

FORCE TECHNOLOGY FOR IND. MACHINERY

Techno-Commercial Proposal for the production of cMKP and gMKP in Jordan

12 Septemper 2020



About Us

FORSTEC is one of the pioneer and leading machine suppliers in Jordan, as well as the Middle East and North Africa region (MENA). Established in 1998, we have a wealth of experience in supplying quality machinery and conducting turnkey projects. We specialize in an array of technical and chemical industries, including but not limited to- plastic manufacturing machines, mineral extracting projects, agriculture, food industry, chemical, fertilizers and pharmaceutical products. FORSTEC has won and implemented several turnkey projects. For example was the one conducted in Syria for manufacturing Dermatological creams, oil filling industry, plastic pipe extrusion industry amongst others. FORSTEC rapid success in establishing a wide market and a portfolio of happy clients became the motivation to expand our area of operation to cover all of MENA region, the Far East and Africa.



Who are we

FORSTEC Machines was founded by Mr. HISHAM JEBRIL, CEO and current General Manager. He attained his degree in Electrical Engineering in 1984 proceeded by a Master's degree in Power Electronics in 1985, where he graduated as the summa cum laude with honors. He now has more than 35 years of experience in the industrial and machinery market, and he is widely esteemed as one of the most knowledgeable and experienced consulting engineers in the region.

Eng. Jebril is an entrepreneur with various investments in MENA and Africa, and is a consultant engineer to a number of international companies such as American Health Care (AHC) ltd.



What we do

FORSTEC Machines provides consultations, conducts turn-key projects, and supplies machineries to investors, in addition to marketing an extensive range of tech-related products.

We take pride in our partners, they represent the crème de la crème in the world of machinery manufacturers in the Far-East and the world, such as KAI MEI Blow Moulding Machinery-Taiwan, KWT Machinery – HUITO PACK, HAOYU, AHC, SINO HOLDING GROUP, DAKUMAR MACHINERY, CHEMOPROJEKT, TECHNO, ASG etc.

Furthermore, we always seek to find the most innovative and potential projects through extensive research and market studies to better assist our esteemed clients to seize the best opportunities at the best time.

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Abbreviation

- MKP: MONO POTASIUM PHOSPHATE.
- **EC:** ELECTRIC CONDUCTIVITY.
- **MGA:** Merchant grade of Phosphoric Acid.
- **PPA:** Purified Phosphoric Acid.

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Project: MONO POTASIUM PHOSPHATE - MKP

- MKP: MONO POTASIUM PHOSPHATE is also known as Potassium Phosphate Mono-Base (KH₂PO₄)
- (MKP) A completely solubile fertilizer in water, containing a high concentration of phosphorus and potassium, it is 100% absorbed by plants, and this making the mono potassium phosphate fertilizer the most suitable for all agriculture and irrigation programs.
- (MKP) is a highly purified fertilizer, containing the highest proportion of major nutrients phosphorus and potassium among all fully soluble fertilizers in water.
- (MKP) does not contain nitrogen, making it fertilizer suitable for intensive use where a large amount of fertilizer is needed.
- (MKP) has the lowest salinity index and EC low electrical conductivity, making it useful for small plants (nursery), paper spraying and salt-sensitive crops.
- (MKP) is used as an agent to maintain pH. When used in fertilizer mixtures with urea and ammonia phosphate, the compound reduces ammonia flight.



Continue: Project: MONO POTASIUM PHOSPHATE - MKP

• Project Advantages (1):

1. IRR (internal rate of return) - Internal rate of return of 25-30% - in the sense of capital recovery is done within five years from the start of the construction of the entire plant needs from one year to two years where it will pass in the stages of design, manufacturing, installation and operation and the payments will be done by Stages and completion so that the capital will not frozen during this period.

2. The required land area about 40000 square meters (construction area is about 80%)

3. Total Cost of the project --- the plant (including land, construction and equipment) + raw materials and expenses for three months --- (About 33-36 million US dollars)

4. The capital recovery period is 5 years from the date of operation



Continue: Project: MONO POTASIUM PHOSPHATE - MKP

- Project Advantages (2):
- 1. The existence of special production technology (with universal patents)
- 2. The manufacturing method is based on commercial grade of phosphoric acid (Merchant grade of Phosphoric Acid)
- 3. Other manufacturing methods require the pure type of phosphoric acid (Purified Phosphoric Acid)
- 4. Adopting the manufacturing method on the commercial **type reduces the cost of the factory** and manufacturing by about 30-40%
- 5. Using new technology a high-quality competitor can be produced in the market in terms of quality and price
- 6. It is possible to make a factory whose production is from 35,000 tons per year to 50,000 tons per year



Continue: Project: MONO POTASIUM PHOSPHATE - MKP

- Required Raw Materials:
- 1. Merchant grade phosphoric acid .

