

[Vitamin D]

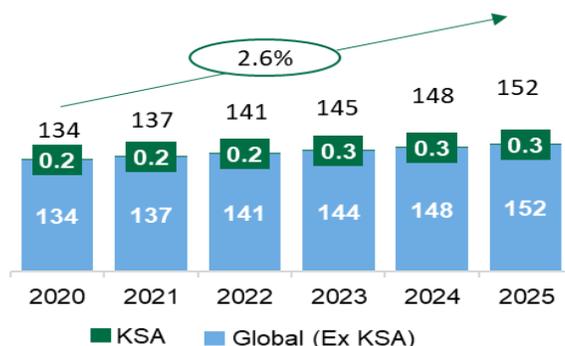
INVESTMENT OPPORTUNITY

[Specialty]

**OPPORTUNITY DESCRIPTION:** Opportunity to develop Vitamin D production facility of ~2 KTA in KSA to cater regional and global demand

## DEMAND

### MARKET SIZE, KT



### KEY DEMAND DRIVERS

- Vitamins D2 and D3 are used primarily in animal feed supplements, food fortification, and supplements and pharmaceutical products.
- Vitamin D is employed to fortify margarine, cereals, juices, milk.
- It is used in injectable oil-based multivitamin supplements as well as in softgel, gummy, and tablet formats. Calcium and vitamin D work synergistically to develop and maintain healthy bones and are often used in combination in supplements and fortified foods.
- Saudi Arabia mandates the addition of vitamins B1, B2, B3, B9, and D to wheat flour.

### INVESTMENT HIGHLIGHTS

- Expected investment size of ~USD 150 MN for the overall vitamins complex
- Plant capacity: 2 KTA
- Expected IRR: >15% (higher margins are expected from supplements and pharma applications)

### KEY PLAYERS

- DSM Nutritional Products
- Carbogen Amcis
- Synthesia A.S
- Zhejiang Garden Biochemical High Tech Company
- Zhejiang NHU Company
- Fermenta Biotech

## INVESTMENT OVERVIEW

### VALUE PROPOSITION

- The Middle East has only one vitamin producer, OXYVIT in Turkey with its very limited portfolio. The region consumes around 14.5 thousand metric tons per annum of vitamins with the regional industry growing at 7.3 percent per year to 2025.
- Proximity to the key growth regions i.e., Northeast Asia (China), and strong logistics infrastructure to enhance export capability for distributing the products within Middle East and to key export markets.
- The opportunity aligns with the KSA vision 2030 and National Industrial Strategy (NIS) by supporting the medical sector. NIS is putting efforts to develop pharma and medical supplies industry. SIDF intends to offer an accelerated financial loan to support the producers of medical supplies.

## MARKET OVERVIEW

### GLOBAL TRENDS

- Vitamin D regulates the amounts of calcium and phosphate in the body and thus plays an essential role in bone mineralization, tooth formation, and muscle contraction.
- The global consumption of vitamin D was around 134 thousand metric tons (100% basis) in 2020. The demand is expected to reach 152 thousand metric tons by 2025. The fat-soluble vitamin is useful for curing rickets, preventing osteoporosis, and treating inflammatory skin conditions such as psoriasis. Vitamin D is known as the “sunshine vitamin” because exposure to sunlight converts cholesterol in the skin to vitamin D.
- Northeast Asia is the biggest market with ~40% share, followed by West Europe with 23% share & North America with 18% share. Commercial form is vitamin D3 (cholecalciferol), related compounds such as vitamin D2, 25-hydroxyvitamin D3 and 1,25-dihydroxyvitamin D3, are available.

