μ-X360J Application Relation between FWHM and hardness

"Hardness test" is one of the mechanical properties of metal material. Rockwell hardness scale and Vickers hardness scale are mainly used. <u>Non-contact & non-destructive</u> <u>hardness testing of metal materials is possible by</u> analyzing FWHM which has a correlation with hardness.

Correlation between FWHM and hardness

Ref.	Act.	
HRC	FWHM	HRC vs. FWHM
	[deg.]	80.0
31.2 (SK85)	2.51	70.0
	2.51	
	2.51	60.0
39.9 (SK85)	2.73	
	2.73	
	2.73	
50.2 (SK85)	3.67	
	3.67	
	3.67	
55 (SK85)	4.80	
	4.80	(Test pieces made by Yamamoto Scientific Tool Laboratory Co., Ltd.)
	4.81	0.0
60.6 (SKS3)	6.46	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	6.43	X-ray FWHM[deg.]
	6.38	
64 (SKS3)	7.52	High repeatable measurement is possible
	7.58	
	7.56	by using full Debye-Scherrer ring data
69.9 (SK120)	8.76	
	8.70	in 0.72deg steps and averaging them!
	8.72	

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