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EFFECT OF MACHINING & LUBRICATING CONDITIONS ON DUST EMISSION DURING GRANITE POLISHING

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École de Technologie Supérieure (ÉTS), University of Quebec, Montréal (QC), H3C-1K3, Canada. Machining is necessary to shape parts but it is also an important source of pollution (such as dust and aerosols) and this constitutes hazards for machine-tools operators. The emission of dust and the overall shop floor air quality are of great concern when shaping dusty materials such as granite as this process generates harmful dusts containing silica. In recent times, the occupational health and safety regulations have become more severe. To quickly comply with new regulations, engineers and researchers must help industries in developing strategies to limit workers risk of exposure to the silica. This keynote conference will present key results on fine particles (FP) and ultrafine particles (UFP) emissions when polishing granite as a function of machining conditions: polishing parameters, tool paths, polishing strategies, lubrication and its applications modes. The main goal is to determine machining conditions leading to less dust emission while maintaining acceptable part quality and productivity. Solutions for dust removal from the polishing zone are also explored.

Biography

Victor Songmene received his PhD from École Polytechnique de Montréal, Canada, in 2001. He has been with the Industrial Research and Development Institute (IRDI), Toronto, Canada, from 1995–2001. During its services to IRDI, he helped a large number of north american manufacturing industries, including General Motors, Wescasts, Sorel Forge, in R&D works. He is currently a full professor at University of Quebec, École de Technologie Supérieure (ÉTS), Montréal, Canada. Since joining ÉTS in 2001, he has put his expertise on developing sustainable and safe machining practices for industry. His expertise include metal cutting, fine and nanoparticle control, optimisation and environmentally conscious manufacturing. Prof. Songmene is Director of the Product, Processes and Systems Engineering Laboratory (P2SEL). He has published more than 100 papers in reputed journals and has produced more than 50 technical reports for North American industries.

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