



# A Guide to the 6 Types of Gold Ore & How They Are Processed

Translated and distilled from the original global engineering guide.

Una guía sobre los 6 tipos de mineral de oro y cómo se procesan

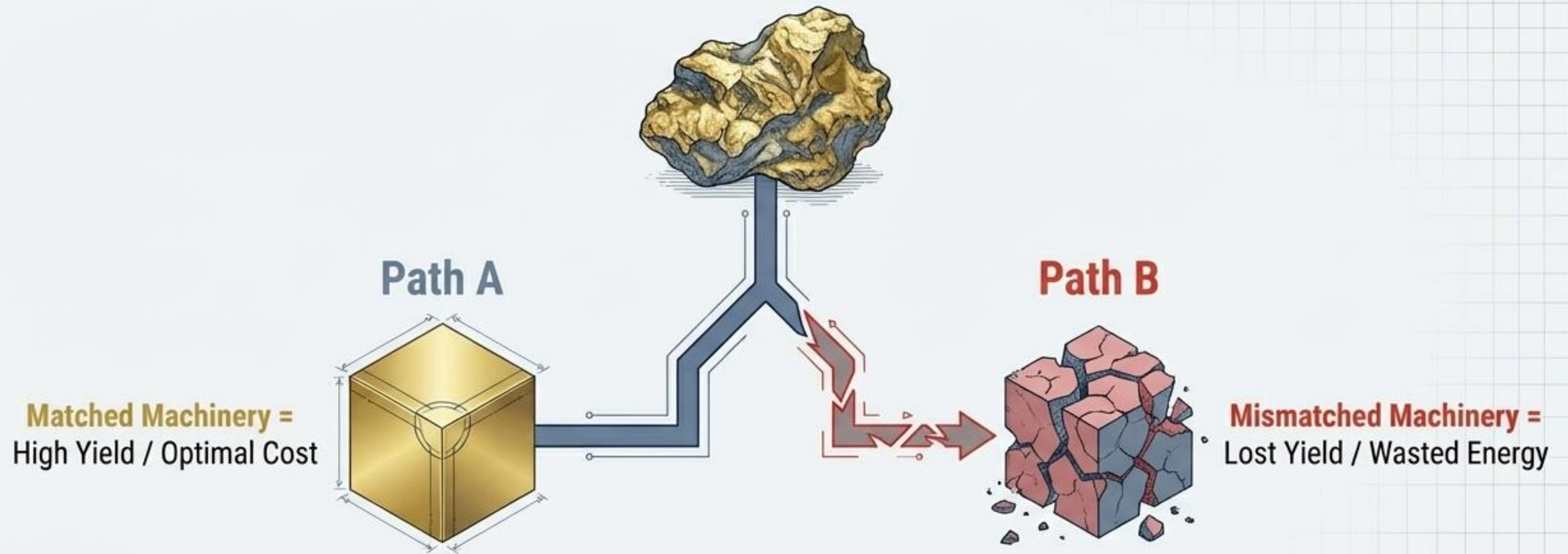
# Universal Principles, Global Execution

Extracting value from complex geology requires engineering principles that scale across borders. This processing taxonomy is utilized by mining operations and metallurgy engineers worldwide.

- English (UK)
- Arabic (AR)
- Spanish (SP)
- French (FR)
- Portuguese (PT-BR)
- Russian (RU)
- German (DE)
- Japanese (JP)
- Korean (KO)


