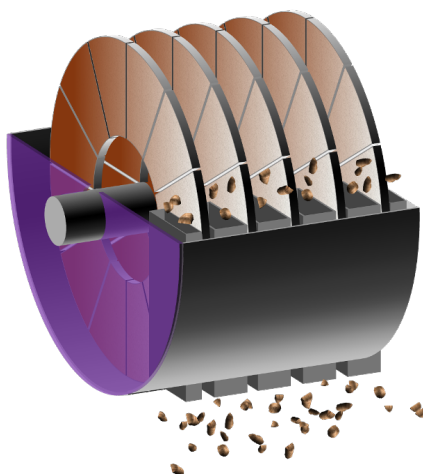

Example Ceramic Disc Filter case: Au Tails

Date:

2026-07-15



Notes/ Background

For more information, contact <https://cecminingsystems.com/>

Generated by [tailingsplant.app](#) — This report reflects user inputs and model assumptions. Verify key parameters and units before use.

Process Design Criteria

Slurry

Parameter	Value	Units	Source
Solids Density (kg/m³)	2750	kg/m³	-
Liquid Density (kg/m³)	1000	kg/m³	-
Slurry Density (kg/m³)	1705.43	kg/m³	-
Percentage solids (% w/w)	65	% w/w	-
Solids Fraction	40.31	% v/v	Calculated

Daily Throughput - dry solids (tpd)

Parameter	Value	Units	Source
Daily Throughput - dry solids (tpd)	6500	t/d	Input
Expected Availability (in %)	100	%	Input
Required Hourly Capacity (tph)	270.83	tph	Calculated

Summary of mass reporting

Parameter	Value	Units	Source
Solids	270.83	tph	Calculated
Liquid	145.83	tph	Calculated
Slurry	416.66	tph	Calculated

Summary of volume reporting

Parameter	Value	Units	Source
Volume Solids	98.48	m³/h	Calculated
Volume Liquids	145.83	m³/h	Calculated
Slurry	244.31	m³/h	Calculated

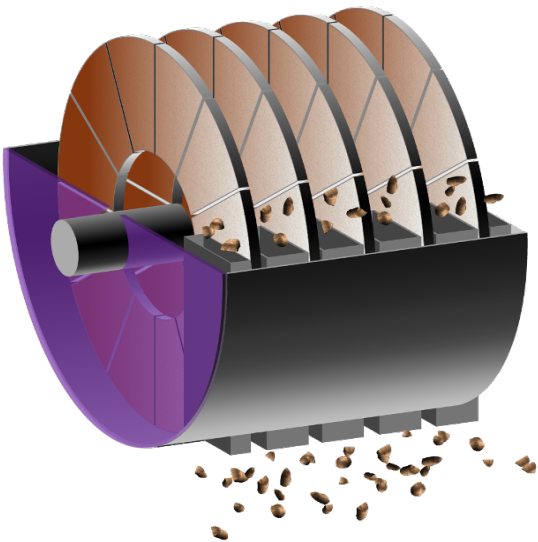
Comments

These are typical values.

Validate Filter

Filter Description

Disc Filters incorporate a number of discs, each with a number of sectors, located on a rotating shaft. As the shaft rotates, each sector passes through a slurry basin and cake forms on its outer surface. After leaving the basin, further dewatering occurs during the remainder of the rotation, until the filter cake is dislodged, passing through a chute. Cake discharge is continuous. Disc filters can have cloth or ceramic media and almost always operate under vacuum.



Operational Parameters

Parameter	Value	Units	Source
Filter Type	Disc Filter	-	Input
Cake Thickness	10	mm	Input
Cake porosity	56	% v/v	Input
Disc Speed	1	rpm	Input
Solids Density (kg/m³)	2750	kg/m³	from PDC
Specific Capacity	726	kg/(m²·h)	Calculated

Comments

Here we are using actual test data. Your slurry may have a higher or lower specific capacity than this.

Filter Plant

Filter model (vendor, model type, code):
CX12-204 from CEC Mining Systems

Filter choice

Parameter	Value	Units	Source
Filter Type	Disc Filter	-	Input
Specific Capacity	726	kg/(m ² ·h)	Calculated
Disc Area (m ²)	12	m	Input
Number of Discs	17	m	Input
Machine filtration area (m ²)	204	m ²	Calculated
Nominal throughput per unit	148.1	tph	Calculated
Required number of units	2	#	Calculated
Max Hourly Throughput	297	tph	Calculated
Buffer Capacity	9.4	%	Calculated

Comments

This is the largest unit available from CEC Mining Systems. With these test results scaled up, 2 (two) units operating continuously would delivery 297 tph (dry solids), above the required 271 tph.

