REE Project

Summarized Presentation

November 2023

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Mineração Taboca

Brazil, state Amazonas, city Manaus

Pitinga Mine is located 350 km away from the capital Manaus, Access is by paved road (250 km) and off road (50 km).

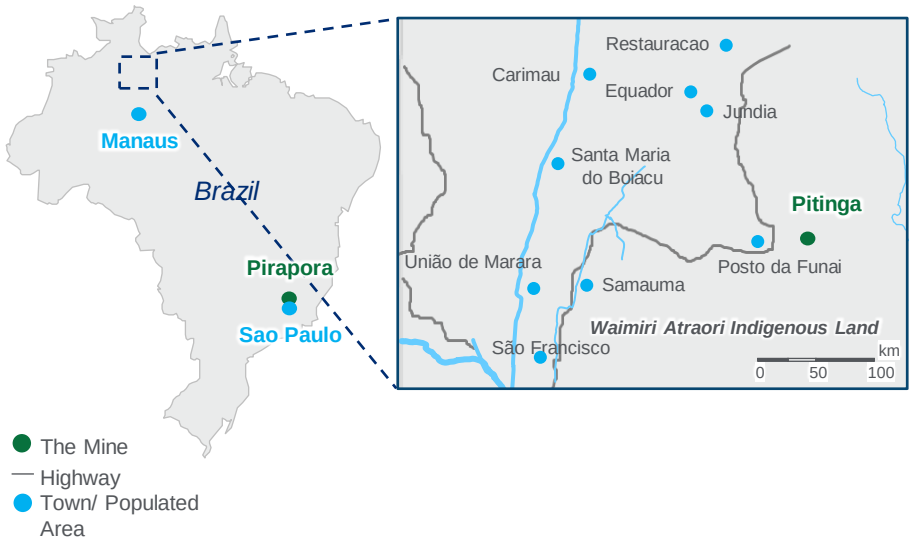
TABOCA

Asset Overview

Pitinga

Highlights	• World's single largest tin deposit of contained resources with Niobium and Tantalum as significant by-products • Largest producer of sustainable tantalum • Vertically integrated through the Pirapora smelter and refining plant • Community friendly asset, with no social issues causing production to stop
Status	• Producing
Mine Type	• Open-Pit
Location	• Amazonas, Brazil
Metals	• Tin, niobium and tantalum byproducts
Product Type	• Tin and niobium-tantalum concentrates • Pyrometallurgical refining to produce a niobium-tantalum alloy
Mining Method	• Conventional open pit
Mining and Processing	• Mine Life: 30 years • LOM Production: ~6.5 kpta tin in concentrate, ~5.6 ktpa Ferroalloys • LOM Average Net Cash Cost: US$(775) / t Sn(1)
Geology & Mineralization	• Disseminated cassiterite, pyrochlore and columbite that is hosted by a rare-element peralkaline granite complex
Infrastructure	• Transportation: Close proximity to developed road infrastructure, including Manaus-Boa Vista, BR-174 road • Hydroelectric Power Plant (UHE) and smelter for Nb and Ta ferroalloys on site at the operation
Tailings	• Facility designed to accommodate 200 Mt of tailings • Uses backhoes and dozers to optimize the tailings disposal at the dams and provide maintenance to the auxiliary structures of the dam

Location



Reserves and Resources as of 12/31/2020

	Tonnage	Grades			Contained Metal		
		Sn	Nb2O5	Ta2O5	Sn	Nb	Ta
Reserves	*(Mt)*	*(%)*	*(%)*	*(%)*	*(kt)*	*(kt)*	*(kt)*
Proven	88	0.17	0.21	0.03	151	186	24
Probable	113	0.14	0.20	0.03	161	232	31
Total Reserves	**201**	**0.16**	**0.21**	**0.03**	**312**	**417**	**55**
Resources							
Measured	97	0.16	0.21	0.03	155	200	26
Indicated	233	0.11	0.20	0.03	258	462	62
Inferred	185	0.09	0.19	0.03	170	355	47

Source: Company information. Notes: (1) Cash cost per ton of tin = (Pitinga and Pirapora production cost - production value of ferroalloys + selling and freight expenses, excluding depreciation and amortization) / (tin sold in tons).

Geology

TABOCA

Mineralogy

PRINCIPAL MINERALOGIA DE MINÉRIO DO ALBITA GRANITO

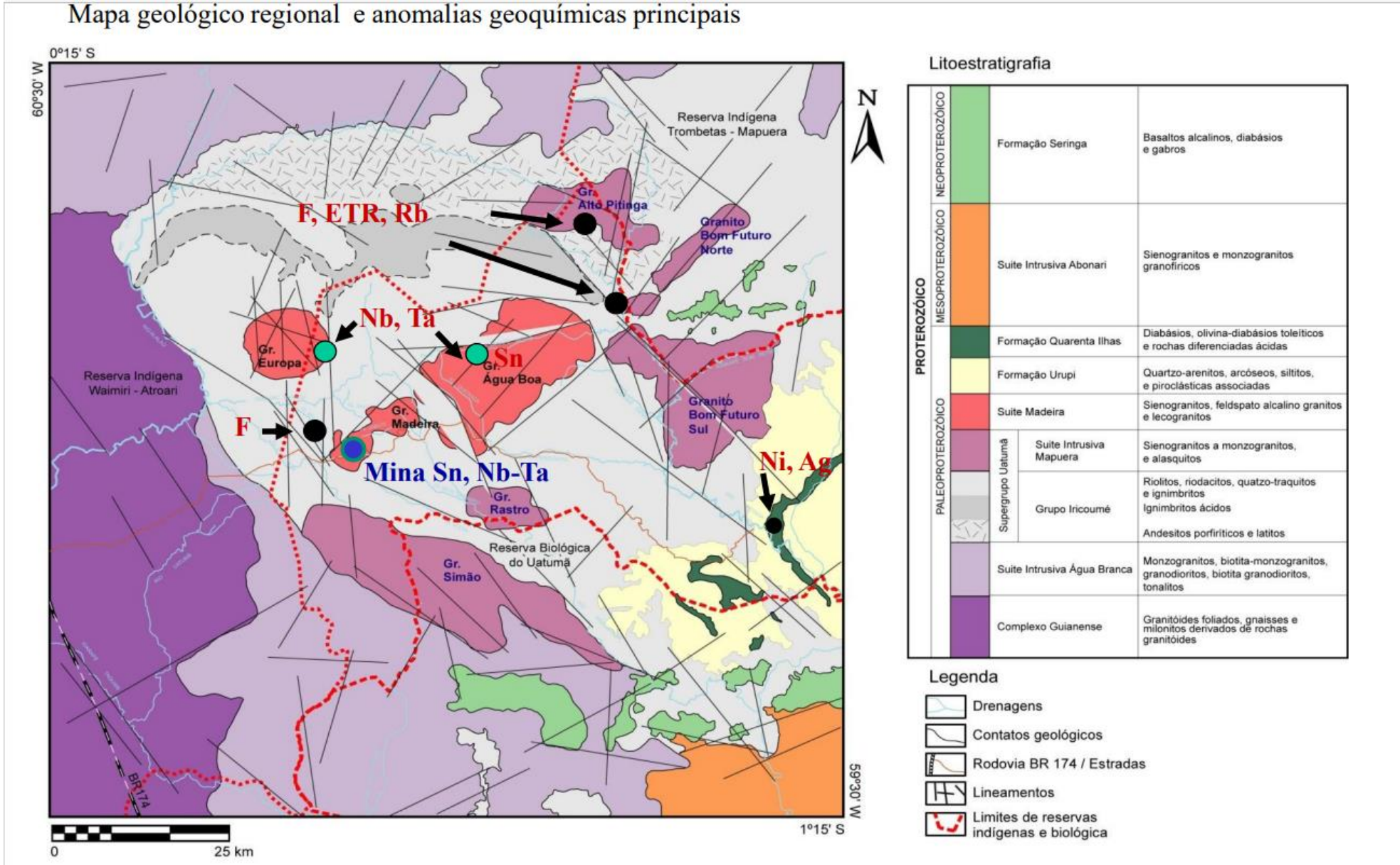
Elementos	Mineral	Outros
Estanho (Sn)	Cassiterita (SnO2)	
Nióbio (Nb) e Tântalo (Ta)	Niobatos metamícticos da família Pirocloro (Na3Ca)2 (Nb,Ta) - (O,F)7	Columbita –Tantalita (Fe, Mn) (Nb, Ta) 7O6
Itrium (Y)	Xenotima (YPO4) , Gagarinita (NaCaYF6) Wairimita (fuoreto de Ítrio com ETR pesados)	
Zirconium (Zr)	Malacon (ZrSiO4.nH2O) Zircão (ZrSiO4)	Catapleíta (Zirconato hidratado de sódio)
Urânio (U) e Tório (Th)	Torita Th (SiO4) Niobatos metamícticos, outros (?)	
ETR (pesados Ho, Er, Yb)	Xenotima (YPO4) Niobatos metamícticos, Fluocerita (Ce, La) F3	
Lítio (Li)	K2Li3Al3 (AlSi3O10)2(O, OH, F)4	Politionita / Annita siderofilita e biotita

