

# **IS SPC AN UNDERUTILISED TOOL? INSIGHTS INTO STATISTICAL PROCESS CONTROL IN MINING INDUSTRY**

Stanisław M. S. Halkiewicz <sup>\*1</sup>

<sup>1</sup> *AGH university of Cracow, al. Adama Mickiewicza 30, 30-059 Kraków, Poland*

\*Corresponding author: [sms@duck.com](mailto:sms@duck.com)

---

**Keywords:** SPC, process control, quality assurance, source depletion

The statistical process control (SPC) methodology is a quality control approach that has been widely adopted across numerous industries. It serves as an effective instrument for discerning aberrations, identifying miscalibrations and efficiently managing process variability. By leveraging statistical methods, SPC aims to guarantee optimal process efficiency and the production of a more consistent and quality-assured product with a reduced wastage rate.

Although SPC is widely utilised across numerous manufacturing sectors, including automotive, electronics, healthcare and even hi-fi technologies, its application in the mining industry remains relatively uncommon and lacks comprehensive documentation in academic literature. This article aims to address this gap in the literature by exploring existing applications and explaining the potential reasons why the mining industry is an outlier. Furthermore, it endeavours to propose innovative applications of SPC that could enhance the efficiency of mining processes and contribute to the reduction of waste.

It can be concluded that the mining industry is indeed of a sufficiently specific nature that the known applications of SPC may prove ineffective, due to the limited human control that can be exerted over the quality and characteristics of the mined ore or material. In light of these observations, alternative and unconventional methodologies that employ SPC are put forth as a potential solution. For instance, such techniques may be employed to predict the depletion of a source (or a vein).