

Comparative List on the Composite Cost of high alumina ball, medium alumina ball and natural stone

Aim: save energy, reduce the manufacturing cost, increase the grinding efficiency.

Conditions: 40MT ball mill;

To grind body powder of soluble salt tile, output slurry 250mesh;

Motor Power: 135KW/hr, cost US\$0.10/KW.

Comparative List on the Composite Cost

NO.	Items	High Alumina Ball 92%	Medium Alumina Ball 68%	Natural Stone
A	Ball/Stone loaded in Ball Mill	40MT	40MT	36MT
B	Wear Loss rate	0.02%	0.04%	0.18%
C	Hours for one cycle	8 hr	11 hr	17 hr
D	Price for alumina ball/stone	\$950.00/MT	\$398.00/MT	\$50.00/MT
E	Cost of the grinding media =A*B*C*D	\$60.80	\$70.05	\$55.08
F	Cost of the energy =135KW *\$0.10/KW * C	\$108.00	\$148.50	\$229.50
G	Total cost of each cycle =E+F	\$168.80	\$218.55	\$284.58
	Evaluation of Application	Best	Good	Inferiority
H	Available Cycles per month (including feeding and unloading time)	25	23	19
I	Monthly throughput of Ball Mill= 40MT *H	1000MT	920MT	760MT

Conclusion

Use high alumina ball or medium alumina ball can save the energy and cost remarkably and increase the throughput and usage of the ball mill.

Suggestion

Use alumina ball replace the nature stone. Considering the initial investment, we suggest to use high alumina ball (92%) for glaze/body grinding, use medium alumina ball (68%) for body grinding.