## SUPPLY

### SCALABILITY AND LOCALIZATION

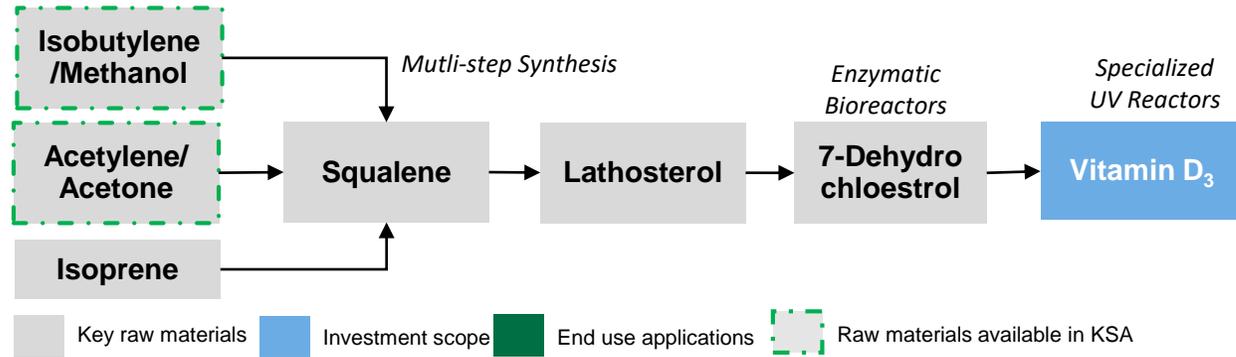
Grade: Low Medium High

- Lathosterols can be found in natural sources i.e., sheep wool. However, lathosterol can be made synthetically in multiple steps from squalene. This is a fragrance chemical intermediate and can be made in a multistep synthesis from different starting materials, some of which are present in the Kingdom. 7-Dehydrocholesterol can be synthesized via the enzymatic biotransformation of lathosterol. The final step is the conversion to vitamin D3 using photochemical reactors, similar to those used the chlorination of paraxylene and Toray's photochemical process for caprolactam.
- Isobutylene and acetone are produced by players like Petro Rabigh Co. in KSA
- Vitamin D3 can also be isolated from natural sources like fish livers.

### IMPORT DEPENDENCY

- Presently, the region imports ~3thousand metric tons of vitamin D.
- Since there is no domestic production, the demand is met through imports.
- Turkey is the leading consumer in the region. Saudi Arabia imports significant but much smaller volumes.

### VALUE CHAIN



#### Served Applications

- Feed
- Food
- Supplements
- Pharmaceuticals

### KEY STAKEHOLDERS



## ENABLING FACTORS

### ENABLERS & INCENTIVES

- Up to 75% of project financing by Saudi Industrial Development Fund (SIDF).
- 2-year grace period for the repayment of loans
- Expat worker levy waived-off for industrial manufacturers until October 2024.
- HRDF covers 30-50% of Saudi employee's monthly salaries (additional 10% for females) for 2 years, provide that it does not exceed USD 4,000

### COST OF DOING BUSINESS IN KSA

Factor	Ranking amongst regional peers
Electricity tariffs for industrial players	\$48 /MWh
Productivity adjusted wages	\$3.3 /hour
Logistics Performance Index (1-5)	3.2
Construction Costs (Indexed to US, % 0 is cheapest)	74
Ease of getting credit (0-100)	50

# DEFINITIONS

#	SCORECARD SECTION	DEFINITIONS
1	Market size	Size of market in value/volume in KSA and/or Region (MENA/GCC) covering future projections based on available estimates from published /government sources
2	Business drivers	A select number of factors that will influence future demand for the related product/service
3	Investment highlights	An overview of key financial metrics summarizing the investment opportunity along with the expected return based on the suggested investment size
4	Value proposition	Summary of key differentiators that position KSA as a strategic choice over other regional/global peers
5	Market readiness	An overview of KSA market structure, market maturity and level of participation by local and global players
6	Global trends	Latest business developments within the sector/product category
7	Scalability and localization	Ease of scaling the business across the value chain or into new adjacent products or geographies that would maximize the opportunity's investment returns and the ability and potential to locally manufacture the product and its components
8	Import dependency	An overview of the countries from which Saudi Arabia is importing the product and their value/volume and share in total imports
9	Value chain analysis	The process or activities that would potentially need to be carried out to deliver the underlying product or service
10	Key stakeholders	Government institutions, organizations, and/or authorities that participate or influence the market for the underlying product/service
11	Enablers	Factors that enable investment in the underlying opportunity
12	Cost of doing business in KSA	Key factors that position KSA as a competitive destination for investment in the region. Productivity adjusted wages do not include cost of \$1.23/hour towards annual recurring charges including work permit, resident identity (iqama) and health insurance

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