

Taking calcium carbonate as the base material, various additives were mixed to optimize the desired attributes. The process of mixing and extrusion was performed for enhancing the strength to the level of optimized writing performance. Detailed documentation of the process is provided here.

The process of writing was analysed in terms of material transfer of particles from chalk stick to board. Distribution and morphology of the particle on the stick were compared to that of the writing etched on the surface to address the utility of the constituents. Roughness on board surfaces was correlated to the writing appearance. Transfer of particles during writing was analysed in terms of abrasion (cutting and grinding) and adhesion to the surface. Factors governing writing appearance and material loss through dust generation have also been discussed in this article.

Conflict of interest: The authors declare that they have no conflict of interest.

1. Rohatgi, M., A dust-free chalk for teachers. *Tech. Rev.*, 2010, **2**(10), 70.
2. <http://timesofindia.indiatimes.com/india/At-315-million-India-has-the-most-students-in-world/articleshow/37669667.cms>
3. <http://www.dnaindia.com/analysis/column-the-pupil-teacher-ratio-has-improved-but-not-enough-2124403>
4. <http://www.indiamart.com/aranphosphates/dustless-chalks.html>
5. [http://www.trainweb.org/oldtimetrains/CPR/general/chalk\\_making.htm](http://www.trainweb.org/oldtimetrains/CPR/general/chalk_making.htm)
6. <http://www.rootsweb.ancestry.com/~flslchs/EdwinBinney.htm>
7. <http://www.madehow.com/Volume-1/Chalk.html>
8. Colac, A., Physical, mechanical, and durability properties of gypsum-Portland cement-natural pozzolan blends. *Can. J. Civ. Eng.*, 2001, **28**, 375-382.
9. <http://www.webmd.com/asthma/news/20000919/reading-writing-wheezing-not-necessarily>
10. Majumdar, D. and William, S. P. M. P., Chalk dust fall during classroom teaching: particle size distribution and morphological characteristics. *Environ. Monit. Associat.*, 2009, **148**, 343-351.
11. Majumdar, D., Gajghate, D. G. Pipalakar, P. and Rao, C. V. C., Assessment of airborne fine particulate matter and particle size distribution in settled chalk dust during writing and dusting exercises in a classroom. *Indoor Built Environ.*, 2012, **21**, 541-555.

12. Goel, S., Patidar, R., Baxi, K. and Thakur, R. S., Investigation of particulate matter performances in relation to chalk selection in classroom environment. *Indoor Built Environ.*, 2017, **26**(1), 119-131.
13. Wagner, J., Hand and Finger Shield, US Pat No. 2497749, 1950.
14. Buxbaum, M. and Lebensfeld, M., Writing Board, US Pat No. 2541497, 1951.
15. Lewis, D. and McPeak Jr, L. D., Chalk Board Eraser, US Pat No. 3110917, 1963.
16. Zechner, C. R., Chalk Eraser Cleaner, US Pat No. 170411, 1991.
17. Bell, G. H., Davidson, J. N. and Scarborough, H., *Textbook of Physiology and Biochemistry*, E&S Livingstone Ltd, Edinburgh, 1959, 4th edn.
18. Nostrand, V., Van Nostrand's Scientific Encyclopaedia, 1999, 8th edn.
19. Rabinowicz, E., *Friction and Wear of Materials*, John Wiley, 1965.
20. Bhushan, B., *Introduction to Tribology*, John Wiley, 2002.
21. Bikerman, J. J., *The Science of Adhesive Joints*, Academic Press, New York, 1961.

ACKNOWLEDGEMENTS. We thank the referee for valuable inputs to improve the manuscript. P.K.G. thanks Hiren Panchal (S. B. Panchal & Co., Mumbai) for instilling interest in the subject and Mr. Sumit Bose (former Joint Secretary, Department of Primary Education, GoI) for his keen interest in the project at conception stage and valuable support thereafter. We thank Dr Pradyut Ghosh, Dr Saptarishi Chattopadhyay and Ms Debjani Mukherjee for their contributions toward development of the chalk composition, duster selection, conception of machinery and preliminary technical insight; Mr V. J. Shah for assistance with design of equipment; Mr J. K. Pothal for assistance in packaging design, and Dr H. S. Maiti, Dr P. G. Rao, Dr C. V. C. Rao, Dr N. C. Debnath and Dr J. S. Variyar for helpful discussions. We also thank Mr Jayesh Choudhary, Dr Babulal Rebari, and Dr Ramavatar Meena for help during SEM, AFM, and rheometry studies; the Analytical Division and Centralized Instrument Facility, CSMCRI for providing instrument facilities, and the many individuals and organizations for evaluating the performance of the chalk and providing valuable inputs. This is communication number 174(2015) from CSIR-CSMCR. This study was funded by the Ministry of Human Resource Development, Government of India (grant number 12-80/2001 to P.K.G.) and Council of Scientific and Industrial Research, New Delhi (grant number OLP-0007).

Received 17 October 2016; accepted 25 November 2016

doi: 10.18520/cs/v112/i08/1727-1737

## Corrigendum

### Protocols for riverine wetland mapping and classification using remote sensing and GIS

Rajiv Sinha, Shivika Saxena and Manudeo Singh

[*Curr. Sci.*, 2017, **112**(7), 1544-1552]

The reference of the book by Kar (2013) may be replaced by the following original reference:

Mitsch, W. J. and Gosselink, J. G., *Wetlands*, Van Nostrand Reinhold/ITP, New York, 1993, 2nd edn.