Elements	Mineral	Formula
Sn	Cassiterite	SnO_2
Nb and Ta	Columbite and Pyrochlore	Columbite: $(Mn, Fe)(Nb, Ta)_2O_6$ (*) Pyrochlore: $A_2(Nb, Ta)_2O_6Z$
Y, (**) REE	Xenotine	$Y\text{-}(Th, U, REE)PO_4$
Zr	Zircon	$ZrSiO_4$
U and Th	Thorite	$(U, Th)SiO_4$

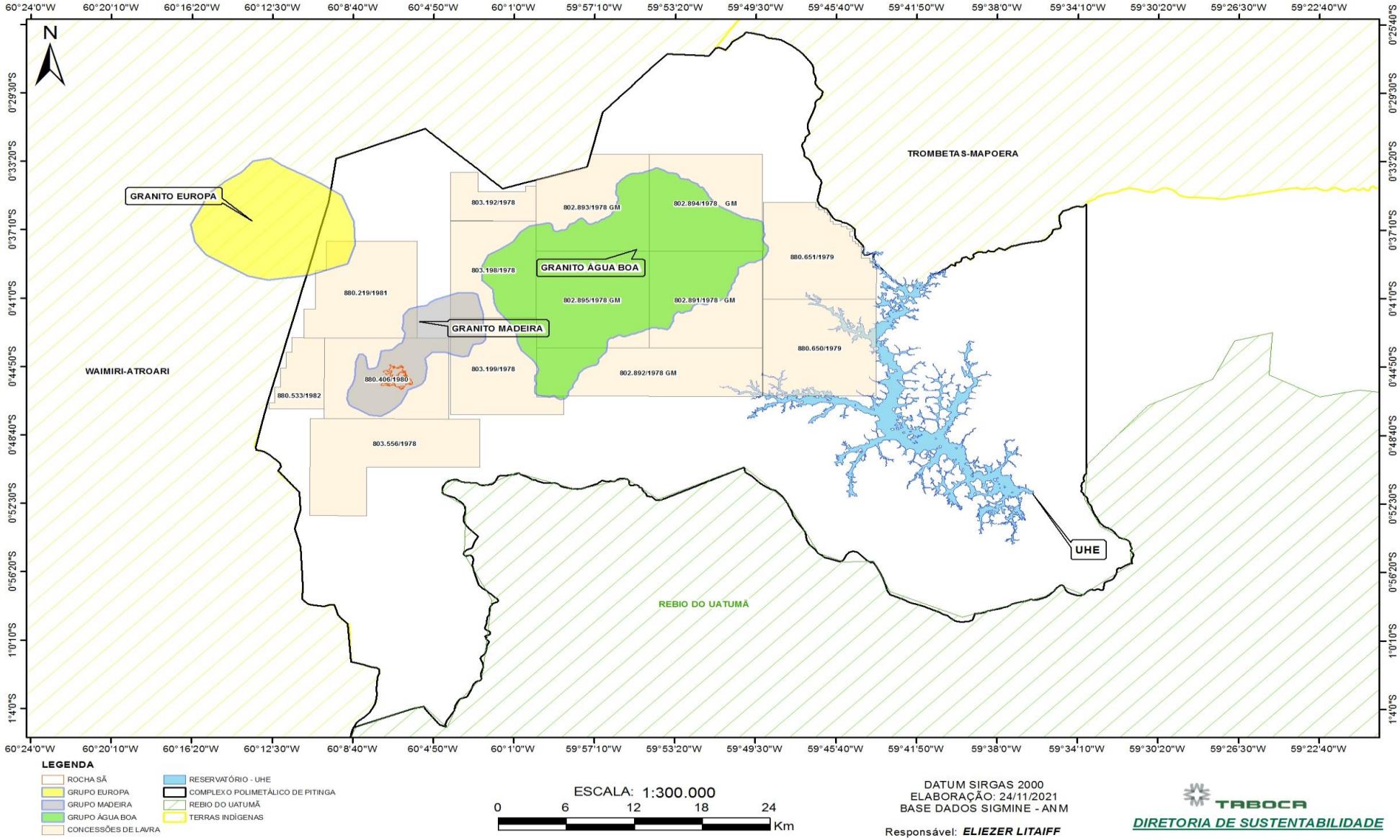
Note:
(*) **A**= Na, Ca, Sn, Sr, Pb, Sb, Y, U, Th or H_2O
(*) **Z**= OH, F, O, H2O
(**) **REE**= Y, Yb, Er, Dy, Ho, Lu, Tm, or Gd

