

Conflict Minerals from the Democratic Republic of the Congo: Global Tungsten Processing Plants, a Critical Part of the Tungsten Supply Chain

The U.S. Geological Survey (USGS) analyzes supply chains to identify and define major components of mineral and material flows from ore extraction, through intermediate forms, to a final product. Two major reasons necessitate these analyses: (1) to identify risks associated with the supply of critical and strategic minerals to the United States and (2) to provide greater supply chain transparency so that policymakers have the information necessary to ensure domestic legislation compliance. This fact sheet focuses on the latter. The USGS National Minerals Information Center has been asked by governmental and non-governmental organizations to provide information on tin, tantalum, tungsten, and gold (collectively known as “3TG minerals”) processing facilities worldwide in response to U.S. legislation aimed at removing the link between the trade in these minerals and civil unrest in the Democratic Republic of the Congo.

Post beneficiation processing plants (smelters and refineries) of 3TG mineral ores and concentrates were identified by company and industry association representatives as being the link in the 3TG mineral supply chain through which these minerals can be traced to their source of origin (mine); determining the point of origin is critical to establishing a transparent conflict mineral supply chain (U.S. Government Accountability Office, 2012, p. 19). This fact sheet, the first in a series of 3TG mineral fact

sheets, focuses on the tungsten supply chain by listing plants that consume tungsten concentrates to produce ammonium paratungstate and ferrotungsten worldwide.

Background

The mining and beneficiation of tin (in cassiterite), niobium and tantalum (in columbite-tantalite or “coltan”), tungsten (in wolframite), and gold have been linked to civil unrest and human rights violations in the eastern provinces of the Democratic Republic of the Congo since the late 1990s. During the early 2000s, reports published by the United Nations Group of Experts on the Democratic Republic of the Congo (UN GoE) and other non-governmental organizations identified foreign and domestic armed groups that sought to profit from the production and trade of 3TG minerals. These groups took control of many artisanal mining operations in the eastern Provinces of Katanga, Maniema, North Kivu, Orientale, and South Kivu of the Democratic Republic of the Congo. The revenues collected by these armed groups through the production and sale of 3TG minerals from mining areas under their control reportedly continues to perpetuate civil unrest in the Democratic Republic of the Congo (United Nations Security Council, 2014, p. 3, 42–51).



Global consumers of tungsten concentrates for the production of ammonium paratungstate and ferrotungsten in 2013–14.

Table 1. Tungsten processing plants that consume concentrates.

[APT, Ammonium paratungstate; %, percent]

Country	Plant type	Location	Operator/owner
Austria	APT	Bergla, St. Martin im Sulmtal, Styria	Wolfram Bergbau und Hütten AG (Sandvik AB, 100%)
China	APT	Luanchuan County, Henan Province	China Molybdenum Co., Ltd.
China	APT	Chongyi County, Ganzhou, Jiangxi Province	Chongyi Zhangyuan Tungsten Co., Ltd.
China	APT	Dayu smelting plant, Dayu County, Jiangxi Province	Dayu Weiliang Tungsten Co., Ltd.
China	APT	Dongtai, Jiangsu Province	Dongtai Huihuang Tungsten & Molybdenum Co., Ltd.
China	APT	Longyan, Fujian Province	Fujian Jinxin Tungsten Co., Ltd.
China	APT	Fujian Province	Fujian Ninghua Jinjiang Tungsten Co., Ltd.
China	APT	Jiangxi Province	Ganxian Shirui New Material Co., Ltd.
China	APT	Xincheng	Ganzhou Haichuang Tungsten Industry Co., Ltd. [Ganzhou Tejing Tungsten & Molybdenum Co., Ltd. (GZTJ)]
China	APT	Ganzhou, Jiangxi Province	Ganzhou Huaxing Tungsten Products Co., Ltd. [Jiangxi Tungsten Industry Group Co., Ltd. (JWYX) [joint venture between China Minmetals and Jiangxi Rare Earth and Rare Metals Tungsten Group Corp. (JXTC)]]
China	APT	Zhanggong District, Ganzhou, Jiangxi Province	Ganzhou Non-ferrous Metals Smelting Co., Ltd.
China	APT	Ganzhou, Jiangxi Province	Ganzhou Seadragon W & Mo Co., Ltd. (Ganzhou Grand Sea W & Mo Group Co., Ltd.)
China	APT	Gan County, Ganzhou, Jiangxi Province	Ganzhou Yuanchi New Material Co., Ltd.
China	APT	Guantang Industrial Zone, Chao'an County, Chaozhou, Guangdong Province	GuangDong XiangLu Tungsten Co., Ltd. (Chaozhou Xianglu Tungsten Industry Co., Ltd.)
China	APT	Ganzhou, Jiangxi Province	H.C. Starck Jiangwu Tungsten Specialties (Ganzhou) Co., Ltd. [H.C. Starck GmbH and Jiangxi Rare Metals Tungsten Holdings Group Co., Ltd. (JXTC)]
China	APT	Chenzhou Mining Tungsten Products Plant, Hunan Province	Hunan Chenzhou Mining Group Co., Ltd.
China	APT	Xintang Town, Hengdong County, Hengyang, Hunan Province	Hunan Chun-chang Non-ferrous Smelting & Concentrating Co., Ltd.
China	APT	Huanglong Industrial District, Huanglong Town, Dayu County, Ganzhou, Jiangxi Province	Jiangxi Dayu Longxintai Tungsten Co., Ltd.
China	APT	Changlong Town, Chongyi County, Ganzhou, Jiangxi Province	Jiangxi Yaosheng Tungsten Co., Ltd.
China	APT	Langfang Tungsten & Molybdenum Material Plant, Langfang, Hebei Province	Langfang (Torch) Huaying Tungsten & Molybdenum Industry Co., Ltd.
China	APT	Qiancun, Heyu Town, Luanchuan County, Luoyang, Henan Province	Luoyang Mudu Tungsten & Molybdenum Technology Co., Ltd.
China	APT	Xiagou Industry Region, Xigong District, Luoyang, Henan Province	Luoyang Yongzhuo Tungsten & Molybdenum Material Co., Ltd.
China	APT	Nanchang, Jiangxi Province	Nanchang Cemented Carbide Limited Liability Company
China	APT	Wendeng District, Weihai, Shandong Province	Wendeng Zhengxing Tungsten Industry Co., Ltd.
China	APT	Fujian Xiamen Tungsten Products Plant, Haicang District, Xiamen, Fujian Province	Xiamen Tungsten Co., Ltd. (CXTC)
China	APT	Guihua Village, Renhua County, Shaoguan, Guangdong Province	Xinhai Rendan Shaoguan Tungsten Co., Ltd.
China	APT	Hetang District, Zhuzhou, Hunan Province	Zhuzhou Cemented Carbide Group Co., Ltd. [Hunan Nonferrous Metals Holding Group (HNG)]
China	APT	Zigong, Sichuan Province	Zigong Cemented Carbide Co., Ltd. [Hunan Nonferrous Metals Holding Group (HNG)]

