

Mine

Process

Process

Product

Local Handling

Ship & O/S Warehouse

Iluka uses contractors like Piacentini & Son or Lucas for mining at its sites.
 * When contractors are used, Iluka takes responsibility for the ore once it enters the mining unit.

Cataby
 Mine
 Large Ilmenite Deposit
 Zircon Rich Heavy Mineral Deposit
 Also Contains: Ilmenite, Rutile & Rare Earths

Tutunup (WA)
 Dredge Mine
 TiO₂: Zircon | Titanium Dioxide | Rare Earths
 Wardandi Noongar

Jacynth-Ambrosia (JA)
 Conventional Mobile Surface Mining
 Zircon Rich Heavy Mineral Deposit
 Also Contains: Ilmenite, Rutile & Rare Earths

Balranald
 Mine
 Underground Mining Method
 Very High Grade Deposit of Ilmenite & Rare Earths

Eneabba Mine
 1m Tonnes
Eneabba Rare Earth Concentrate Stockpile

Wimmera (VIC)
 Dredge Mine
 Zircon | Titanium Dioxide
 Rare Earth Concentrate
 Barengi Gadjin Land Council
 Aboriginal Corporation (BGLC)

External Ilmenites
 Process Ore ≈ 1200 Ton per hour

Cataby
 Screening | De-Sliming | Gravity Separation of Heavy Minerals (HMC) | Magnetic Separation

Jacynth Ambrosia (JA)
 Screening | De-Sliming | Gravity Separation of Heavy Minerals (HMC) | Magnetic Separation

Balranald
 Screening | De-Sliming | Gravity Separation of Heavy Minerals (HMC) | Sulphuric Flotation & Magnetic Separation

Eneabba
 Screening | De-Sliming | Gravity Separation of Heavy Minerals (HMC) | Rare Earth Sulphuric Flotation & Magnetic Separation

Wimmera
 Bulk Flotation and Rare Earth Flotation Circuits
 Heavy Mineral Concentrate | Rare Earth Concentrate

North Capel Set Mill (NCSM)
 Separation: Screening | Drying | Magnetic Separation | Electrostatic Separation

North Capel (NC)
 Separation: Mill and two SR kilns
 Finished product trucked 35km to Port of Bunbury

Narngulu
 Separation: Gravity | Electrostatic | Magnetic
 Extract all the valuable heavy minerals, zircon, rutile, ilmenite and monazite plus some other marginal value minerals like staurolite and tin

Phase 3 ERER- Eneabba Rare Earth Refinery
 Extraction: Extract from concentrate using sulphate conversion, purification then, separating by precipitation & calcium carbonate or drying.

Iluka Mining Activity
 Global Critical Minerals Company

SR Refinery
 Activated Carbon
 Bulk Bag at North Capel

NCSM
 Iron Concentrate (Magnetite)
 Iron Man™ Gypsum
 Mineral Sand Concentrate

SR Refinery
 Synthetic Rutile (SR TiO₂)
 Upgraded Ilmenite becomes SR

NCSM
 Ilmenite (FeTiO₃)
 Sell or process in the plants to upgrade to SR

Zircon (ZrSiO₄)
Ilmenite (FeTiO₃)
 Sell or process in the plants to upgrade to SR
Zircon Concentrate
Rutile (TiO₂)
 Staurolite (St)
 Tin Concentrate - Cassiterite (SnO₂)

Rare Earths Products
 Neodymium (Nd) Oxide
 Praseodymium (Pr) Oxide
 Didymium (PrNd) Oxide
 Mixed SEG Carbonate
 Samarium (Sm)
 Europium (Eu)
 Gadolinium (Gd)
 Lanthanum (La)/Cerium (Ce) Carbonate
 Mixed HRE+Y
 Holmium (Ho)
 Erbium (Er)
 Thulium (Tm)
 Ytterbium (Yb)
 Lutetium (Lu)
 Scandium (Sc)
 Yttrium (Y)
 Terbium (Tb) Oxide
 Dysprosium (DY) Oxide
 Ammonium Nitrate Solution
 Fertiliser & Explosives

Zircon
 Zircon: Zircon | Zircon in Concentrate

Titanium Dioxide
 Sulphate Ilmenite & Chloride Ilmenite
 HyTi90

Container > Fremantle
 Picton Stored > Truck > Fremantle Port:
 Bulk Bags placed in 40ft Containers

Rotainer
 Transporter Company
 Stores & Transports as Required

Local Market

Stockpiles > Ship
 Warehouse > Bunbury Port > O/S Port

Stockpiles > Ship
 Bunbury Port > Port Klang

Stockpile or Bulk Bags
 Geraldton Port > O/S Port

Local Market

Truck > Ship
 Geraldton Port > O/S Port

Stockpiles > Ship
 Geraldton Port > Port Klang

Packaged

Truck > Ship
 Port of Melbourne (VIC)

Truck > Ship
 Port of Portland (VIC)

USA 38%
 Europe 44%
 Australasia 18%

Thailand & UAE > Bulk Bag
 O/S Process > Zircon & Rutile

USA | Europe
 Asia

China (Bulk)
 Warehouse > Bulk Bags
 Malaysia (Distribution Hub) > India & Aisa

Warehouse > Stockpile > Bulk Bags
 North America > Ohio & Delaware
 China > Qingdao & Xiamen
 Malaysia Distributed to > India & Aisa
 Europe > Antwerp & Castellon

China

Malaysia
 China
 USA

Developing Markets Globally

Geraldton Port
 Geraldton dry bulk & general purpose port

Port of Geraldton
 • Berth 4, ship loader
 • Berth 6, rotabox

Fremantle Port
 Western Australia's only container port serviced by liners

Port of Bunbury
 • Berth 8, ship loader
 • Berth 5, rotabox

O/S Warehouse/Customer

China:
 Qingdao
 Xiamen

Malaysia:
 Port Klang

Europe:
 Antwerp- Belgium
 Castellon- Spain

North America:
 Delaware
 Ohio

China:
 Bulk Bags
 Bulk Bags

Malaysia:
 Stockpile & Bulk Bags

Europe:
 Stockpile & Bulk Bags
 Stockpile

North America:
 Stockpile & Bulk Bags
 Stockpile & Bulk Bags

Ship Voyage

Malaysia	- 14 Days
China	- 21 Days
Europe	- 54 Days
US	- 60 Days

+14 Days Packing Time Required at Destination

All Products Packed in a 1MT Bag

Terbium & Dysprosium Packed in a 250kg Capacity Drum

DG 5.1 Oxidizing substance, transport in bulk tanker truck or intermediate bulk container (IBC)

Legend:
 Blue = Magnetic
 Green = Non-Magnetic
 Orange = Rare Earths
 Purple = External Supplier
 Light Blue = Feasibility Studies
 Pink = Indigenous Country

Iluka Mining Activity
 Global Critical Minerals Company

Diesel Solar Future Solar Grid Electricity Natural Gas Future State Other