Source: Company information. Notes: As of 11/30/2021

Regional Geology

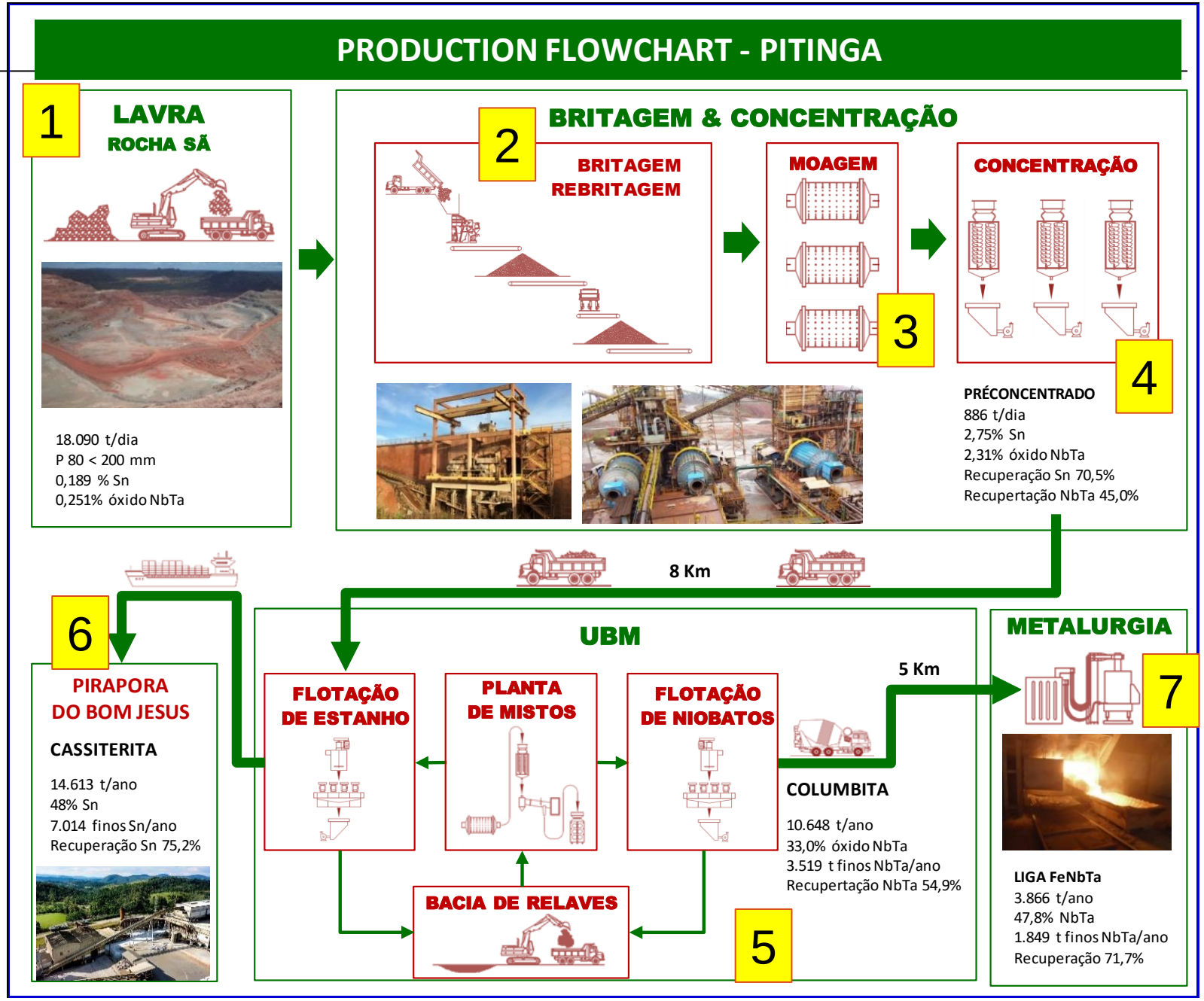


PITINGA OVERVIEW: Taboca's Property



Asset Overview – Pitinga Unit

1. Mine
2. Crushing
3. Milling
4. Spirals
5. Flotation plant
6. Tin Smelter
7. NbTa Smeter

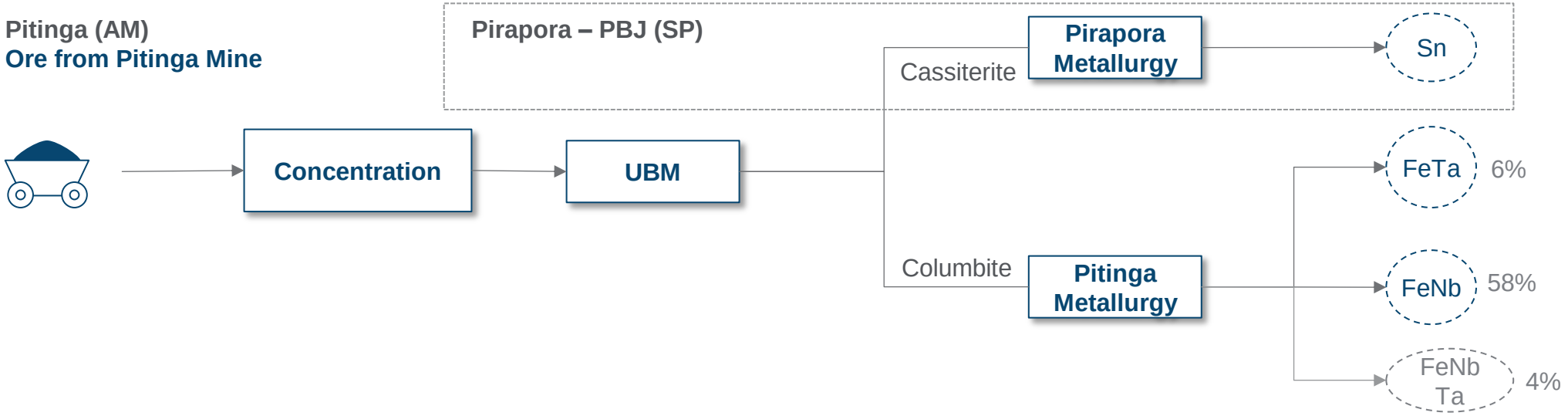


Process Overview – Simplified Process Summary

Current Process Overview

- The mining operation is followed by gravitic, flotation and two specific smelters:
  - One smelter in Pirapora do Bom Jesus (PBJ) / SP that produces tin from cassiterite concentrate
  - Other unit is in Pitinga (PTG) / AM and processes columbite to produce alloys

Simplified Process Diagram



REE Project Development

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REE and Zr Production

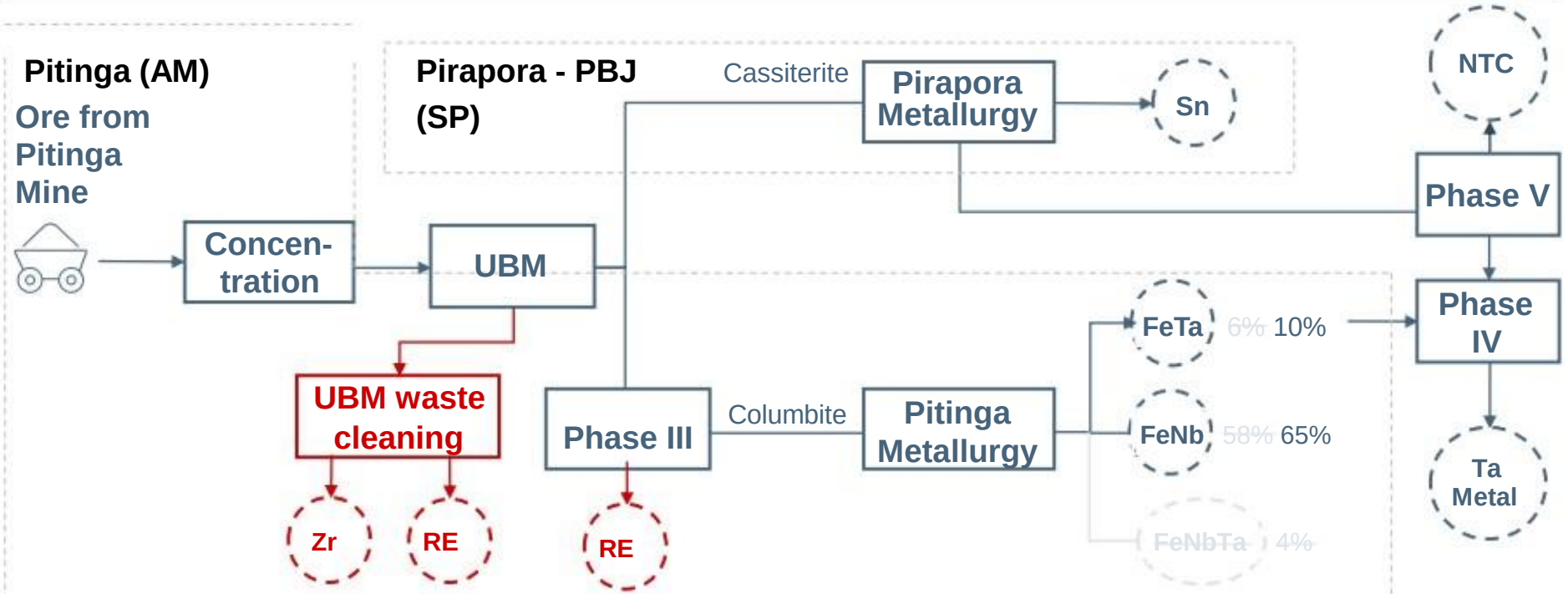
Legend: Process | Product

REE / ZR | FLOWSHEET

6 RE/Zr. Production: Produce RE and Zr

- Processing UBM or columbite cleaning wastes to extract Zr and Rare Earth Elements/REOxides products
  - Taboca's UBM and columbite cleaning **wastes have high concentration** of these **strategic elements**. There seems to be growing demand for these elements.

Simplified process flowsheet



Initiatives

1. Phase I
2. Phase II
3. Phase III
4. Phase IV: Ta metal
5. Phase V: PBJ waste cleaning
   - A. NTC Production
   - B. Ta metal in PBJ
   - C. Ta metal integrated
6. RE & Zr Production
   - A. RE & Zr concentrate
   - B. RE & Zr oxide
   - C. Ta metal Production

REE and Zr Production

Produce RE, Zr products from: UBM or columbite waste

REE / ZR ONE PAGER

Description / Scope

- Monetize waste stream from UBM and columbite cleaning:
  - **RE, Zr a:** Recover RE and Zr from columbite flotation tails to produce RE bulk concentrate and Zr concentrate
  - **RE, Zr b:** Recover RE and Zr from columbite flotation tails to produce RE bulk concentrate, DyO, TbO and Zr refined products
  - **RE, Z c:** Recover RE & Zr from columbite cleaning to produce a RE bulk concentrate and Zr oxide

Rationale

- Waste streams are rich in Zr and REE and constitute potentially competitive "mines"
- Taboca could serve as a reliable source of these strategic materials outside of China

Process

- **RE, Zr a:** Leaching with H_2SO_4, roasting and washing
- **RE, Zr b:** Leaching with H2SO4, roasting, washing and SX
- **RE, Zr c:** Columbite leaching using H_2SO_4, followed by removal of U and Th

Products

- **RE, Zr a:** RE bulk & Zr concentrate
- **RE, Zr b:** Separated REO: DyO, TbO & Zr refined products
- **RE, Zr c:** REE bulk concentrate and Zr oxide