Table 1. Tungsten processing plants that consume concentrates.—Continued

[APT, Ammonium paratungstate; %, percent]

Country	Plant type	Location	Operator/owner
China	Ferrotungsten	Sheshan Village, Nanyang Industrial Zone, Shanghang County, Longyan, Fujian Province	Fujian Ganmin Rare Metal Co., Ltd. [Jiangxi Rare Earth & Rare Metals Tungsten Group Corp. (JXTC)]
China	Ferrotungsten	Meilin Town, Gan County, Ganzhou, Jiangxi Province	Ganzhou BESEEM Ferrotungsten Co., Ltd.
China	Ferrotungsten	Ganzhou, Jiangxi Province	Ganzhou Jiangwu Ferrotungsten Co., Ltd. [Jiangxi Tungsten Industry Group Co., Ltd. (JWYX) [joint venture between China Minmetals and Jiangxi Rare Earth and Rare Metals Tungsten Group Corp. (JXTC)]]
China	Ferrotungsten	Wu Town, Hengdong County, Hengyang, Hunan Province	Hunan Chuangda Metallurgy Group Co., Ltd.
China	Ferrotungsten	Ganzhou, Jiangxi Province	Jiangxi Richsea New Material Co., Ltd. (Ganzhou Grand Sea W & Mo Group Co., Ltd.)
China	Ferrotungsten	Xinxiangxilu, Xiangxiang, Xiangtan, Hunan Province	Minmetals (Hunan) Ferroalloys Co., Ltd.
China	Ferrotungsten	Jiuli Township, Emeishan City, Leshan, Sichuan Province	Chuantou Emei Ferroalloy [Sichuan Chuantou Emei Ferroalloy (Group) Co., Ltd.]
China	Ferrotungsten	Jilin, Jilin Province	Sinosteel Jilin Ferroalloy Corporation, Ltd.
Germany	APT	Im Schleeke, Goslar, Lower Saxony	H.C. Starck GmbH
India	Ferrotungsten	Churchgate, Mumbai, Maharashtra State	Bharat Pulverising Mills Ltd.
India	Ferrotungsten	SDKC Unit, Verka, Amritsar, Punjab	Mehra Ferro-Alloys Pvt. Ltd.
India	Ferrotungsten	Thane-Belapur, Mumbai, Maharashtra State	Sunbel Alloys Co. of India Ltd.
India	Ferrotungsten	Rairangpur, Mayurbhanj District, Odisha State	Superb-Metal Alloys (Pvt.) Ltd.
Japan	APT	Akita, Akita Prefecture	Japan New Metals Co., Ltd.
Russia	APT	Nalchik, Kabardino-Balkariya Republic	JSC Hydrometallurg (Wolfram Company CJSC)
Russia	APT	Kirovgrad Hard Alloys Plant, Kirovgrad, Sverdlovskaya Oblast	JSC KZTS
Russia	APT	Vladikavkaz, North Ossetia Republic	JSC Pobedit (Wolfram Company CJSC)
United States	APT	Towanda, Pennsylvania	Global Tungsten & Powders Corp.
United States	APT	Huntsville, Alabama	Kennametal, Inc. (previously ATI Alldyne)
United States	APT	Depew, New York	Niagara Refining LLC (Buffalo Tungsten Inc. and Sumitomo Electric Industries, Ltd.)
United States	Tungsten carbide producer that consumes concentrate	Fallon, Nevada	Kennametal, Inc.
Uzbekistan	APT	Chirchik, Tashkent Province	Uzbek Refractory and Heat-Resistant Metals (OJSC “UzKTJM”)
Vietnam	APT	Dai Tu District, Thai Nguyen Province	Nui Phao Mining Company Ltd. and H.C. Starck GmbH
Vietnam	APT	Nhon Trach District, Dong Nai Province	Sanher Tungsten Vietnam Co., Ltd.
Vietnam	APT	Trang Bang District, TayNinh Province	Tejing (Vietnam) Tungsten Co., Ltd.
Vietnam	APT	Cailan Industrial Zone, Halong City, Quang Ninh Province	Vietnam Youngsun Tungsten Industry Co., Ltd.
Vietnam	Ferrotungsten	Tan Tien Industrial Zone, Vinh Bao District, Hai Phong	ATC Ferrotungsten [Asia Tungsten Products Vietnam Ltd. (ATC)]
Vietnam	Ferrotungsten	Cailan Industrial Zone, Halong City, Quang Ninh Province	Vietnam Youngsun Tungsten Industry Co., Ltd.