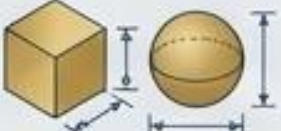






# The Golden Challenge: Geology Dictates Machinery



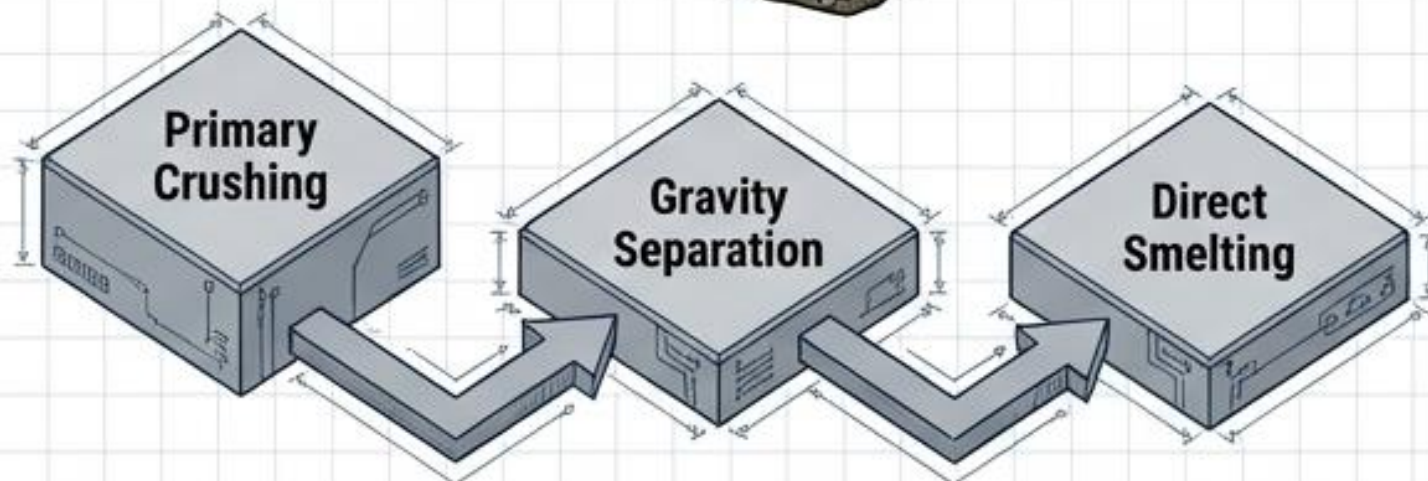
Classifying ore is the most critical step in mine development. Processing the wrong ore with the wrong mechanical or chemical method results in catastrophic yield losses and massive energy waste. The heavy machinery must perfectly match the geological profile.

# The Master Taxonomy: Ore Classification Matrix

Ore Type	Mineral Composition	Hardness	Refractory Nature	Processing Complexity
Type 1: Placer	Free Gold	Soft	Non-Refractory	Low (1 geometric circle) 
Type 2: Oxidized	Oxide Matrix	Medium	Low-Refractory	Moderate (2 geometric circles) 
Type 3: Sulfide	Pyrite / Arsenopyrite	Hard	Moderate-Refractory	High (3 geometric circles) 
Type 4: Refractory	Sub-Microscopic	Very Hard	High-Refractory	High (3 geometric circles) 
Type 5: Carbonaceous	Preg-Robbing Matrix	Variable	Extreme-Refractory	Extreme (4 geometric) 
Type 6: Polymetallic	Gold + Cu/Pb/Zn	Hard	High-Refractory	Extreme (4 geometric) 