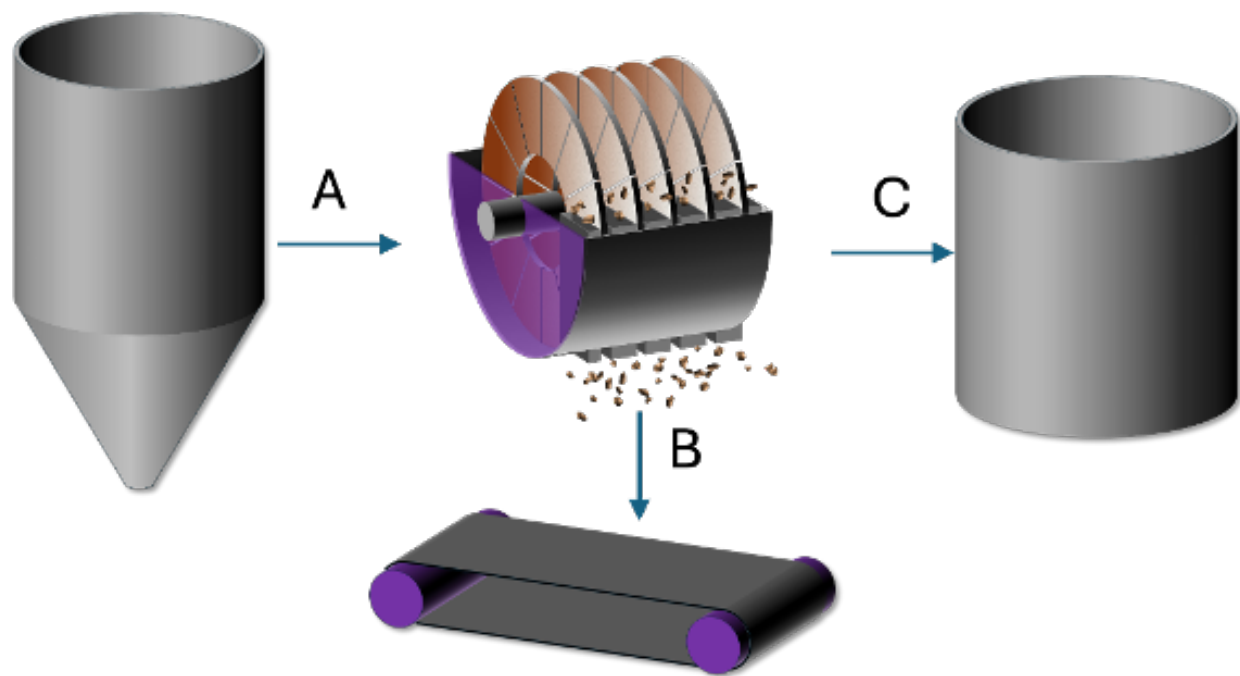
Water/Cake

Cake and Water Recovery information is very important

Cake Moisture and Water Recovery

Parameter	Value	Units	Source
Cake Moisture (%w/w)	19.5	% w/w	Input
Water Recovery	55.01	%	Calculated

Flow diagram



Summary of mass balance (tph)

	Slurry [A]	Cake [B]	Filtrate [C]
water	145.83	65.6	80.23
Solids	270.83	270.83	See Note 1.
air	-	-	-
Slurry	416.66	-	-
filter cake	-	336.43	-

Note: There may be some solids in the filtrate, especially if media are torn. Check via testing.

Note: Compressed air or vacuum may be required for the filter to operate.

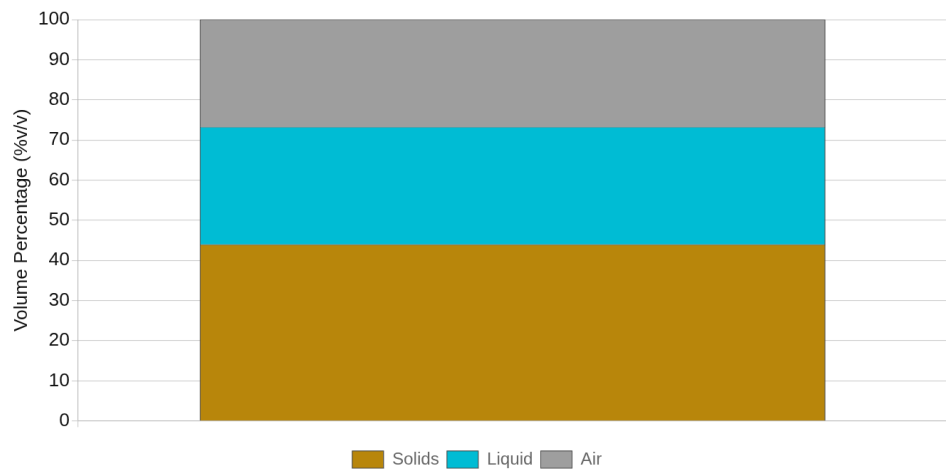
Note: Check the water required for washing/cleaning; reuse filtrate where possible.

Water/Cake continued

Filter cake and water balance

Parameter	Value	Units	Source
Cake Moisture (%w/w)	19.5	% w/w	Input
Geotech Water Content	24.2	%	Calculated
Cake Thickness	10	mm	Input
Cake porosity	56	% v/v	Input
Volume Solids	44	% v/v	Calculated
Volume Liquids	29.31	% v/v	Calculated
Volume Air	26.69	% v/v	Calculated
Cake bulk density (N.B. Undisturbed).	1503.11	kg/m³	Calculated

Cake Phase Volumes



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