RECYCLE

CASE STUDY

HARSCO ENVIRONMENTAL

BRIQUETTES

FROM WASTE TO GOLD

BRIQUETTING: AN INNOVATION TRIUMPH

Oily Steel Sludge, a by-product of steel making, has traditionally proved costly to recycle, eating into steel makers profit margins. Here's how Harsco innovatively solved that problem.

BACKGROUND

Oily steel sludge is generated during the rolling of the steel where oils and grease from the rolling stands contaminates the ferrous scale that is created on the hot steel surface.

The oily sludge is usually removed via water and is collected in pits outside the rolling mill.

While clean millscale and sludge can be consumed as a feed to the sinter plant for recovery of the high metallic content back into the steel making process, oily sludge causes environmental and operational problems in the sinter making process which therefore either limits or prevents its use in sintering.

Landfilling or external high temperature treatment is therefore required to address the daily generation of this contaminated yet valuable by-product stream. 15,000 TPY of oily scale/sludge was previously shipped from the UK to the EU for deoiling via high temperature pyrolysis before returning the material to the UK at great customer expense and a high energy penalty in transport and processing. The customer unofficially stated that the cost to ship and treat 1000 tonnes was $250k.

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Untreated Oily Steel Sludge

THE SOLUTION

Harsco can now incorporate the oily scale/sludge into a briquetted mixture for direct feed back into the steel making converter, which occurs on the steel plant site and eliminates the high transport cost to the EU.

External pyrolysis at 1000˚C is also avoided as is the energy cost of this treatment.

When fed into the steel making converter, the briquettes are directly converted into liquid steel, thereby avoiding the cost sintering and ironmaking.

Both the costs and emissions of the sinter plant and blast furnace are thus avoided for all 15,000 tonnes which used to go through both processes after deoiling.

Harsco has developed the process technology necessary to deliver the physical strength needed in the briquettes while still incorporating the oily by-product.

As the briquettes are fed into the 1600˚C steel making converter, the oil in the sludge is combusted in the furnace thereby neutralizing the oily hydrocarbons.

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Briquette processing

STATUS

Price awarded with the customer for **long-term supply**

Current value for the customer **$200 per Tonne**

Value for Harsco – increased sales and **improved Harsco reputation as a solution provider**

OUTCOME

Thanks to Harsco's innovative solution, we no longer need to ship as much material as before and eventually this need will be completely eliminated.

For more information on the costs and implementation of this solution, please contact us at **cwoodhouse@harsco.com**

MAKING A WORLD OF DIFFERENCE™

Harsco Environmental, Harsco House, Regent Park,
299 Kingston Road, Leatherhead, Surrey KT22 7SG, United Kingdom t 44 (0) 1372 381400