

THE PROCESS OF BENEFICIATION OF MINERALS IN SOUTH AFRICA IS AT SNAIL'S PACE

The process of beneficiation of minerals in South Africa and the dialogue around it has been taking place for years, yet, platinum beneficiation has been at a snail pace. This is despite South Africa producing approximately 80% of the world's platinum and being in possession of the world's largest known deposits of platinum group metals (PGM). However, it is important to note that in the past ten years there has been miniscule, if any, growth in the net demand for platinum which has potentially placed South Africa in a vulnerable position. The platinum industry is a derived market, therefore without the demand for platinum, mines and consequently downstream industries become obsolete.

The question that follows naturally is, how does South Africa inventively identify opportunities to use this endowment strategically and thus ensure growth in demand for platinum? There have been discussions with government for years to introduce a platinum coin and establish platinum as a reserve currency comparable to gold, however, nothing has been initiated, according to Anglo American Platinum (Amplats) CEO Chris Griffith. This is perplexing, particularly because platinum coins are imprinted in the US, Canada, Japan, Australia and Austria; countries that do not enjoy a fraction of the platinum South Africa has.

Furthermore, a research project was commissioned by MISTRA in 2010 titled, "South Africa and the Global Hydrogen Economy: The Strategic Role of Platinum Group Metals" which emphasises the value of PGMs globally. This publication, most importantly, draws attention to the areas of opportunities that are readily available for South Africa to intentionally position itself worldwide as the leading player in the platinum industry. Fuel cell technology is a glaring way in which an increase in demand for platinum can be realised. The development and expansion of platinum fuel cell technology has the potential to escalate platinum demand globally, particularly due to its properties that can reduce greenhouse gas emissions and drive the green economy agenda.

The PGM fuel cell industry in South Africa is still in its early stages and for the success of an emerging industry, it is inevitable for key players to work together in what is termed a "triple helix approach" consisting of government, private sector, and research or tertiary institutions. Currently, the key players in the platinum industry are involved in various initiatives, either on their own or in partnerships.

Various government departments are immersed in the PGM fuel cell industry. The Department of Science and Technology (DST) launched Hydrogen South Africa (HySA) "with a vision to create knowledge and human resource capacity that would develop high value commercial activities in

hydrogen and fuel cell technologies utilising local resources and existing know how,” said Mmboneni Muofhe, Deputy Director-General: Technology Innovation at the DST while speaking at a roundtable hosted by MISTRA to determine what PGM fuel cell initiatives are currently underway. The DST has acted deliberately in supporting the advancement of the knowledge economy through developing human capacity in order to create South Africa’s own technology. HySA consists of three Centres of Competence each with their particular functions across the entire value chain of hydrogen and fuel cell technologies in the country.

To tackle the issue of industrialisation, regional development and employment creation in the country, the Department of Trade and Industry (dti) has established the special economic zone (SEZ) programme. As said by Alfred Tau, Chief Director of SEZs and Economic Transformation at the dti through this programme, the dti has instituted a platinum valley in Rustenburg in the Bojanala District which will ultimately be made up of knowledge generation systems that consist of research centres and universities, an industrial park and a financial cluster. The vision is for this platinum valley to have the technology and expertise for anything related to PGMs thus positioning it as a principal economic zone for all and sundry including the international community. Moreover, the dti is looking to work with the Department of Transport and some stakeholders in the transport industry in using fuel cell technology in buses. Additionally, in partnership with the IDC, a study is being conducted to determine whether incorporating fuel cells in the BRT systems, in hospitals, schools and clinics is viable.

In the private sector, Amplats is undertaking extensive work in the platinum and fuel cell industry. The mining company launched the world’s first fuel cell micro grid in Kroonstad in the Free State supplying power to a community of 34 households in the Naledi Trust community. Other projects range from automotive space fuel cell vehicles; jewellery development; and using fuel cells to supply power to schools in the region of Cofimvaba. Impala Platinum (Implats) in collaboration with HySA and DST launched a prototype hydrogen fuel cell forklift and refuelling station. Implats intends to ultimately utilise hydrogen fuel cell technology as its predominant source of energy to power some of their activities.

Although these efforts taking place in South Africa are mostly in partnerships, overall, the industry is operating in isolation. There needs to be a concerted and purposeful effort to work together in order for this industry to grow and consequently increase the demand for platinum. The international community have already started investigating ways in which platinum can be removed from their products and replaced with alternative metals. This is alarming and it is therefore imperative that the consolidation and sustainability of the platinum industry promptly materialises. Interest in

platinum is gradually decreasing and South Africa cannot afford to drag its feet. If a practical approach does not unfold expeditiously, we will find ourselves dealing with job losses, an abundance of platinum and a lost opportunity to benefit from it. Key players need to direct their energies in creating opportunities for technologies that have a global impact. The positioning of platinum fuel cell initiatives across all relevant government departments, private sector and research institutes is critical to establish a viable platinum fuel cell technology industry cluster that will be the principal player worldwide.

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