Classification

- New products (REE & Zr)
- New process (REE & Zr production)

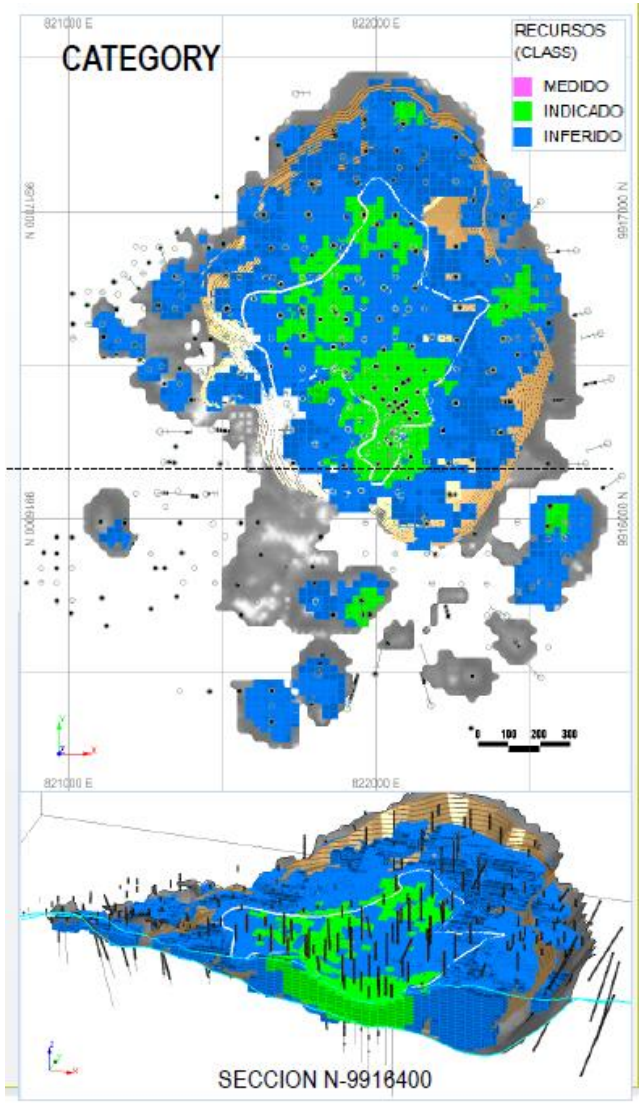
Critical aspects

- **Market:** What is the appropriate entry point for Taboca in both Zr and REE markets: concentrate or oxides or oxalates?
- **Technical :** Would Taboca achieve a customized flowsheet adjusted to its mineral more cost competitive?

Preliminarly Resource Estimate

Table 1. Overall estimate by Cut-Off levels (%)TREO

Cut Off	INDICADOS					INFERIDOS					INDICADOS + INFERIDOS				
TREO	TONNES	HREO	LREO	TREO	Li	TONNES	HREO	LREO	TREO	Li	TONNES	HREO	LREO	TREO	Li
%	miles	%	%	%	ppm	miles	%	%	%	ppm	miles	%	%	%	ppm
0.01	53,532,901	0.043	0.016	0.059	632.2	185,155,273	0.061	0.022	0.083	523.9	238,688,173	0.057	0.021	0.078	548.2
0.02	53,532,901	0.043	0.016	0.059	632.2	185,155,273	0.061	0.022	0.083	523.9	238,688,173	0.057	0.021	0.078	548.2
0.03	50,684,971	0.044	0.016	0.061	634.3	182,497,717	0.062	0.022	0.084	522.6	233,182,688	0.058	0.021	0.079	546.9
0.04	30,845,509	0.058	0.019	0.077	633.3	159,637,761	0.068	0.023	0.091	507.5	190,483,270	0.066	0.023	0.089	527.9
0.05	20,279,997	0.073	0.022	0.095	618.3	138,565,150	0.073	0.025	0.098	490.9	158,845,147	0.073	0.024	0.098	507.2
0.06	14,102,477	0.088	0.025	0.112	598.2	111,200,267	0.082	0.026	0.109	462.5	125,302,744	0.083	0.026	0.109	477.8
0.07	11,012,981	0.099	0.027	0.126	584.2	90,409,252	0.091	0.028	0.119	439.8	101,422,233	0.092	0.028	0.119	455.5
0.08	9,138,028	0.107	0.029	0.136	569.4	74,714,080	0.098	0.030	0.128	425.7	83,852,108	0.099	0.030	0.129	441.4
0.09	7,701,924	0.115	0.030	0.146	561.7	60,561,903	0.107	0.032	0.138	423.7	68,263,826	0.108	0.031	0.139	439.2
0.1	6,584,926	0.123	0.032	0.154	548.8	49,425,560	0.115	0.033	0.148	423.6	56,010,486	0.115	0.033	0.149	438.3
0.11	5,745,035	0.128	0.033	0.162	539.3	40,614,275	0.122	0.035	0.157	414.5	46,359,310	0.123	0.035	0.158	430.0
0.12	5,047,403	0.134	0.034	0.168	534.9	33,538,895	0.129	0.037	0.166	408.9	38,586,298	0.130	0.036	0.166	425.3
0.13	4,407,508	0.139	0.035	0.174	524.2	27,489,676	0.137	0.039	0.175	404.1	31,897,184	0.137	0.038	0.175	420.7
0.14	3,769,402	0.145	0.036	0.181	517.6	22,028,706	0.145	0.040	0.185	408.0	25,798,108	0.145	0.039	0.185	424.0
0.15	3,194,980	0.150	0.037	0.187	512.0	17,949,403	0.153	0.041	0.194	412.6	21,144,382	0.153	0.041	0.193	427.6
0.16	2,516,229	0.158	0.038	0.196	507.9	14,407,116	0.161	0.043	0.204	425.1	16,923,345	0.161	0.042	0.203	437.4
0.17	1,996,137	0.166	0.038	0.204	535.7	11,384,514	0.170	0.044	0.215	439.2	13,380,652	0.170	0.043	0.213	453.6
0.18	1,533,288	0.175	0.038	0.213	539.4	9,135,950	0.178	0.046	0.224	457.1	10,669,238	0.178	0.045	0.223	468.9
0.19	1,236,497	0.183	0.037	0.220	611.2	7,301,217	0.187	0.048	0.234	469.5	8,537,714	0.186	0.046	0.232	490.0
0.2	926,212	0.192	0.036	0.229	651.7	6,103,568	0.194	0.049	0.242	471.8	7,029,779	0.193	0.047	0.240	495.5



NOTES:

- *Summary by Cut-Off levels TREO (%)*
- *Topography at the end of May 2018*
- *Resources limited by Dc17 Optimum Pit*
- *Lithological types granite Core and granite Edge*

