



Oxygen and new burner technologies increase efficiency

When recycling aluminium, both climate protection and upcoming regulations dictate that emissions be reduced and energy saved wherever possible.

Lowering emissions is a top priority

Aluminium is a lightweight metal, remarkable for the fact that, unlike other metals, its properties remain intact even after it has been fashioned into an end product. This means that aluminium can be recycled as often as necessary, without any deterioration in quality. When aluminium is refined, or at the end of a product lifecycle, it classifies as a secondary raw material. There is a global market for secondary aluminium.

The energy required to recycle aluminium corresponds to around 10 percent of the energy required to extract primary aluminium, often done by refining aluminium ore (bauxite). So recycling is definitely worthwhile.

From 2013, secondary aluminium refineries, which smelt aluminium for recycling, will be subject to the EU emissions trading scheme. This means that avoiding emissions and lowering energy costs where possible is a high priority for the aluminium recycling industry.

Innovative burning technologies

Linde has developed a special oxygen burning technology to optimise melting processes. This technology can help the aluminium recycling industry to lower emissions and save energy.

The AIROX® process greatly reduces emissions (dust, NOx, and CO) when compared with systems using ambient air only. It also improves efficiency and reduces energy costs. The underlying technology is a combination burner, which can be set to use atmospheric oxygen, pure oxygen or a mix of the two. This offers numerous benefits for customers. Smelting can be performed more efficiently and quickly than with other methods due to the flexibility of the burner, and this lowers energy consumption and reduces emissions. Many of our customers are already using this technology with considerable success.

Linde also developed the WASTOX® process, which is used in the aluminium recycling industry to melt down low-quality aluminium scrap (for example, used drinks cans) without additional environmental impact. The WASTOX® process simultaneously regulates oxygen burners and oxygen lances in the furnace, enabling instant combustion of volatile organic compounds (VOCs) released when can coatings and paint are combusted. The energy released partially replaces fossil fuels, thus also reducing emissions and saving energy.

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