EFFECT OF SURFACE TEXTURE TOWARDS PRODUCT PERFORMANCE

INSTITUT PENYELIDIKAN, PEMBANGUNAN DAN PENGKOMERSILAN
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR
MALAYSIA

BY:

MOHD FAUZI ISMAIL
MUNIROH HAMAT
RIZAL MOHAMED NOR

FEBRUARY 2007

Tarikh : 2 Februari 2007
No. fail projek : 600-IRDC/ST 5/3/1085

Kepada,

Penolong Naib Canselor (Penyelidikan)
Institut Penyelidikan, Pembangunan dan Pengkomersilan
Universiti Teknologi Mara
40450 Shah Alam
Selangor

Y. Bhg. Prof.,

LAPORAN AKHIR PENYELIDIKAN 'EFFECT OF SURFACE TEXTURE TOWARDS PRODUCT PERFORMANCE"

Merujuk kepada perkara di atas, bersama-sama ini disertakan 4 (empat) naskah laporan akhir penyelidikan yang bertajuk "***Effect of Surface Texture Towards Product Performance***".

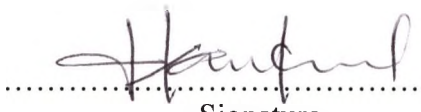
Sekian, terima kasih.

Yang benar,

.....
(MOHD FAUZI ISMAIL)
Ketua Projek Penyelidikan

PROJECT TEAM MEMBERS

MOHD FAUZI ISMAIL
Project Leader

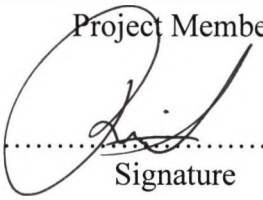


.....
Signature

MUNIROH HAMAT
Project Member

.....
Signature

RIZAL MOHAMED NOOR
Project Member



.....
Signature

Table of Contents

Abstract

Together with the development of industrial product in sense of precision and quality, there are many cases showing that the geometrical properties of microscopic roughness configuration on the surface influence its function and performance. Surface of aluminium base for printing plate (PS plate) is one of the examples. In this project, the causal relationship between PS plate aluminium base surface topography and its functional capability (printing durability) is studied. PS plates are tested for printing capability and the capability index; in this case durability index is quantified. Surface profiles of aluminium base for samples are captured using 3D stylus type roughness measuring machine. In this study, surface profiles measured are split to low band surface and high band surface using robust spline filter. Each band surface profiles had been characterised using 3D surface roughness parameters. Based on the roughness parameters and durability index, analysis of causal relationship between the durability index and surface profiles is done using SPSS. As a result, the following knowledge is gained.

1. The measuring method and condition in obtaining the reliable result for quantitative analysis of PS plate aluminium base surface texture is proposed.
2. Surface splitting method is introduced in this project and contributes another example in rough surface analysis field.
3. 3 dimensional surface analysis proposed in this project provide a better understanding in the surface condition due to the 3D imaging technique

4. Roughness parameter that should be monitor during roughening process of the PS plate is proposed. This method also can be used by the purchaser in incoming quality control if the PS plate is supplied by third party.