Alcance de los estudios realizados

Ensayos para la disolución del U, Th y ETR

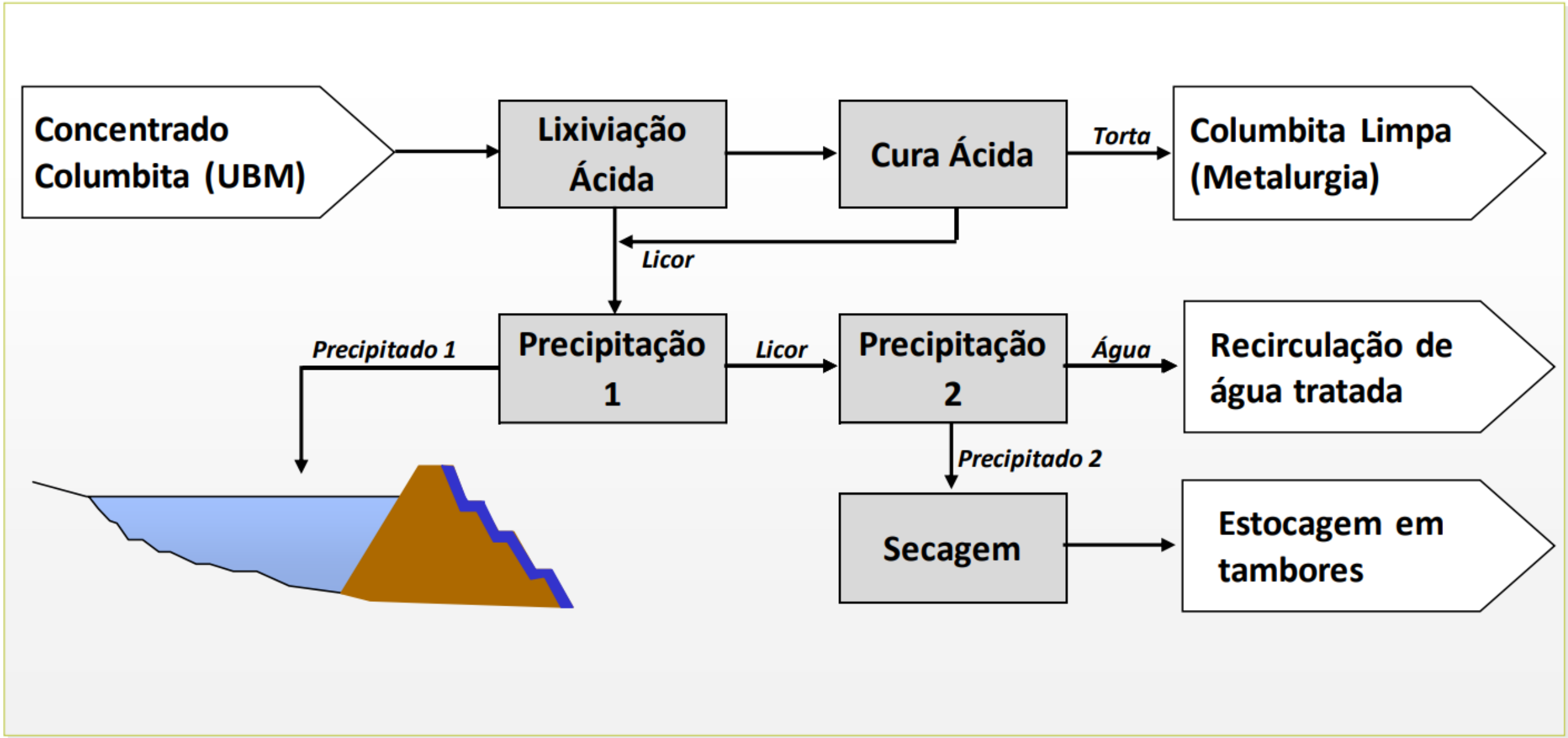
- ✓ Ensayos de lixiviación ácida con H_2SO_4;
- ✓ Ensayos de cura ácida con H_2SO_4;
- ✓ Ensayos secuenciales (lixiviación ácida + cura ácida) con H_2SO_4;
- ✓ Ensayos secuenciales en 3 etapas para la remoción de las contenidos residuales;

Ensaios para tratamento do licor contendo U, Th e ETR

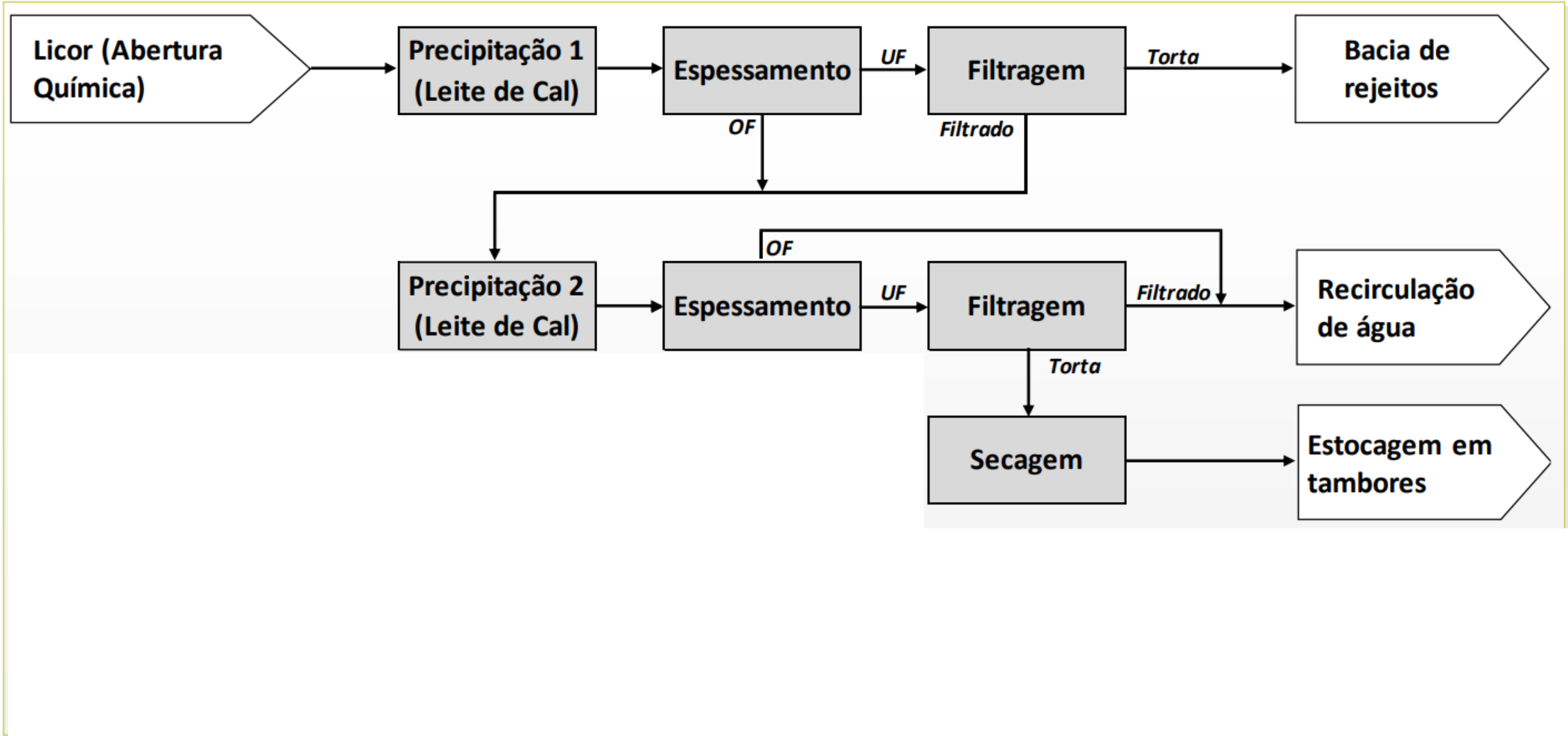
- ✓ Ensayos de precipitación con NaOH (sólido y solución);
- ✓ Ensayos de precipitación con MgO;
- ✓ Ensayos de precipitación con CaO;
- ✓ Ensayos de precipitación con Na_2CO_3 y NaOH;

Total de 208 ensaios

Ruta hidrometalúrgica obtenida



Ruta y parámetros de proceso para el tratamiento del licor



Mini Planta Piloto

Mini Planta Piloto – Laboratório de Hidrometalurgia - CDTN – Testes Columbita – Previsto Novembro/Dezembro

Circuito de Lixiviación

1º Reator de lixiviação em batelada com agitação e controle de temperatura via circulação de vapor

2º Filtro de malha

3º Espessador

4º Sistema de lixiviação contínuo com reatores monocuba e multicompartimentado com controle de temperatura e com silos de alimentação

Mini Planta Piloto

Digestor – Cura Ácida

6º Digestor de cura ácida em batelada com agitação e controle de temperatura viaóleo térmico

