successfully delivered
- High competence in process engineering (DBI process engineering team has been employed continuously in phosphoric acid projects for the last 5 years, gaining a remarkable design experience).
- Competence in critical detail design, such as:
  - Process equipment detail design
  - Piping/Ducting design, piping and ducting stress-analysis
- Skilled team of erection supervisor and commissioning engineers
- Procurement experience with main industry Vendors
- Experience in the integration of phosphoric acid plants in larger fertilizer projects

# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY

Status:	In operation since 2020
Products:	Merchant Grade Phosphoric Acid
Technology:	Prayon Technologies
Plant size:	increased from 350 to 500 TPD
Plant Configuration:	Conversion from DH to DA-HF
Contract type:	Phased Execution:
	(*) Ph1: Basic Engineering and cost estimate
	(*) Ph2: Detailed Engineering, Supply of critical materials , Technical Assistance at Site



## Revamp of existing PA Line E from DH to DA-HF

- New Conversion Tank
- Modifications to the existing Reaction Tank (additional air cooling inlet)
- New Scrubber
- New tanks for new additive solution (SHMP)
- Revamp and capacity increase of the existing tilting pan filter
- Rerouting and revamp of conveyor belts for cake discharge
- Relocation of the existing sulphuric acid tanks



# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY



Filter Erection August 2018

# PHOSPHORIC ACID TECHNOLOGIES – **WORLD CLASS CAPABILITY**

Status:	(1) In operation since 2019 / (2) In operation since 2019
Products:	(1) Merchant Grade Phosphoric Acid (PA MG) (2) Purified Phosphoric Acid (PPA)
Technology:	Prayon for PA MG DBI integration of sections from different technology partners for PPA
Plant size:	PA MG 2 x 600 TPD + PPA 2 x 150 TPD
Plant Configuration:	PA MG: DH Mark4 PPA: Phosphoric Acid TG
Contract type:	LSTK in Consortium with Local Partner (Petrojet)





# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY

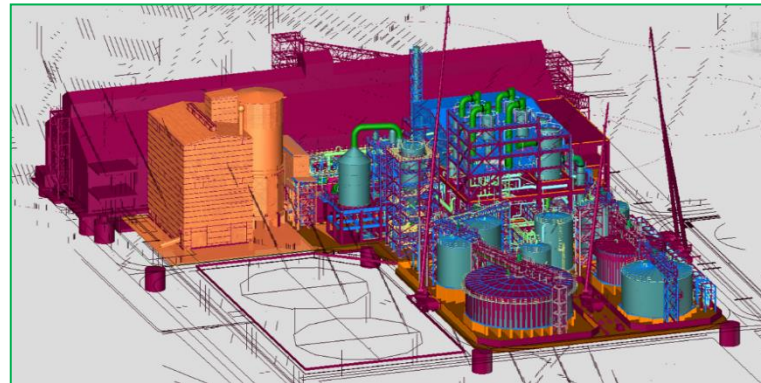
Status: In operation since 2019  
Products: Port facilities for storage and ship loading of  
Phosphoric Acid (30'000 tonnes storage capacity)  
Granular Fertiizers (40'000 tonnes storage capacity)  
Contract type: E + Ps + TA related to Ain Sokhna Fertilizer Complex



Site Works Jan. 2019

# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY

Status:	In operation since 2015
Products:	Merchant Grade Phosphoric Acid Production
Technology:	Prayon Technologies
Plant size:	700 TPD
Plant Configuration:	Phosphoric Acid MG DH Mark4
Contract type:	EP + TA





# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY

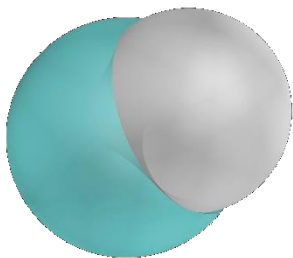


# PHOSPHORIC ACID TECHNOLOGIES – WORLD CLASS CAPABILITY

Status:	In operation since 2015
Products:	Merchant Grade Phosphoric Acid Production
Technology:	Prayon Technologies
Plant size:	150 TPD
Plant Configuration:	Phosphoric Acid MG DH Mark4
Contract type:	EP + TA



# HYDROFLUORIC ACID TECHNOLOGIES **UNDISPUTED LEADERSHIP**



**BUSS** *ChemTech*

**136** years of History

**60** years of Fluorine Expertise

**Hybrid** Route (FSA & Fluorspar) for HF Production



AHF from FSA

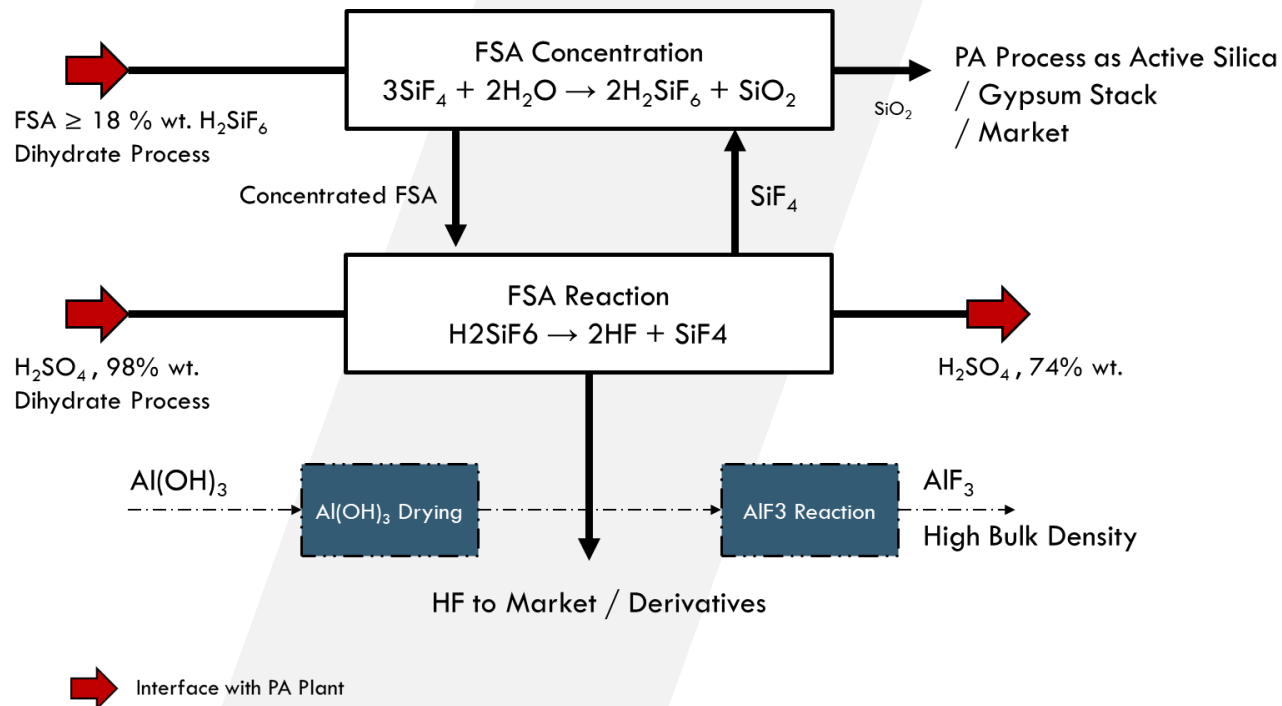


HBD AlF<sub>3</sub>



AHF from CaF<sub>2</sub>

# HYDROFLUORIC ACID TECHNOLOGIES – VALUE FROM WASTE STREAM







**ballestra**