MAADEN

SODIUM CYANIDE

MAADEN LOCALIZATION OPPURTUNITY CARD

SODIUM CYANIDE

OPPORTUNITY SUMMARY

Case Summary

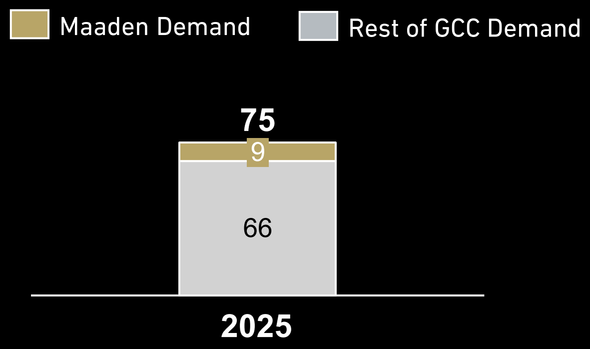
Secured Demand
Gold leaching has no substitute and Maaden provides stable, long-term base demand

Import-Led Market
Saudi sodium cyanide demand is largely imported, creating potential import-replacement opportunities

Attractive Economics
Costs are driven by ammonia and energy, where KSA offers a competitive structural advantage

Maaden & Market Demand

MEA demand, kmt (2025)



- Disclaimer: All figures are estimates compiled using historical consumption trends, the most recently publicly available information, industry benchmarks, and expert interviews. They are indicative only and remain subject to ongoing updates and change. **Source: Maaden, UN Comtrade, IMAC, Expert interviews**
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Localization Opportunity Overview

1

Anchored Gold Demand

Gold leaching has no viable substitute, and Maaden's gold operations provide a stable anchor demand that can underpin a ~20–40 ktpa sodium cyanide plant through long-term offtake

2

Clear Import Displacement

The Saudi market is largely supplied through imports, potentially allowing a local plant to displace imported volumes and compete for a significant share of domestic demand, subject to market adoption and commercial arrangements

3

Feedstock-Led Cost Position

Production economics are driven primarily by ammonia and energy, which together account for the majority of cash costs, and KSA's competitive gas pricing may support a competitive cost base

4

Lower Delivered Cost & Risk

Local manufacturing avoids international freight, port handling, and inventory buffers, potentially improving delivered cost versus imports. While materially reducing supply and safety risks

5

Scalable Growth Option

Beyond Maaden, a local sodium cyanide asset can supply third-party gold miners and expand into adjacent mining reagents, creating upside through volume growth and product adjacency

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VALUE CHAIN

Ammonia Supply

Ammonia is sourced as a core feedstock and represents one of the largest variable cost drivers in sodium cyanide production

Hydrogen Cyanide Production

Ammonia reacts with methane and air to produce hydrogen cyanide, a hazardous and capital-intensive intermediate that defines plant scale and safety requirements

Sodium Cyanide Synthesis

Hydrogen cyanide is reacted with sodium hydroxide to produce sodium cyanide solution, with tight control over purity and process stability

Solidification and Packaging

The sodium cyanide solution is crystallized or briquetted into solid mining-grade product and packaged to meet handling and transport standards

Storage and Distribution

Finished product is stored and transported under strict HSE protocols to ensure reliable and continuous supply to gold mining operations

On-Site Handling and Dissolution

Solid sodium cyanide is dissolved and dosed into gold leaching circuits, linking product quality directly to metallurgical performance