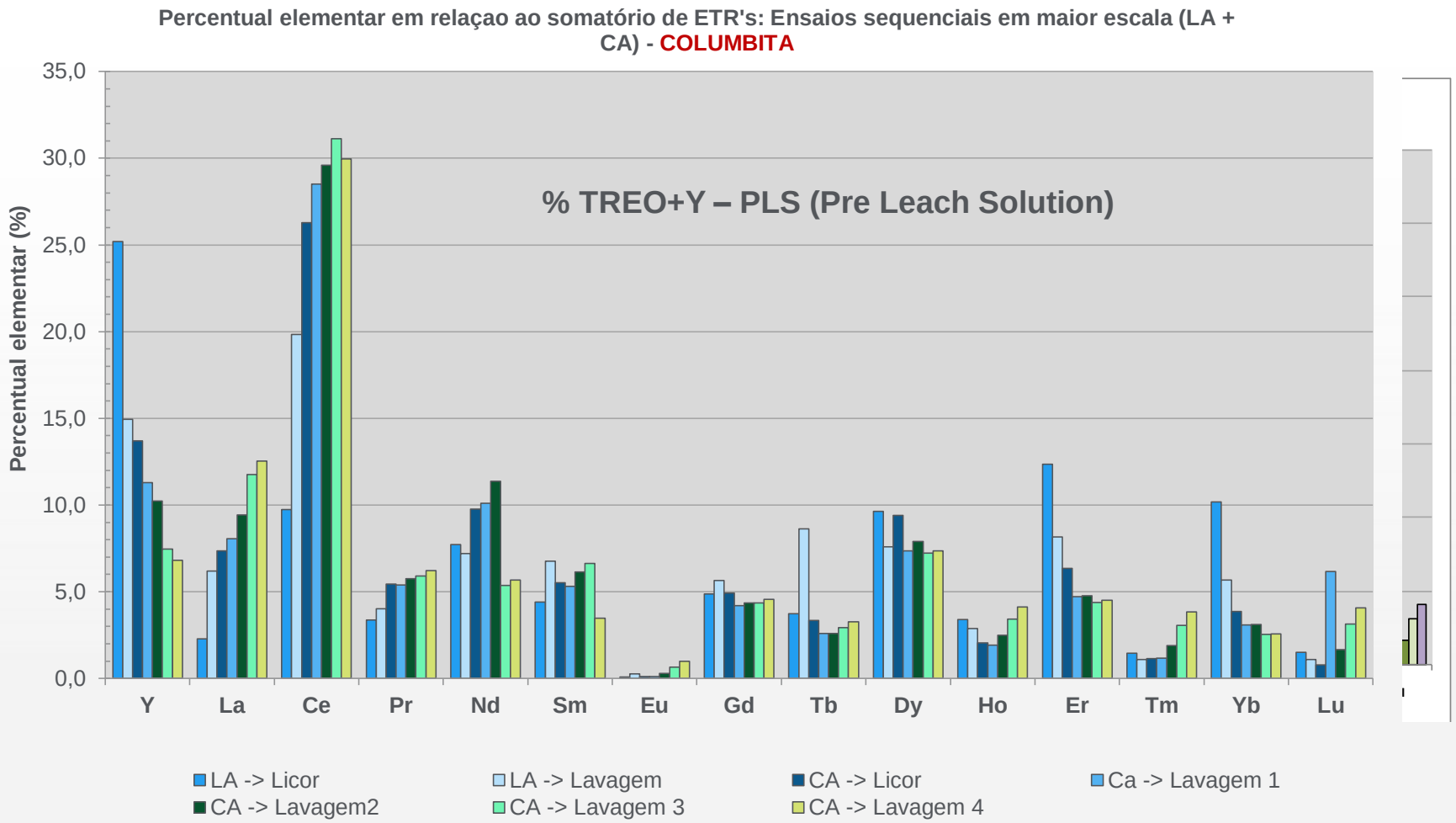
SX Mini Planta

7º Sistema de extra ção por solventes cont ínuo com bateria de misturadores-decantadores micropalito da Sonal-Polux, bateria de misturadoresdecantadores em policarbonato (50 est ágios), bombas perist álticas e sistema automático de controle de pH

Caldera Termica

8º Caldeira e
Bomba de vácuo

Rare Earth Composition – Lab Solution vs Geology



Geology - % TREO+Y

% na Geologia					
Y2O3	200,2	31,25%			
La2O3	22,7	3,55%	LHEO	155,3	24,24%
Ce2O3	79,6	12,43%	HREO	485,5	75,76%
Pr2O3	10,2	1,59%			
Nb2O3	27,6	4,31%			
Sm2O3	15,2	2,37%			
Eu2O3	0,4	0,06%			
Gd2O3	18,2	2,84%			
Tb2O3	8,1	1,26%			
Dy2O3	69,5	10,84%			
Ho2O3	17,1	2,67%			
Er2O3	64,4	10,05%			
Tm2O3	12,1	1,88%			
Yb2O3	84,5	13,18%			
Lu2O3	11,1	1,73%			
Sc2O3	2,6	0,40%			
	640,8	100,00%			

FlowSheet and Mass Balance

Alimentação		
Massa total /d		16327,5
	teor (%)	t/dia
Sn	0,197	32,14
Nb2O5	0,236	38,54
Ta2O5	0,027	4,41
Fe2O3	2,955	482,51
SiO2	69,392	11329,93
ThO2	0,121	19,68
U3O8	0,029	4,70
ZrO2	0,761	124,19
Rb2O	0,793	129,44
Pb	0,110	18,03
Al2O3	13,151	2147,29
Hf	0,048	7,84
TREO	0,13079	21,35

Alim. Planta Sn		
Massa total /d		841,8
	teor%	t/dia
Sn	2,85	24,01
Nb2O5	2,01	16,91
Ta2O5	0,20	1,67
Fe2O3	6,30	53,03
SiO2	54,79	461,25
ThO2	1,152	9,70
U3O8	0,184	1,55
ZrO2	9,20	77,41
Rb2O	0,486	4,09
Pb	0,95	8,03
Al2O3	6,63	55,80
Hf	0,733	6,170295
TREO	0,32861	2,77

Cassiteria		
Massa total /d		37,7
	teor%	t/dia
Sn	48,22872868	18,2
Nb2O5	4,19520945	1,6
Ta2O5	0,321484656	0,1
Fe2O3	4,483824632	1,7
SiO2	6,732914943	2,5
ThO2	1,020448292	0,4
U3O8	0,128060848	0,0
ZrO2	11,56980395	4,4
Rb2O		0,0
Pb	0,38552406	0,1
Al2O3	3,17	1,2
S	0,191224256	0,1
Hf	0,917	0,35
TREO	0,471	0,18

Alim. Planta Niobatos		
Massa total /d		362,1
	teor%	t/dia
Sn	1,243	4,502
Nb2O5	4,638	16,795
Ta2O5	0,445	1,610
Fe2O3	7,678	27,801
SiO2	22,192	80,355
ThO2	3,131	11,337
U3O8	0,688	2,490
ZrO2	32,653	118,236
Rb2O	0,22	0,797
Pb	1,078	3,903
Al2O3	5,25	19,021
Hf	3,182	11,52179
TREO	1,835967	6,65

Rejeito Niobatos		
Massa total /d		334,7
	teor%	QM/dia
Sn	1,171	3,917
Nb2O5	1,819	6,088
Ta2O5	0,215	0,721
Fe2O3	7,677	25,692
SiO2	22,277	74,550
ThO2	2,321	7,768
U3O8	0,273	0,913
ZrO2	28,915	96,766
Rb2O		0,000
Pb	0,379	1,267
Al2O3	4,55	15,210
Hf	3,06	10,227
TREO	1,71%	5,72

Mine

Concentration

Tin flotation (Sn)

Niobate plant

Mistos Plant

BP- 030

BP-200

Rejeitos 1		
Massa total /d		15485,7
	toer%	Qm/dia
Sn	0,053%	8,13
Nb2O5	0,140%	21,63
Ta2O5	0,018%	2,75
Fe2O3	2,773%	429,47
SiO2	70,185%	10.869
ThO2	0,127%	19,68
U3O8	0,030%	4,70
ZrO2	0,302%	46,78
Rb2O	0,836%	129,44
Pb	0,065%	10,00
Al2O3	13,506%	2.091
Hf	0,011%	1,67
TREO	0,120%	18,59

Alimentação Planta de misto		
Massa total /d		1775,2
	teor%	t/dia
Sn	0,45	7,9
Nb2O5	1,14	20,2
Ta2O5	0,18	3,3
Fe2O3	8,58	152,3
SiO2	54,33	964,4
ThO2	1,13	20,0
U3O8	0,19	3,4
ZrO2	16,46	292,3
Rb2O	0,403	7,2
Pb	0,49	8,6
Al2O3	12,08	214,4
Hf	1,143	20,3
TREO	0,647411286	11,49

Alimentação Plata de Sn / Planta Niobatos – BP30- BP200					
Massa total /d		149,0	Massa total /d		347,7
BP 30	teor%	t/dia	BP200	teor%	t/dia
Sn	2,0 %	2,9	Sn	2,0 %	6,8
Nb2O5	2,3 %	3,5	Nb2O5	2,3 %	8,2
Ta2O5	0,4 %	0,6	Ta2O5	0,4 %	1,4
Fe2O3	11,7 %	17,4	Fe2O3	11,7 %	40,6
SiO2	29,2 %	43,4	SiO2	29,2 %	101,4
ThO2		0,0	ThO2		
U3O8		0,0	U3O8		
ZrO2	31,7 %	47,3	ZrO2	31,7%	110,3
Pb	1,7 %	2,6	Pb	1,7 %	6,1
Al2O3		0,0	Al2O3		

