

Clarksville Smelter

USA

Fast Facts

TECHNOLOGY: roast, leach, electrolysis (RLE) smelting

PRODUCTS: special high grade (SHG) zinc, zinc alloys and sulphuric acid, germanium concentrate, leach products, zinc sulphate, copper sulphate, cadmium metal

EMPLOYEES: ~ 220



Location

The Clarksville zinc refinery is located four kilometers southwest of Clarksville, Tennessee, beside the Cumberland River. Clarksville is located within 900 kilometers of the United States' industrial heartland, including Chicago and Detroit. A large portion of the U.S. zinc market lies within one-day delivery distance from the Clarksville smelter by road and low transport costs provide Nyrstar with a geographic competitive advantage. The smelter has its own river port that allows efficient supply of raw materials.

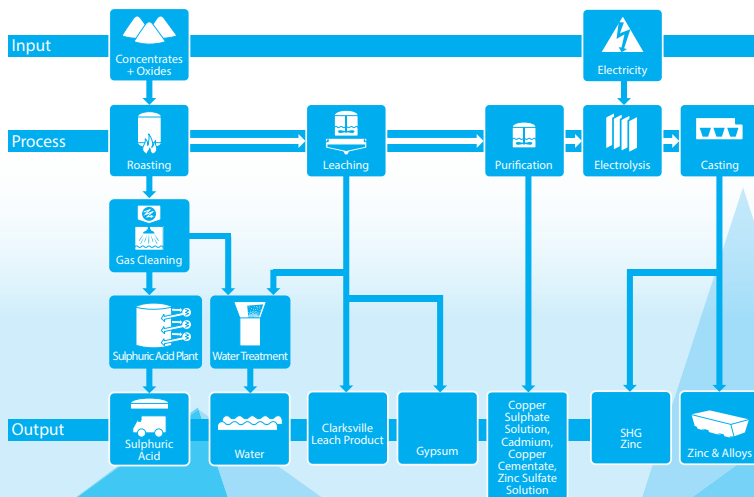
OVERVIEW

The Clarksville smelter is a medium scale and relatively modern smelter commissioned in 1978. It was specifically designed to recover zinc from the high zinc content, low impurity Tennessee Valley zinc concentrates produced by the Tennessee mines. The Clarksville refinery has a long history of treating these types of concentrates and is logistically very well located for supply by the Nyrstar Tennessee Mines. The processing of local concentrates is improving the zinc recovery rate at the Clarksville smelter (owing to low iron content) and has resulted in significant freight savings compared to other facilities.

The Clarksville smelter is currently the only primary zinc producer in the United States. Leach products include cadmium metal, sulphuric acid, copper sulphate, an intermediate copper cementate, synthetic gypsum and germanium concentrate. In addition to concentrates, the Clarksville Smelter has traditionally been supplemented with roast oxides as convenient means of introducing additional zinc capacity to the smelter. A key feature of the Clarksville smelter is flexibility. It can not only operate on the very high grade zinc concentrates from the Tennessee mines, but also on typical zinc concentrates imported from South America, Australia or Europe.

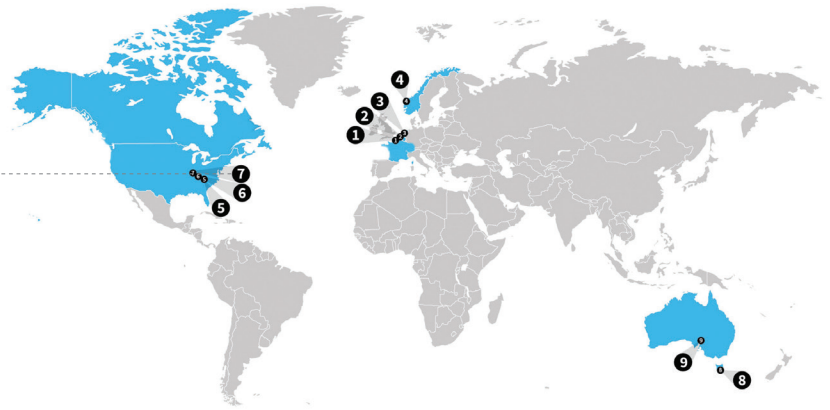
Located adjacent to the Cumberland River, Nyrstar maintains a 1km wide buffer zone of wetlands and farming between the river and operating areas. The buffer is managed in cooperation with state wildlife agencies to provide a habitat for native waterfowl and mammals.

PRODUCTION PROCESS AT CLARKVILLE



CLARKSVILLE, AND NYRSTAR'S OPERATIONS WORLDWIDE

Clarksville, TN, USA



- 1 **AUBY** Smelter, *France*
- 2 **BALEN / OVERPELT** Smelter & Oxide Washing Plant, *Belgium*
- 3 **BUDEL** Smelter, *The Netherlands*
- 4 **HOYANGER** Fumer, *Norway*
- 5 **EAST TENNESSEE** Mine Complex, *USA*
- 6 **MID TENNESSEE** Mine Complex, *USA*
- 7 **CLARKSVILLE** Smelter, *USA*
- 8 **HOBART** Smelter, *Australia*
- 9 **PORT PIRIE** Multi-metals Processing Facility, *Australia*

NYRSTAR OVERVIEW

Nyrstar Clarksville is part of Nyrstar, a global multi-metals business, with a market leading position in zinc and lead.

Nyrstar has mining, smelting and other operations located in Europe, the United States and Australia and employs over 4,000 people.

The company's global operations are located close to key customers and major transport hubs to facilitate delivery of raw materials and distribution of finished products.

In July 2019, Nyrstar's operating business became majority owned by Trafigura, one of the world's leading independent commodity trading companies. Visit www.nyrstar.com.

HISTORY

The Clarksville smelter began operations in 1978 as a joint venture between New Jersey Zinc and Union Miniere. Production and sales expanded in 1981 to include germanium concentrate. In 1983, a Metals Recovery plant was added to convert water treatment sludge into commercial grade gypsum and increase the recovery of zinc.

In 2010, the smelter increased flexibility in zinc recycling with the addition of an oxide washing plant that allows use of crude zinc oxides that are byproducts from the treatment of electric arc furnace steel mill dusts.



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For more information please visit www.nyrstar.com

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