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The SMART project : recycling of plastics and waste materials in TORERO to substitute more coal injection in the blast furnace

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The SMART acronym stand for "SteelMaking with Alternative ReductanTs". This project aims at using local waste-based non-recyclable resources in steelmaking, and to do it in such a way that their intrinsic chemical value is fully recovered, thereby reducing the need for conventional reductants (fossil coal) and enabling a substantial reduction of CO2 emissions.

The main technical options considered for charging the waste materials in the steel plant are either the direct feeding to the coke ovens (mixed in the coal blend) or the processing in the TORERO plant to produce a torrefied material ("biocoal") that can then be fed to the blast furnace as substitute to PCI coal. Various initial waste streams are considered.

Regarding the torrefaction step, the main development tasks of the SMART project are on the adequate selection and preparation of waste materials and then on the tuning of the torrefaction technology. The different waste streams were characterized at lab in order to identify the relevant ones and torrefaction trials of small batches were achieved at CRM. First pilot torrefaction trials with blends of waste materials and B-wood are under way and will provide the expected support for the future industrial development in ArcelorMittal Ghent.

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