Columbita		
Massa total /d		27,4
	teor%	t/dia
Sn	1,816	0,50
Nb2O5	32,203	8,84
Ta2O5	3,048	0,84
Fe2O3	9,347	2,56
SiO2	11,418	3,13
ThO2	5,331	1,46
U3O8	2,754	0,76
ZrO2	5,082	1,39
Rb2O	0,355	0,10
Pb	9,288	2,55
Al2O3	0,818	0,22
Hf	0,231	0,063
TREO	3,3711163	0,92

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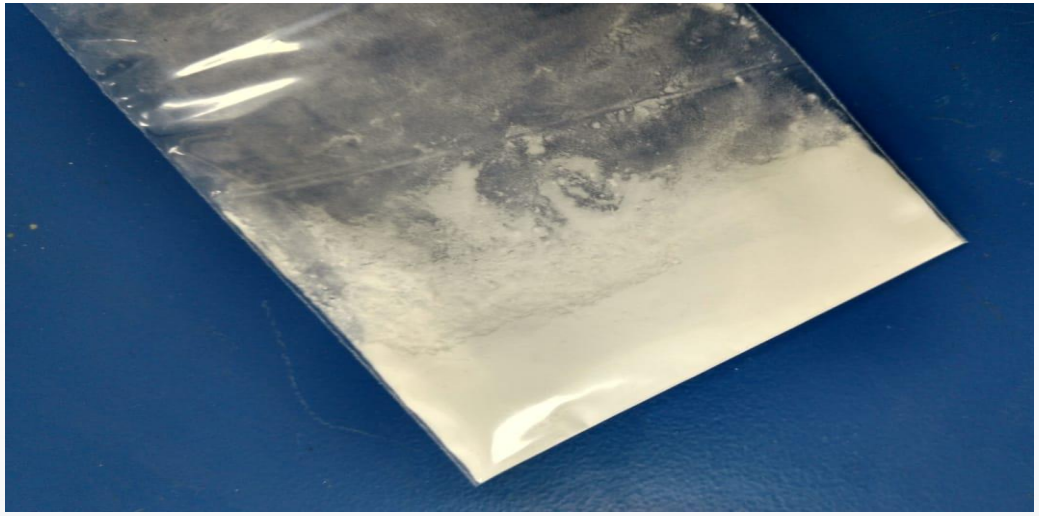
Phase 3 Project – Rare Earth elements via Columbite leach solution

Rare earth oxalate(Calcined) – Produced in CDTN



Potential volumes

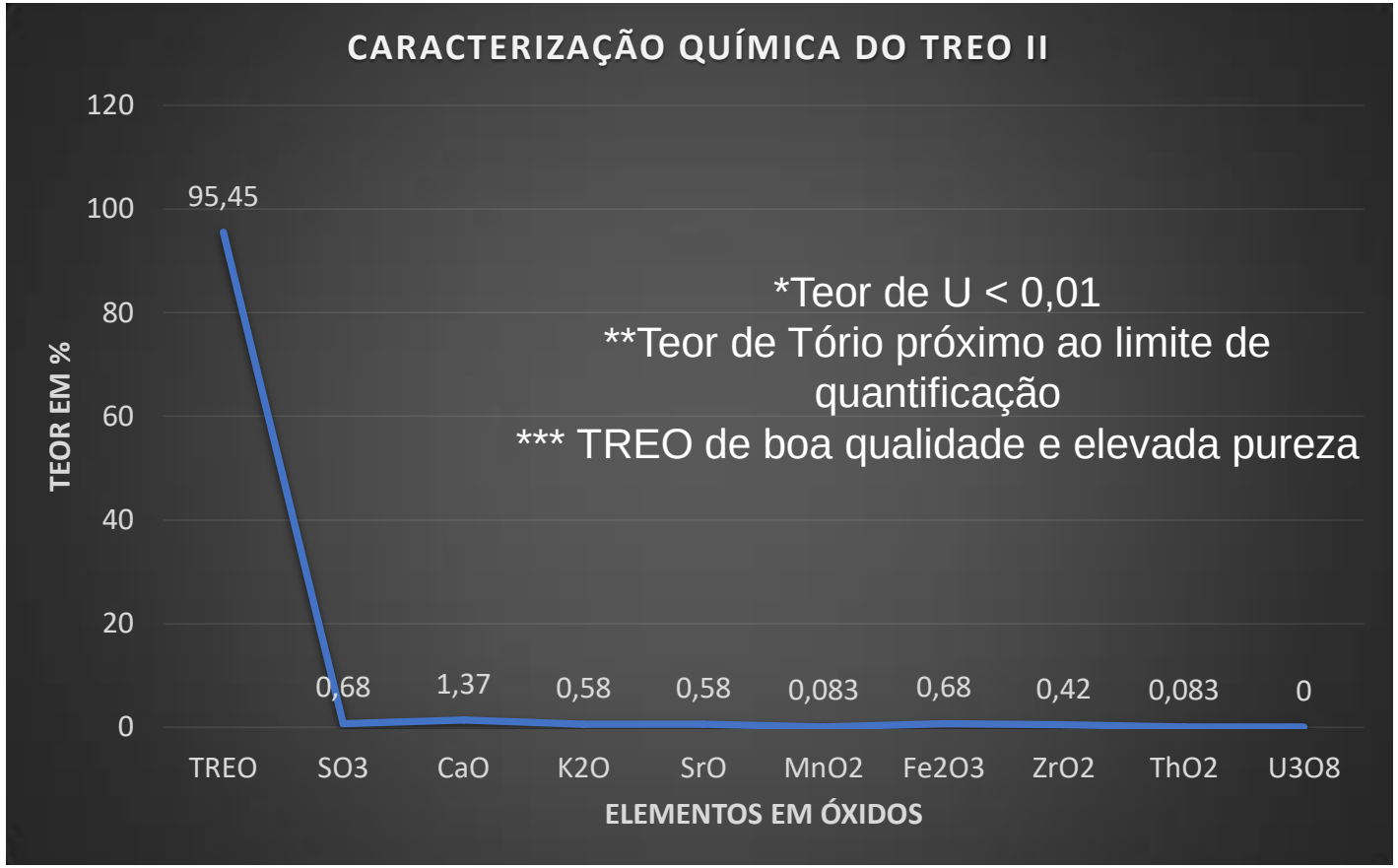
	Tpy	% TREO	Recover %	Carbonate / Oxalate tpy
Columbite actual	10.000	3,37%	70%	471
Tailings actual	122.166	1,71%	50%	2.089
TOTAL				**2.560**

