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Investigation of the effect of Orange Peel surface texture on the laser sintered part

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Abstract

The purpose of this research is to investigate the effect of Orange Peel surface texture into the part's surface finish. The research analyzes the surface and microstructure of the Orange Peel surface texture of the laser sintered parts. The Orange Peel surface was identified to undergo surface roughness measurement and microstructure analysis. Then, a classification of the degree of Orange Peel severity was proposed based on the surface roughness measurement result. Finally, it was found that parts from recycle powder has poorer surface texture and has a large portion of unsintered powder particles.

Based on the findings, a better understanding on powder recycling is defined especially in the scope of surface roughness and microstructure. The result will allow researcher to make improvement in laser sintering process. © 2011 IEEE.

Author keywords

laser sintering; microstructure; Orange Peel surface texture; surface roughness

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1 Dotchev, K., Yusoff, W.
Recycling of polyamide 12 based powders in the laser sintering process
(2009) *Rapid Prototyping Journal*, 15 (3), pp. 192-203. Cited 170 times.
doi: 10.1108/13552540910960299
View at Publisher

2 Yusoff, W.A.Y., Thomas, A.J.
The effect of employing an effective laser sintering scanning strategy and energy density value on eliminating "Orange peel," on a selective laser sintered part
(2008) *International Association for Management of Technology*. Cited 8 times.

3 Nyaluke, A.P., An, D., Leep, H.R., Parsaei, H.R.
Rapid prototyping: Applications in academic institutions and industry
(1995) *Computers and Industrial Engineering*, 29 (1-4), pp. 345-349. Cited 13 times.
doi: 10.1016/0360-8352(95)00096-J
View at Publisher

4 Kruth, J.P., Wang, X., Laoui, T., Froyen, L.
Lasers and materials in selective laser sintering
(2003) *Assembly Automation*, 23 (4), pp. 357-371. Cited 634 times.
http://www.emeraldinsight.com/journals.htm?issn=0144-5154
doi: 10.1108/01445150310698652
View at Publisher

5 Beal, V.E., Erasenthiran, P., Hopkinson, N., Dickens, P., Ahrens, C.H.
The effect of scanning strategy on laser fusion of functionally graded H13/Cu materials
(2006) *International Journal of Advanced Manufacturing Technology*, 30 (9-10), pp. 844-852. Cited 63 times.
doi: 10.1007/s00170-005-0130-x
View at Publisher

6 Noorani, R.
(2006) *Rapid Prototyping*. Cited 233 times.
Hoboken, New Jersey: John Wiley & Sons

7 Kruth, J.P., Leuven, K.U., Levy, G.
(2009) *Survey of Materials and Material Issues in Rapid Manufacturing by LS/SLM [PDF Document]*
https://lirias.kuleuven.be/bitstream/123456789/243443/1/ RM09-Kruth-Presentation.pd

8 Gornet, T.J.
Characterisation of selective laser sintering TM to determine process stability
(2002) *Proceedings of Solid Freeform Fabrication*, pp. 546-553. Cited 62 times.
Austin, Texas

9 Vandenbroucke, B., Kruth, J.-P.
Selective laser melting of biocompatible metals for rapid manufacturing of medical parts
(2006) *17th Solid Freeform Fabrication Symposium, SFF 2006*, pp. 148-159. Cited 21 times.

10 Surfpak, M.
Surface Texture Parameter: User's Manual

11 Kruth, J.-P., Badrossamay, M., Yasa, E., Deckers, J., Thijs, L., Van Humbeeck, J.
Part and material properties in selective laser melting of metals
(2010) *16th International Symposium on Electromachining, ISEM 2010*, pp. 3-14. Cited 305 times.

12 Usher, J.S., Srinivasan, M.K.
Quality improvement of a selective laser sintering process
(2000) *Quality Engineering*, 13 (2), pp. 161-168. Cited 5 times.
doi: 10.1080/08982110108918638
View at Publisher

13 Zhang, W., Shi, Y., Liu, B., Xu, L., Jiang, W.
Consecutive sub-sector scan mode with adjustable scan lengths for selective laser melting technology
(2009) *International Journal of Advanced Manufacturing Technology*, 41 (7-8), pp. 706-713. Cited 22 times.
doi: 10.1007/s00170-008-1527-0
View at Publisher

14 Jain, P.K., Pandey, P.M., Rao, P.V.M.
Tailoring material properties in layered manufacturing
(2010) *WCE 2010 - World Congress on Engineering 2010*, 3, pp. 2144-2148. Cited 3 times.
ISBN: 978-988182108-9

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