Occupational exposure to incidental nanoparticles: a control banding review

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INTRODUCTION

- Nanomaterials (NM) are becoming more noticeable as well as the concerns about the associated risks of exposure.
- Incidental nanomaterials are present in many workplaces.
- How can these risks be assessed and controlled?
- Could Control Banding (CB) be suitable?

Aim of the study

- Overview of recent research on the application of CB approaches to manage the risk of occupational exposure to NM.
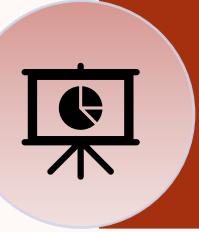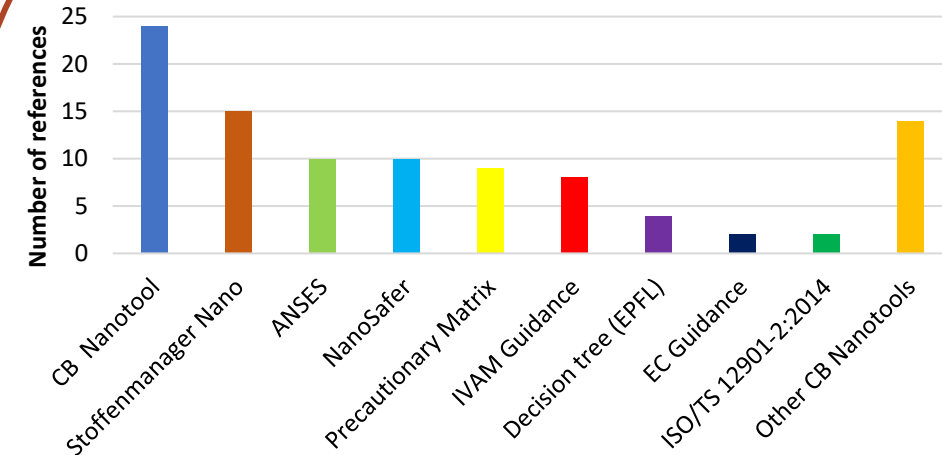- Review its applicability for incidental nanomaterials.

METHODOLOGY

Literature review

- Databases: Scopus and Web of Science.
- Terms: "Control banding"; "risk assessment" or "risk management"; "occupational exposure"; "nanomaterials" or "nanoparticles".

Data analysis

Control banding methods for risk assessment

RESULTS AND DISCUSSION

- 35 publications: 2008 – 2020.
- Different methodologies mentioned and applied.
- Only one study fully dedicated to incidental nanomaterials using CB Nanotool (Huang, H., Li, H., & Li, X.,2016).
- Possible suitability of CB methodologies to incidental NM.

CONCLUSION

- CB has potential as a strategy to manage the occupational risk of exposure to incidental NM.
- This approach is not yet common.

REFERENCES

- Gridelet, L., Delbecq, P., Hervé, L., Boissolle, P., Fleury, D., Kowal, S., & Fayet, G. (2015). Proposal of a new risk assessment method for the handling of powders and nanomaterials. Industrial Health, 53(1), 56–68.
- Huang, H., Li, H., & Li, X. (2016). Physicochemical Characteristics of Dust Particles in HVOF Spraying and Occupational Hazards: Case Study in a Chinese Company. Journal of Thermal Spray Technology, 25(5), 971–981.
- Lamon, L., Aschberger, K., Asturiol, D., Richarz, A., & Worth, A. (2019). Grouping of nanomaterials to read-across hazard endpoints: a review. Nanotoxicology, 13(1), 100–118.

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