



Contribution ID: 24

Type: **Plenary Talk**

The power of Moly alloying – a brief history of sustainable steel metallurgy

Thursday, 14 November 2024 08:30 (30 minutes)

In 1891, the French company Schneider & Co. used molybdenum for the first time as an alloying element in armor plate steel and until the end of WW2 most of the molybdenum alloyed steels were indeed related to military applications. Yet surprisingly, Moly was the first time applied to increase the strength of automotive steel for the Wills Saint Claire that appeared in 1921. The recognition of a quantitative relationship between alloy composition, temperature, time, deformation, cooling rate from austenite and resulting transformation products in the beginning of the 1930s has triggered ever-growing research activities with the aim of improving manufacturing and properties of steel alloys. In that respect, the landmarking Climax market development program that started in the 1960s laid the foundation for a thorough understanding of the molybdenum's metallurgical functionality. Over the recent decades, the International Molybdenum Association (IMO) continued the coordination of metallurgical research activities on behalf of the global molybdenum industry. It can be truly stated that no other alloying element to steel has such a versatile functionality as molybdenum. It not only significantly improves the properties of steels but also allows steelmakers to utilize more efficient processes with higher yields. This together with the superior performance of molybdenum alloyed steels in the respective applications is the key for sustainable solutions that societies nowadays are so urgently looking after. This presentation gives an overview of the principal metallurgical effects of molybdenum in modern steels and demonstrate how these can enhance efficiency and sustainability for a wide range of processes and applications.

Speaker Country

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Session Classification: THE POWER OF MOLY