

PRESS RELEASE
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HYBRIT: Successful trials using fossil-free fuels in the pellet process

Trials using fossil-free fuels in LKAB's pellet plant have produced successful results within the framework of the HYBRIT initiative. The world's very first fossil-free iron ore pellets are within touching distance. SSAB, LKAB and Vattenfall intend to be the first in the world with a value chain for fossil-free steel.

Fossil-free steel production starts in the mine and the processing plants. The development of the next generation of pellet plants is under way, and one of LKAB's challenges and contributions to HYBRIT is to develop fossil-free pellets, which requires a change of heating technology in the process.

"Achieving positive results from different heating technologies represents an important milestone on the road to delivering the world's very first fossil-free iron ore pellets and further on in the value chain for fossil-free steel. The HYBRIT initiative is a key to achieving LKAB's goal of being a leading supplier of fossil-free iron ore, initially in a fossil-free value chain from mine to fossil-free steel, and in the long term totally carbon dioxide-free," says Markus Petäjaniemi, Senior Vice President Market and Technology at LKAB.

Full-scale tests are currently under way to replace fossil oil with bio-oil in one of LKAB's existing pellet plants in Malmberget, reducing emissions for the operation by 40 per cent during the test period, which will last until 2021. These tests are part of the pilot phase in HYBRIT, where the overarching goal is to be first in the world with a fossil-free value chain from mine, using fossil-free electricity and hydrogen, to finished steel product, thereby cutting Sweden's carbon dioxide emissions by ten per cent.

In addition to this, alternative fuels to heat the pellet process, based on fossil-free electricity and biofuels, have been tested on a pilot scale. These include hydrogen and plasma. The results are promising, but require further development before full-scale implementation is possible.

"More steel will be needed as the world's population increases and cities grow. But current steelmaking generates vast amounts of carbon dioxide emissions. It's not sustainable. With the HYBRIT initiative, we're revolutionizing an entire industry and introducing a new technology for fossil-free steel on an industrial scale. SSAB's goal is to be able to offer fossil-free steel to the market



as early as 2026 and to be totally fossil-free as a company by 2045,” says Martin Pei, CTO at SSAB and initiator of the HYBRIT project.

“It’s very pleasing that our joint HYBRIT project is constantly taking important steps forwards, steps that will enable us to produce fossil-free steel, which has a natural place in a fossil-free society. We’re working in a focused way to make it possible to live a fossil-free life within a generation,” says Andreas Regnell, SVP Strategic Development at Vattenfall and Chairman of HYBRIT.

Construction of the pilot plant for fossil-free sponge iron (DRI/HBI) in Luleå will be completed during the summer, and preparations are under way to build a temporary hydrogen storage facility to store fossil-free hydrogen in caverns.

About HYBRIT

Hybrit Development is a joint venture formed by the steel manufacturer SSAB, the mining company LKAB and the energy company Vattenfall. The purpose of this partnership is to develop the world’s very first fossil-free, iron ore-based steelmaking process. The by-product created when using fossil-free electricity and hydrogen instead of coke and coal in steelmaking is water instead of carbon dioxide. The project has the potential to cut Sweden’s total carbon dioxide emissions by ten per cent. The HYBRIT project has been granted financial support from the Swedish Energy Agency.

www.hybritdevelopment.com

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