

## Secondary Lead Production (Pyrometallurgical Treatment) **CX<sup>®</sup> Process**

**Title:** Advances in Lead-Acid Battery Recycling: Engitec's Automated CX Breaker System

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**Abstract:** Engitec Impianti, S.p.A. of Milan, Italy has successfully designed, constructed and has in operation state-of-the-art battery breaker systems at two European locations. A third facility is practically completed in Toronto, Ontario, Canada.

The CX system crushes whole batteries, separates the various components and desulphurizes the battery paste. The system also produces sodium sulphate from the sulphuric acid and lead sulphate contained in batteries. Actual plant operating data indicates that the desulphurised paste contains less than 0.6 percent sulphur and less than 0,5 percent of antimony. The CX system utilizes mechanical screening and an up-flow hydrodynamic separator to accomplish the component separation. Sodium hydroxide or sodium carbonate is used for desulphurization. The sodium sulphate brine is evaporated and crystallized to produce clean anhydrous sodium sulphate suitable for use by detergent or glass manufacturers. Plant data also indicates that an increase in furnace productivity of about 25 to 30 percent is achieved using feed from the CX system. The desulphurized paste is very suitable for electrolytic processing as an alternative to pyrometallurgical processing.