Study on affect by calculation algorithm for material probability curve to roughness parameters of plateau surface

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Background

The ISO standard defines the calculation of roughness parameters from material ratio curve (MRC) and material ratio curve on normal probability paper (MPC) as effective methods for evaluating surfaces with excellent lubrication and frictional characteristics.

Problem

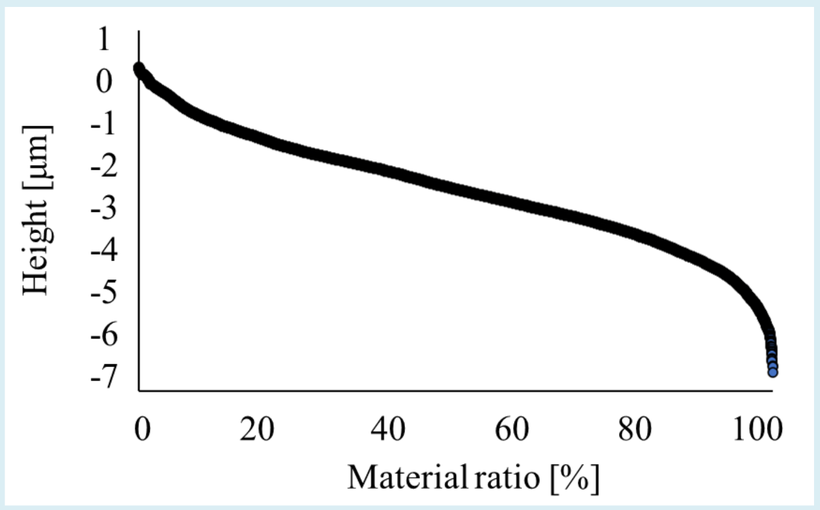
When plotted on a normal probability paper, the difference between the MRCs calculated using the sort and slice methods increases.

The roughness parameters calculated from the MPCs by the slice and sort methods may be different results.

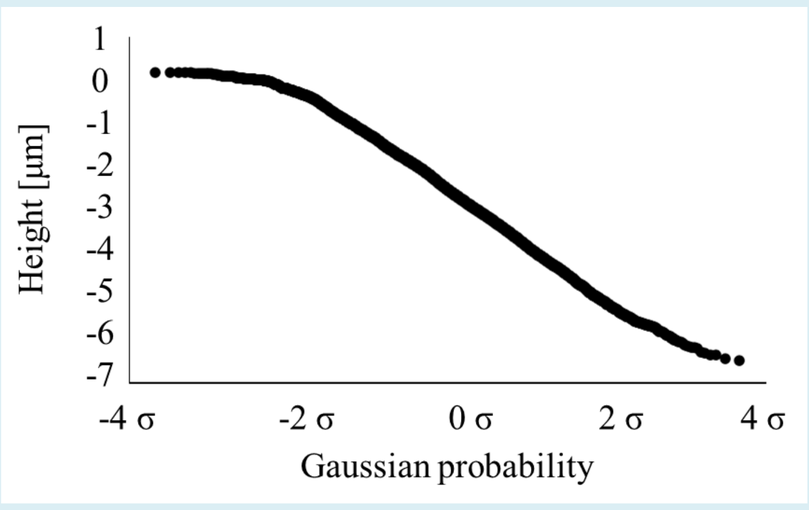
Purpose

This study reports the results of investigation about the affect that increasing differences have on the roughness parameters.

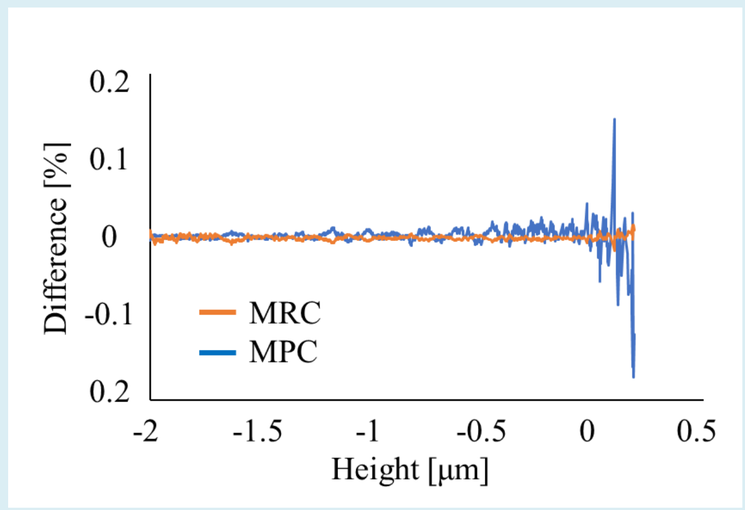
Experiments and Results



MRC



MPC



Increase in differences

Conclusion

The increase in differences from conversion to the MPC is considered to have little effect on the evaluation of the plateau surface with a sufficiently worn surface.

The roughness parameter Rpq values obtained from the MPCs calculated by the slice and sort methods

	Rpq **in slice method**	***Rpq*** **in sort method**
Sample 1	0.29 μm	0.29 μm
Sample 2	0.25 μm	0.25 μm
Sample 3	0.07 μm	0.07 μm
Sample 4	0.06 μm	0.06 μm

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