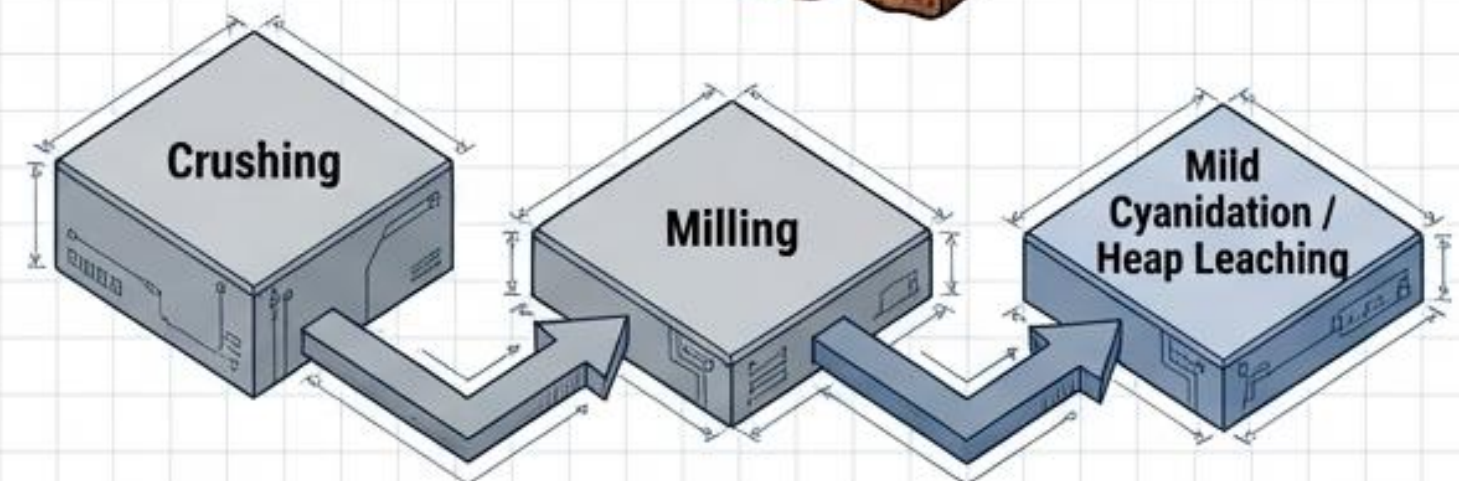
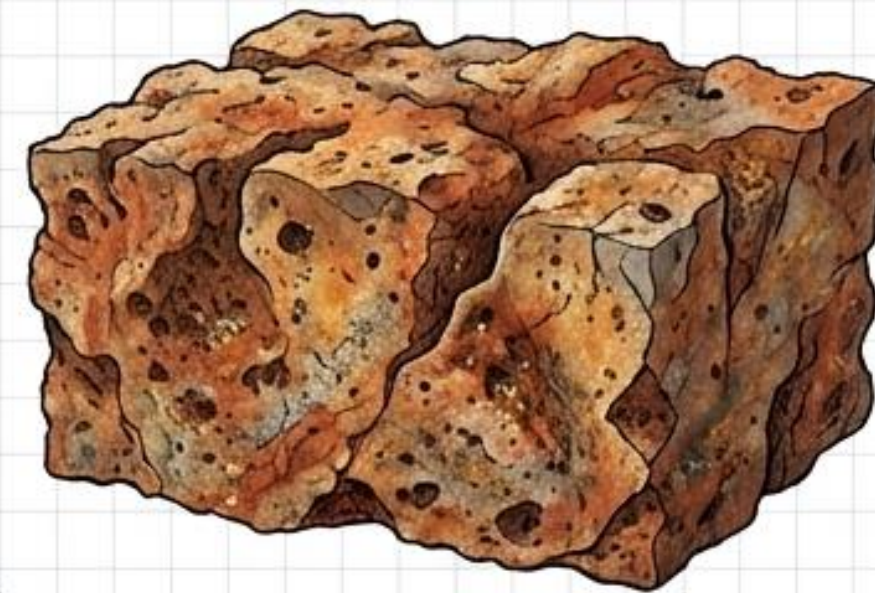
# The Baseline Ores: Mechanical Extraction

