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Press release **Defence on 5 November 2021**

Water quality is important in producing metals for society

Title of the doctoral thesis	**Understanding the effect of metastable sulphoxy compounds on the flotation of sulphide ores**
Content of the doctoral thesis	More mining companies now apply responsible production of metals with water recycling during the production of metal concentrates considered as best practice. This thesis aimed at investigating the effect of recycled water quality on the flotation performance of sulphide minerals which host copper lead and zinc. Attention was directed towards a special class of overlooked sulphur-oxygen based compounds that tend to build up in water as it is recycled. The study reviewed that that the buildup of these sulphur-oxygen based compounds as water is recycled in the mineral processing plant results in poor production of metals owing to unintentional consumption of key reagents and tarnishing of mineral surfaces making it difficult for mineral separation to occur. These results are important as they highlight the need for mineral processing engineers to consider a previously ignored water constituent which is otherwise prevalent in the process water they use on site. Acknowledging the negative effects the constituents have on the flotation process means that mineral processing engineers can apply the appropriate water cleaning and management strategies to ensure that the water they recycle does not affect the recovery of valuable metals needed by society. This work adds on to the broader discussion on water quality in the mining industry, which has been at the heart of studies in the European Horizon 2020 projects.
Field of the doctoral thesis	Bioproduct Technology
Doctoral candidate and contact information	M.Sc. (Tech.) Ngoni Mhonde Ngoni.mhonde@aalto.fi
Defence date and time	05 November 2021 at 14 o'clock
Remote defence	https://aalto.zoom.us/j/63625720285
Place of defence	Aalto University School of Chemical Engineering, Department of Bioproducts and Biosystems, lecture hall L1, Vuorimiehentie 1, Espoo
Opponent(s)	Professor Zhenghe Xu, University of Alberta, Canada
Custos	Professor Olli Dahl, Aalto University School of Chemical Engineering
Link to electronic thesis	https://aaltodoc.aalto.fi/handle/123456789/51
Keywords	froth flotation, oxidation, collector degradation, sulphoxy compounds, sulphide minerals

Dissertation will be on public display at https://aaltodoc.aalto.fi/doc_public/eonly/riiputus/