



Contribution ID: 12

Type: Oral Presentation - Full Paper will be submitted

## The Exergy Analysis of Extracting Vanadium on Top and Bottom blowing oxygen converter in PanSteel Steelmaking Pla

*Tuesday, 20 May 2025 16:30 (20 minutes)*

As the world transitions towards a low-carbon economy to combat climate change, the steel industry is facing increasing pressure to reduce its carbon footprint. Steel production is one of the largest contributors to global greenhouse gas emissions due to its reliance on coal and other fossil fuels for energy. To achieve carbon neutrality by 2050, as outlined in the Paris Agreement, significant innovation and investment are required to decarbonize. The traditional energy analysis method does not distinguish the quality of energy, it treats all the energy as equally, and cannot accurately describe the specific energy loss, which results in an unclear direction of energy effectively used or lost

. The exergy analysis method fully considers the influence of energy quality on the actual utilization, and calculates the amount of effective energy utilization in the system. so that it can deeply reflect the source of energy loss in the energy system, and can provide a basis for comprehensively identifying the weak links of energy use in the system.

This paper aims to applicate the model of exergy to analyzing the whole process of extracting vanadium, then clearly definite the main loss of exergy. The main loss occurred during the chemical exchange change to the animal exchange, the heat flow transfer from the high area to the low area in the converter, the Converter Body's heat radiation.

### Speaker Country

China

### Are you interested in publishing the paper in a Steel Research International special issue?

Yes

**Primary author:** ZHANG, qiang (Pandang Group PanSteel Extracting Vanadium Steelmaking Plant)

**Presenter:** ZHANG, qiang (Pandang Group PanSteel Extracting Vanadium Steelmaking Plant)

**Session Classification:** Energy savings and energy efficiency optimization

**Track Classification:** Energy savings and energy efficiency optimization