## Type 1: Placer/Free-Milling (Naturally occurring loose gold)



**Insight:** Requires straightforward mechanical breakdown and gravity-based separation.

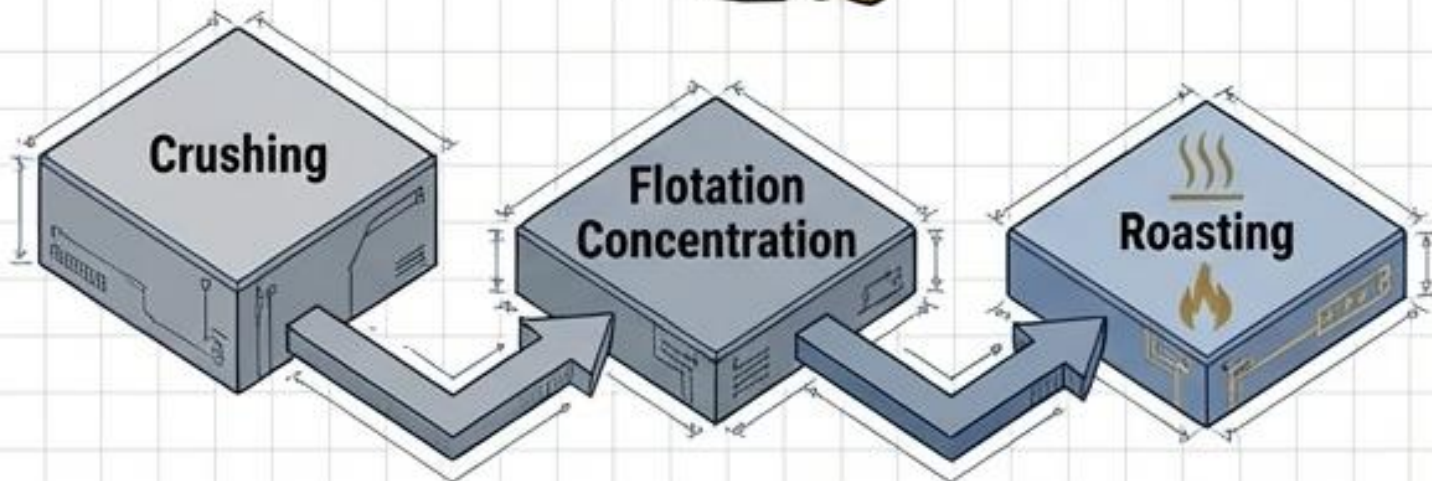
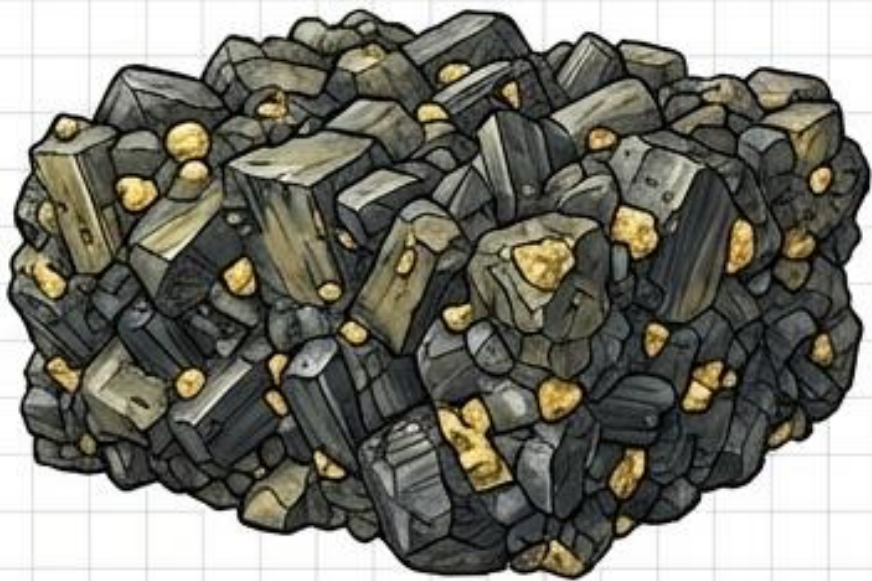
## Type 2: Oxidized (Weathered ore requiring minimal chemistry)