2. Preferably the plant is in the vicinity of the place of production of Phosphoric acid plant or KOH plant - to enter into production and reduce transportation expenses.

3. There is a plant in Jordan that uses the same technology to produce (MKP - Mono Potassium Phosphate) - Production capacity is 2000 tons per year.

4. There is an economic Feasibility Study provided upon request.



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Business model key figures

All amounts in USD

All inputs in blue

Project NPV (USD)	89,377,962
Project IRR (%)	26.1%
Payback period (years)	5.3
Total investment cost (USD)	35,997,295
Total manpower	64
Total production of final product , Ton	36,000

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Production capacity (%)	75%	90%	100%	100%	100%	100%	100%	100%	100%	100%
Sales revenues (USD)	31,950,000	38,340,000	42,600,000	42,600,000	42,600,000	42,600,000	42,600,000	42,600,000	42,600,000	42,600,000
Net profit (USD)	3,139,481	5,024,051	6,319,421	6,437,840	6,433,525	6,548,671	6,677,981	6,853,009	6,931,190	6,638,690
EBIT (USD)	4,589,118	6,399,848	7,590,366	7,541,989	7,364,419	7,312,596	7,308,960	7,353,446	7,295,989	6,988,095
EBITDA (USD)	6,669,414	8,480,144	9,670,662	9,622,285	9,572,215	9,520,392	9,466,756	9,411,242	9,353,785	9,294,318
Total assets (USD)	37,131,917	38,427,528	40,874,877	43,153,381	45,427,571	48,482,419	51,666,578	55,025,764	61,956,954	68,595,644
Total liabilities (USD)	29,273,286	25,544,846	21,672,774	17,513,439	13,354,104	9,860,281	6,366,458	2,872,636	2,872,636	2,872,636
Net equity (USD)	7,858,631	12,882,682	19,202,103	25,639,942	32,073,468	38,622,138	45,300,120	52,153,128	59,084,318	65,723,008
Cumulative cash (USD)	1,060,441	3,540,222	7,551,565	11,909,089	15,534,823	20,796,100	26,138,283	31,557,088	40,544,558	46,900,481



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Continue: Business model key figures

All amounts in USD All inputs in blue





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Continue: Business model key figures

All amounts in USD All inputs in blue





Project basic assumptions

All amounts in USD

All inputs in blue

Financial structure	
Equity	15%
Debt	85%
Operation start year	2023
Planned production capacity %	
Year 2022	0%
Year 2023	75%
Year 2024	90%
Year 2025 onward	100%
Products, annual capacity, ton	
Sulfuric Acid, intermediate product	0
Phosphoric Acid, intermediate product	0
cMKP, final product	36,000
gMKP, final product	10,000

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Working Capital assumptions	
Accounts receivable, days	30
RM inventory, days	15
Spare parts inventory,%	2%
FG inventory, days	15
Other receivables,%	1%
Accounts payable, days	30
Other payables,%	1%



Continue: Project basic assumptions

All amounts in USD

All inputs in blue

Raw materials prices (USD/unit)-CFR	
Sulfur, ton	-
KOH 50%, ton - Ex-works	350.00
Phosphate rock (25% P2O5), ton	-
Sulphuric Acid, ton	-
PA (100% P2O5), ton- Ex-works	540.00
Power production, kwh	-
Natural gas, liter	0.56
Steam, ton	0.30
Electricity, kwh	0.12
Process water, m3	3.50
Cooling water, m3	3.50
Defoamer, kg	-
Chemicals, kg	2.00
Bagging (25 kg), bag	0.42
Bagging (1000 kg), bag	8.50
Pallets, piece	10.00

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Long term debt	
Interest rate	4%
Grace period, years	2
Repayment period, years	8
Selling price (USD/ton) - FOT	
сМКР	1,100
gMKP	300
Income tax rate	5.0%



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Continue: Project basic assumptions

All amounts in USD All inputs in blue

Cost of Capital	
Weight of Debt	85.0%
Weight of Equity	15.0%
1) Cost of Debt:	
Interest Rate	4.00%
Tax Rate	5.00%
Cost of Debt	3.80%
2) Cost of Equity:	
Cost of Equity	15%
WACC	5.5%
Terminal growth rate	0%

Other exp. assumptions	
Annual increase in salaries, average	3.5%
Benefits on basic salaries	25%
Repair & maintenance, of machinery cost	5.0%
Plant overheads, of operating exp.	10%
Administration exp., of indirect labor	10%
Selling & distribution USD per ton	10
Depreciation rate	
Machinery & equipment	7%
Buildings & infrastructure	4%
Vehicles	15%
Furniture, fixtures, office equipment	15%
Depreciation method	Straight line