The international community, through a multistakeholder process, which included the International Conference on the Great Lakes Region (ICGLR), the Organisation for Economic Co-operation and Development (OECD), and the UN GoE, has responded by developing voluntary due diligence guidance for minerals from conflict-affected and high-risk areas. This guidance helps companies avoid inadvertently contributing to conflict and human rights abuses in the Democratic Republic of the Congo and the Great Lakes Region of Africa (Organisation for Economic Co-operation and Development, 2013, p. 3). The United States responded to the situation in the Democratic Republic of the Congo by enacting Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) (Pub. L. 111–203, 124 Stat. 1376–2223) on July 21, 2010, which requires companies that file annual reports with the Securities and Exchange Commission (SEC) to publicly disclose due diligence measures to determine if 3TG minerals were sourced from the Democratic Republic of the Congo or an adjoining country (defined as a country that shares an internationally recognized border with the Democratic Republic of Congo), and whether these minerals benefitted armed groups or abusive armed forces within the Africa Great Lakes Region. If the minerals are “necessary to the functionality or production of a product” manufactured by those firms, then businesses must undertake a “country of origin” inquiry to determine their source. If the minerals are, or are suspected to be, sourced from countries specified in the Dodd-Frank Act, then firms must conduct due diligence on their supply chains in conformance with internationally accepted frameworks, such as OECD’s guidance (U.S. Securities and Exchange Commission, 2010, p. 842; 2014).

Under Section 1502 of the Dodd-Frank Act, companies must file a specialized disclosure form (SD Form) with the SEC that includes their findings and the opinion of an independent auditor indicating whether or not any 3TG minerals used in their products and components are sourced from countries specified in the Dodd-Frank Act. If a company determines that their products or components include 3TG minerals from any of these countries, it is required to trace those minerals back to the mine of origin, often through a complex chain-of-custody that may include multiple component manufacturers, processing facilities (smelters and refineries), intermediaries, shipping docks, and trade centers (U.S. Securities and Exchange Commission, 2014). The first deadline for companies required to file an SD Form with the SEC was June 2, 2014.

Tungsten Processing Facility Data

Table 1 displays more than 50 mineral processing facilities that consume tungsten concentrates, and includes available data regarding the name, location, processing plant type, and ownership. The USGS, however, does not have complete data on the source of origin of the concentrates used by these processing plants and therefore cannot verify whether these facilities consumed concentrates from either conflict-affected and high-risk areas, the Democratic Republic of the Congo, or an adjoining country. The information in this table represents plants that could have processed tungsten concentrates in 2013–14. The table does not include plants that only process recycled materials or that only process downstream materials made from concentrates and (or) scrap.

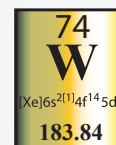
The data were evaluated and compiled by the USGS National Minerals Information Center from sources that include companies, foreign governments, industry analysts, industry associations, inter-governmental organizations, non-governmental organizations, and trade journals. While every attempt was made to include all concentrate-consuming plants, some plants were not listed. For example, information was not available on all tungsten processing plants in China, and Brazil is thought to produce ferrotungsten, but information on specific plants could not be confirmed.

References Cited

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