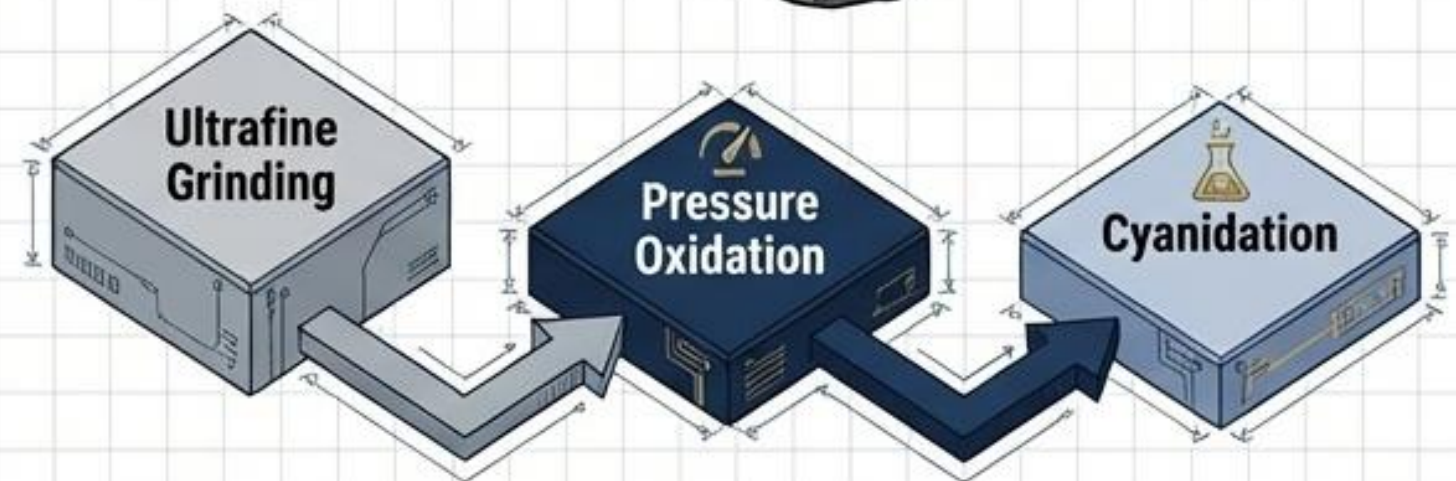
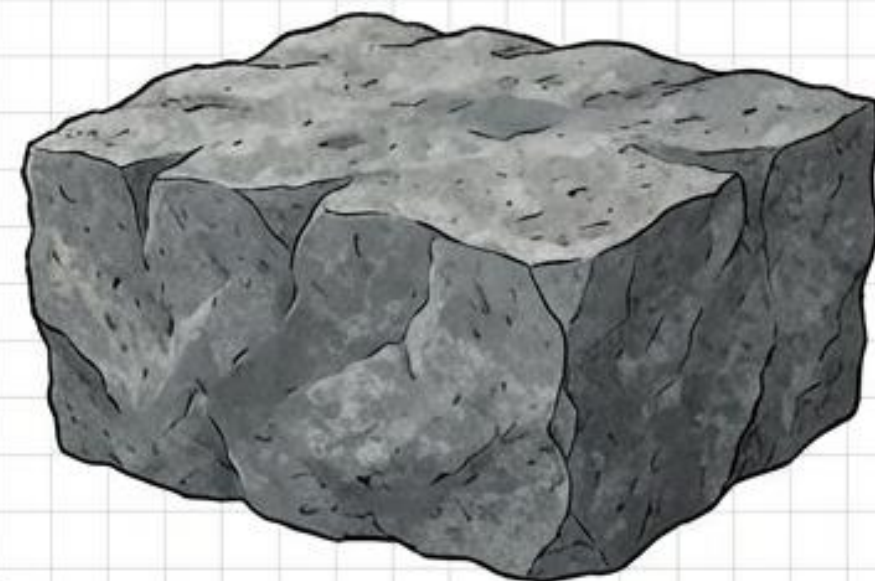
# The Complex Ores: Unlocking Refractory Bounds

**Insight:** Mechanical milling alone is insufficient. Heat and oxidation are required to liberate the gold particles.

**Type 3: Sulfide**  
(Gold trapped within sulfide minerals)



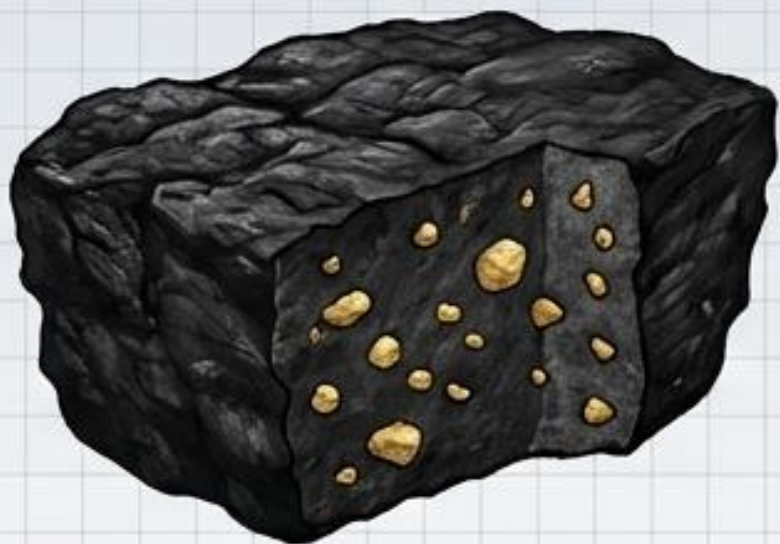
**Type 4: Refractory**  
(Microscopic gold resistant to standard leaching)



