

Calculation of Grinding Media Balls Volumetric Hardness

A calculation of volumetric hardness is done for all types of forged balls and grinding media balls during the production process of Altın Bilya. It is not possible to specify the high range hardness of the balls with a surface measurement with respect to Rockwell hardness scales. The surface hardness is not the only scale value of the ball quality, because the grinding media balls rub off and lose their volumes. The average volumetric hardness is another measurement method to measure the quality of balls. The volumetric hardness is a result of the average of ball hardness and volume. Depending on the increase of volumetric hardness, you can have more resistant and durable balls during the grinding operations.

Sample calculation (Ø 60 mm ball)

Shell no	of ball volume %	Average Rc Reading	shell volume x HRc
1	22,97%	65,4	15,03
2	19,16%	65,6	12,57
3	15,68%	65,3	10,24
4	12,56%	64,8	8,14
5	9,78%	63,5	6,21
6	7,35%	62,8	4,62
7	5,27%	62,1	3,27
8	3,53%	60,4	2,13
9	2,14%	58,9	1,26
10	1,10%	58,7	0,65
11	0,41%	59	0,24
12	0,06%	59,9	0,03
	100,00%		64,38

Avarege volumetric hardness 64,3 ROCKWELL

