



Rosin-Rammler Fit · the shape of the cement

Two numbers that describe the whole particle size spread, for two samples side by side.

Licensed to: Sample file · worked example on a demonstration plant

SPREAD n	POSITION d'
1.001	20.0
slope of the fit	µm · 36.8 % retained

YOUR FIGURES

	Today	What if	
Sample (Today column)	ent product · mill A		
Sample to compare (What if column)	After the separator repair		

Cumulative residue %, coarsest sieve first

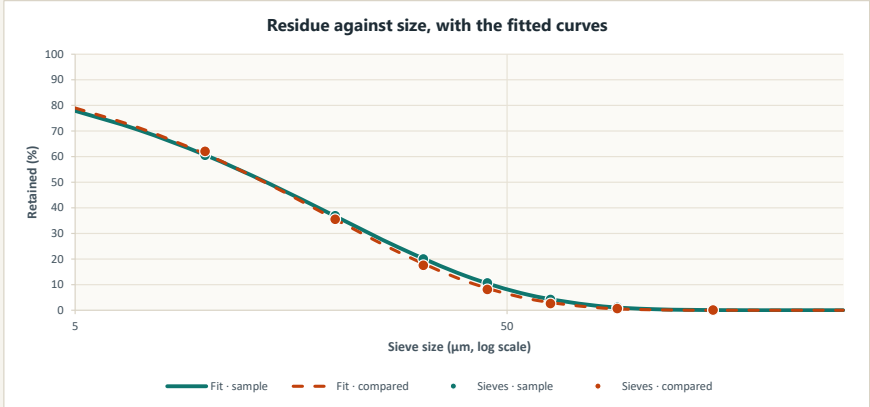
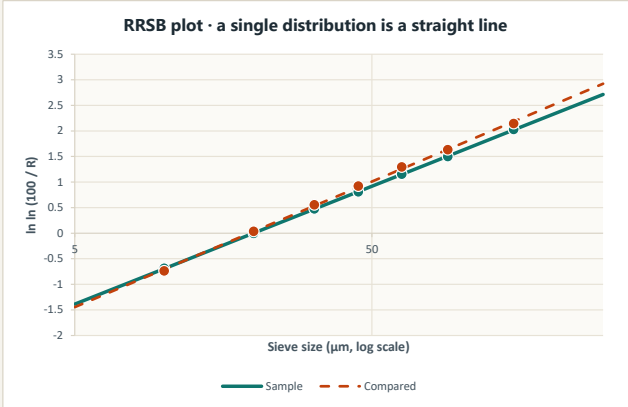
Sieve (µm)	Sample	Compared	
150	0.05	0.02	%
90	1.15	0.60	%
63	4.20	2.60	%
45	10.60	8.10	%
32	20.00	17.50	%
20	36.90	35.50	%
10	60.50	62.00	%

Yellow cells are yours. Leave a What-if cell empty to keep today's figure; type a new one to see what changes, before anything is changed in the plant.

HALF IS FINER THAN	FIT QUALITY
13.8	99.99
µm	%

RESULTS

	Today		What if	Change	What it means
Spread n	1.001	GOOD	1.067	+0.065	0.8 to 1.15 is normal for a closed-circuit cement mill; below 0.8 wide, above narrow.
Position d' (µm)	20.0		19.4	-0.6	The size at which 36.8 % is retained.
Fit quality R² (%)	99.99	GOOD	99.91	-0.08	Below 95 % the product is not one distribution; below 99 % the fit is only fair.
Sieves used	7		7	0	
10 % is finer than (µm)	2.1		2.3	+0.2	
Half is finer than (µm)	13.8		13.7	-0.1	
90 % is finer than (µm)	45.9		42.3	-3.6	
Residue on 45 µm, from the fit (%)	10.48		8.57	-1.91	
Residue on 32 µm, from the fit (%)	20.12		18.12	-2.00	



WHAT TO DO FIRST	
READ	WHAT THE PRODUCT IS Two numbers describe the whole sample: the spread is $n = 1.001$ and the position is $d' = 20.0 \mu\text{m}$, where 36.8 % is retained. That spread is normal for a closed-circuit cement mill. Half the material is finer than $13.8 \mu\text{m}$. Do: Quote d' and n together, never one alone; track them shift to shift. Why: One fineness number hides the shape. Two mills can give the same $45 \mu\text{m}$ residue and behave completely differently in concrete.
GOOD	THE FIT IS CLEAN At 99.99 % the points sit on the line. This really is a single Rosin-Rammler distribution, so the two numbers describe it completely and the predictions are safe to use. Do: Use the fit to predict sieves not run every shift. Why: A clean fit means five fractions need not be sieved to know the whole curve.
READ	PREDICTING OTHER SIEVES From the fit: 10.48 % would be retained on $45 \mu\text{m}$, 10 % of the material is finer than $2.1 \mu\text{m}$ and 90 % is finer than $45.9 \mu\text{m}$. Do: Use these to fill gaps in a laboratory sheet; re-fit whenever the circuit changes. Why: The prediction is only as good as the fit, so check the fit quality first.