# The Extreme Ores: Multi-Stage Intervention

**Insight:** Requires highly advanced, intensive chemical and biological circuit loops.

## Type 5: Highly Refractory / Carbonaceous (Carbon actively robs gold during processing).



**Intensive Crushing**

**Bio-Oxidation Reactor**

**CIL (Carbon-in-Leach) Blinding**

Preventing carbon from absorbing gold

**Yield**

## Type 6: Complex Polymetallic (Gold mixed with competing base metals).



**Selective Sequential Flotation**

**Base Metal Diversion**

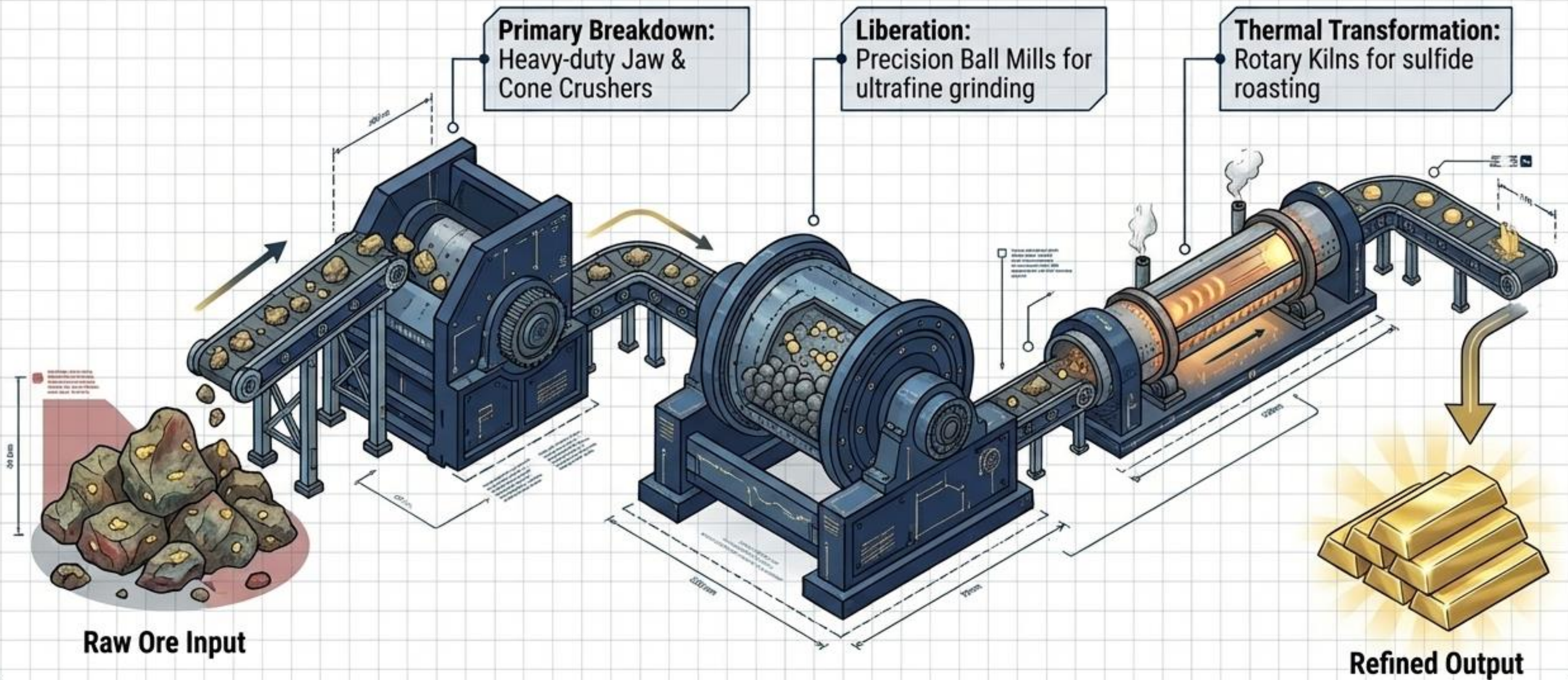
**Multi-stage Smelting**

**Gold Concentrate**

**Refinement**

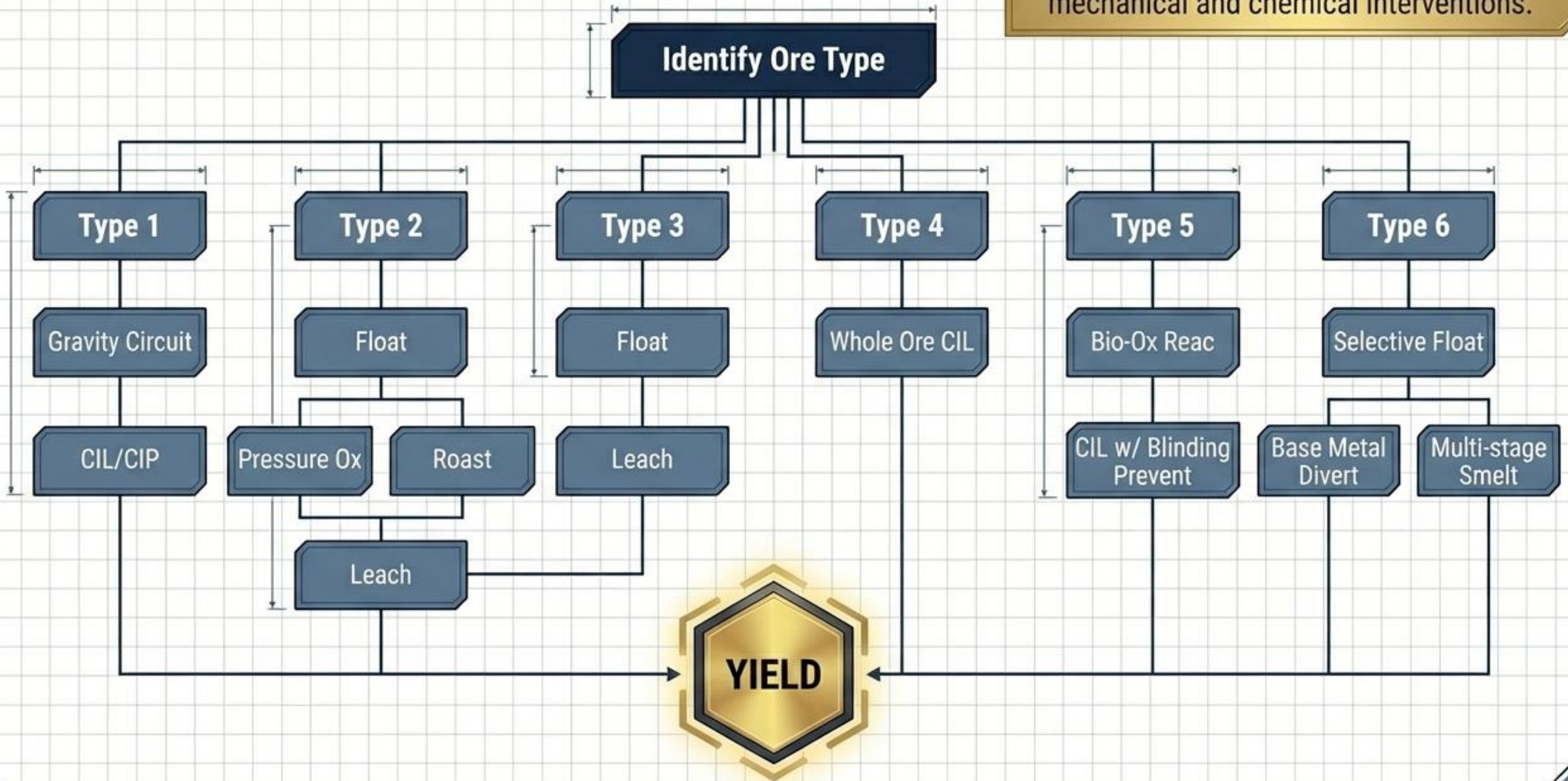
# The Mechanics of Extraction

Transforming geological potential into physical yield requires precise mechanical forces at every stage of the extraction circuit.



# Synthesis: The Processing Decision Tree

A unified engineered system. Every ore profile dictates a precise sequence of mechanical and chemical interventions.



# The Right Machinery for Every Ore



Executing these 6 processing methodologies requires specialized, heavy-duty infrastructure. Tongli Heavy Machinery engineers and supplies the crushers, thin, mills, and kilns necessary to optimize yield across every geological profile.

Consult with our global engineering team or read the full technical guide in 9 languages at [cementl.com](http://cementl.com).