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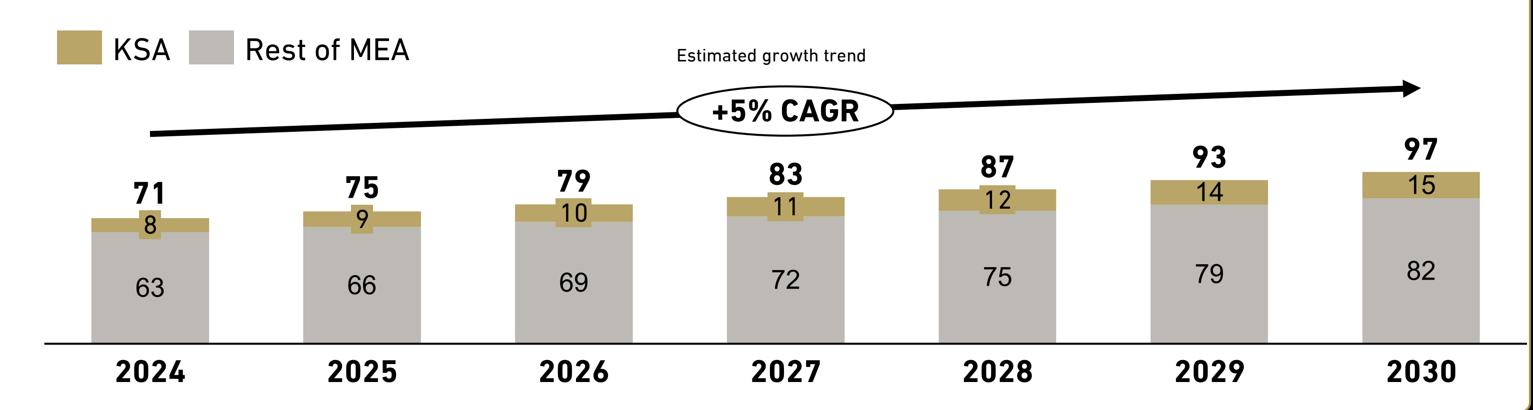
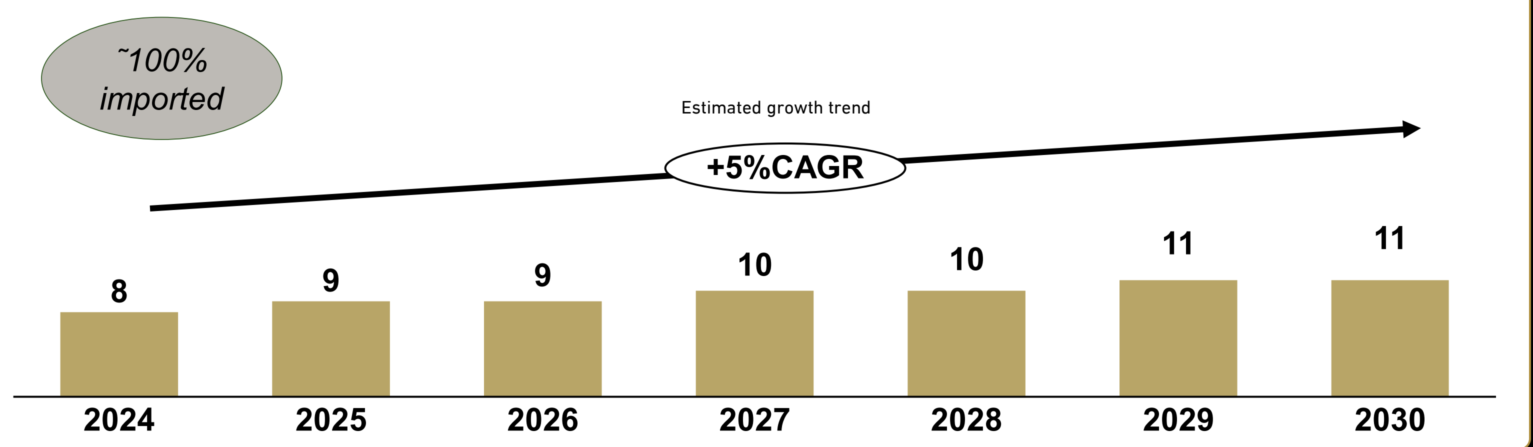
MARKET DEMAND & SUPPLY

Market Demand, kmt *KSA and Maaden effectively account for 100% of import in GCC*



Maaden Demand, kmt



Market Trends & Demand Drivers

1. **Growth in gold mining activity increases structurally recurring demand for sodium cyanide used in heap leaching and CIL/CIP processes**
2. **Saudi sodium cyanide supply remains largely import-led, with limited domestic production and exposure to cross-border logistics and safety constraints**
3. **Operators are placing higher emphasis on consistent product quality, purity levels, and secure handling across the supply chain**
4. **End users increasingly value reliable local availability, shorter lead times, and reduced dependency on international shipments**

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The KSA ecosystem comprises six main categories, supported by key enablers

1. Infra & Supply Chain

- The Saudi Authority for Industrial Cities and Technology Zones (MODON)
- Royal Commission for Jubail and Yanbu (RCJY)

2. Financing

- Saudi Industrial Development Fund (SIDF)
- Saudi EXIM Bank
- SME Bank / Kafalah
- Ministry of Industries and Mineral Resources (MIM)

3. Licensing & Taxation

- Economic Cities & Special Zones Authority (ECZA)
- Zakat, Tax and Customs Authority (ZATCA)
- Ministry of Investment (MISA)

4. Market Access

- Local Content & Government Procurement Authority (LCGPA)
- Saudi Export Development Authority (SEDA)
- PIF / Accelerated Manufacturing Program

5. Workforce

- Human Resources Development Fund (HRDF)

6. Technology

- National Technology Development Program

7. Enablers

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