Estimates for rare earth carboneta/oxalate production

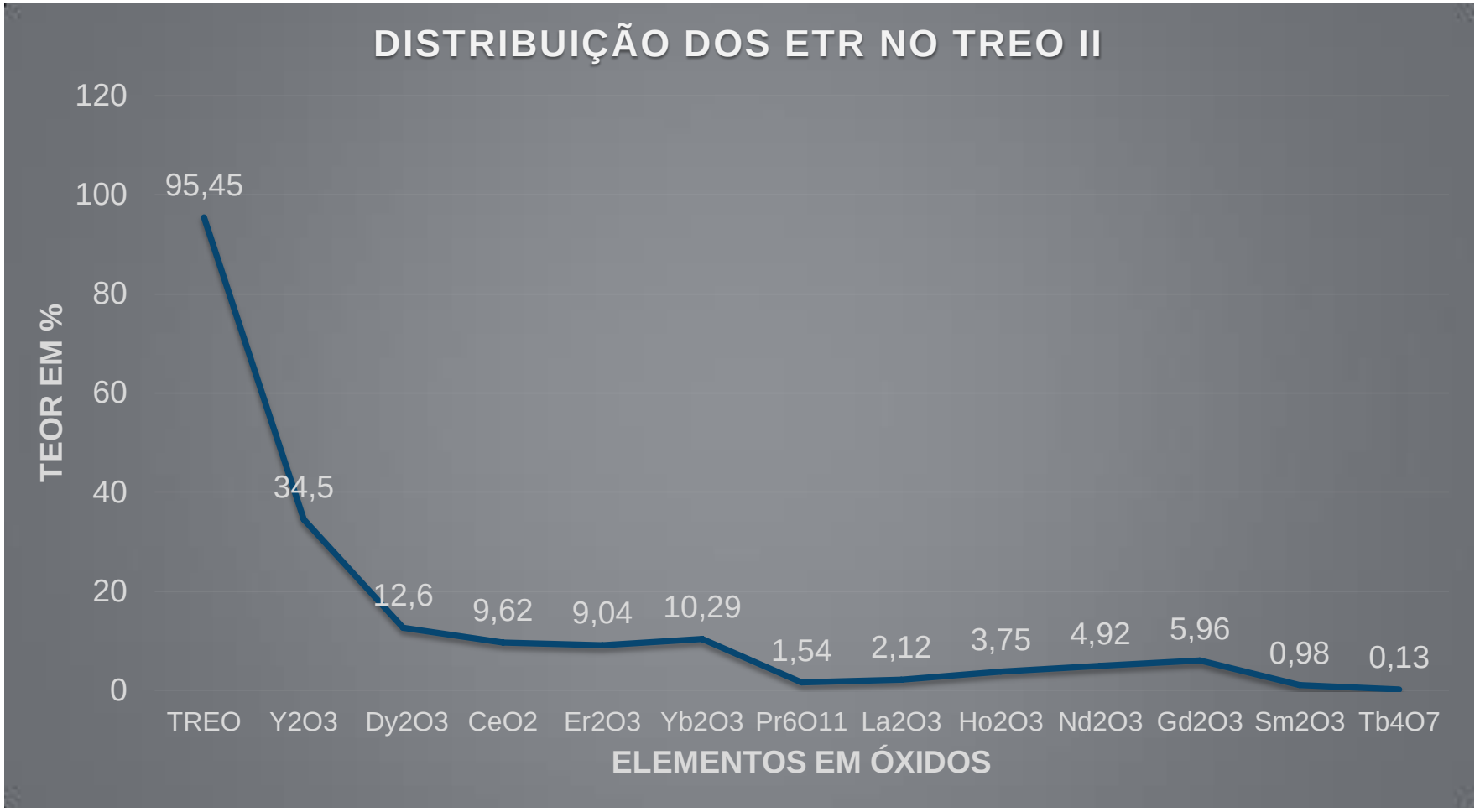
Concentrado Bulk - 50% TREO			% Participação Acum Heavy
	Participação	% no Conc Bulk	
Y	31,25%	15,63%	15,63%
La	3,55%	1,78%	
Ce	12,43%	6,22%	
Pr	1,59%	0,80%	
Nd	4,31%	2,16%	
Sm	2,37%	1,19%	
Eu	0,06%	0,03%	15,66%
Gd	2,84%	1,42%	17,08%
Tb	1,26%	0,63%	17,71%
Dy	10,84%	5,42%	23,13%
Ho	2,67%	1,34%	24,46%
Er	10,05%	5,03%	29,49%
Tm	1,88%	0,94%	30,43%
Yb	13,18%	6,59%	37,02%
Lu	1,73%	0,87%	37,88%
		50,01%	75,75%

Qualidade do concentrado de terras raras produzido

Elementos Dosados(%)	RESIDUO PTR-11R Calçinado
Y_2O_3	34,50
Dy_2O_3	12,60
CeO_2	9,62
Er_2O_3	9,04
Yb_2O_3	10,29
Pr_6O_{11}	1,54
La_2O_3	2,12
ZrO_2	0,42
BaO	0,58
Ho_2O_3	3,75
Nd_2O_3	4,92
Gd_2O_3	5,96
Sm_2O_3	0,98
SO_3	0,68
CaO	1,37
K_2O	0,58
SrO	0,58
MnO_2	0,083
Fe_2O_3	0,68
Tb_4O_7	0,13
ThO_2	0,083
U_3O_8	<0,01



Qualidade do concentrado de terras raras produzido



Participação Projetada

	Participação
Y	31,25%
La	3,55%
Ce	12,43%
Pr	1,59%
Nd	4,31%
Sm	2,37%
Eu	0,06%
Gd	2,84%
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Tm	1,88%
Yb	13,18%
Lu	1,73%

Estudo do Potencial de Produção de Terras Raras – Projeto Fase 3 e Rejeito Flot NbTa

Potencial Produção de Carbonato/Oxalato de Terras Raras com Projeto Fase 3 e com o Rejeito da Flotação de Niobatos

Utilizando o Licor (solução Lixiviada, Projeto Fase 3) - Licor contendo elementos de Terras Raras

	t/ano	TREO	Recuperação - %	TREO - t/ano	Carbonato/Oxalato - t/ano	50%
Columbita atual	10.000	3,37%	70%	235,9	471,8	Concentrado Bulk
Columbita com Fase 2	17.000	3,37%	70%	401,03	802,06	Concentrado Bulk

Rejeito da Flotação de Niobatos			Realista 50%			
	t/ano	TREO	Recup. - %	TREO - t/ano	Carbonato/Oxalato - t/ano	50%
Rejeito Atual	122.166	1,71%	50%	1.044,52	2.089,03	

Produção Terras Raras						
	t/ano	TREO	Recuperação - %	TREO - t/ano	Carbonato/Oxalato - t/ano	50%
Columbita + Rejeito Flotação	**224.681**	**1,938%**	**52,78%**	**2.176,71**	**4.353,41**	

Estudo Produção de Terras Raras Planta de Mistos

Alimentação Planta de misto		
Massa total /d		1775,2
	teor%	t/dia
Sn	0,45	7,9
Nb2O5	1,14	20,2
Ta2O5	0,18	3,3
Fe2O3	8,58	152,3
SiO2	54,33	964,4
ThO2	1,13	20,0
U3O8	0,19	3,4
ZrO2	16,46	292,3
Rb2O	0,403	7,2
Pb	0,49	8,6
Al2O3	12,08	214,4
Hf	1,143	20,3
TREO	0,647411286	11,49

Estoque Estimado - Mistos	2.700.000	t/acum rejeito da UBM
TREO	0,647%	análise previa, terá que ser melhor trabalhada
TREO	17.469,00	t/ TREO estimado
Recup	50%	
	8.734,50	
Concentrado Bulk	**17.469,00**	**Produção concentrado Estimado na Barragem com teor de TREO (5O%) a ser Processado ao longo do tempo.**

Concentrado Bulk - 50% TREO	Participação	50% % no Conc Bulk	% Participação Acum Heavy
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		50,01%	75,75%

Estudo Produção de Terras Raras Rejeito da Planta Concentradora

Rejeito para Barragem	15.486	t/dia atual
Com o Fase 2	20.304	t/dia com o Fase 2
Teor TREO	0,12%	obs.: Teor de Treo Projeto Serra Verde.

Geração de TREO na Operação Atual da Taboca

TREO	24,4	t/dia
TREO	8.893,2	t/ano

Planta Concentradora - Estoque da Barragem

Volume Estimado:		108.000.000	t/volume estimado
Teor média Estimado			
	TREO	0,12%	
	TREO	129.600	
	Recup	50%	
TREO Potencial	**TREO**	**64.800**	
Carbonato/Oxalato		**129.600**	**t/ Potencial**

Concentrado Bulk - 50% TREO	Participação	50% % no Conc Bulk	% Participação Acum Heavy
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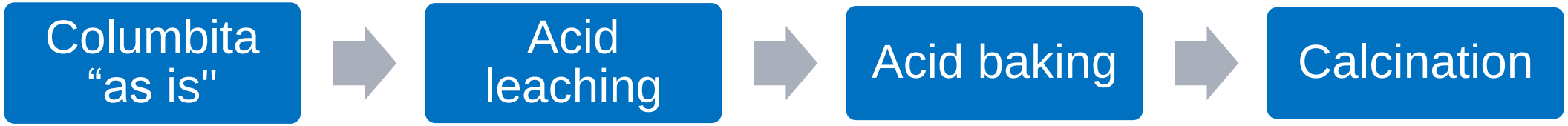
		50,01%	75,75%

Pilot Plant – Taboca

Pilot Plant - Results

Hydrometallurgy



Element (%)	Columbita As is	Acid leaching	Acid baking	Calcination
Nb2O5	32,29	35,55	40,48	49,89
Ta2O5	3,36	3,48	3,87	4,76

Pyrometallurgy

Iro- Alloys(%)	Nb	Ta
FeNb	67,09	2,83
FeTa	35,93	15,98

Thank you