

Radioactive Stainless Steel Found in Germany

February 17th, 2009 · [1 Comment](#)

The German government has become increasingly concerned over the last six months by the incidence of stainless steel products exhibiting radioactive contamination. In total, some 150 tons of material have been identified so far, spread across a wide range of material forms, from stainless steel wire wool, to bars, valves, castings and flat products. The radioactivity has been identified as coming from Cobalt 60, one of four isotopes of the normally non radioactive alloying element more often found in magnets and tool steels than stainless. Investigations have led the government to confirm one source, Vipras Castings from India. They suspect four additional firms from India:

1. Bunts
2. Laxmi
3. SMK Steels
4. Pradeep Metals

The incidents have been reported to the Indian government who is said to be investigating the situation according to the German paper [Der Spiegel](#). Meanwhile, German border guards have increased their vigilance following the identification of a container of Indian stainless steel bars in Hamburg port on route for Russia. The metal emitted 72 microsieverts per hour, a level that in one 24 hour period would exceed the safe annual dose. The container has been returned to India.

Customs authorities at the sea ports, major scrap dealers and steel mills have all introduced [scanning](#) equipment in recent years, initially because of contaminated scrap originating in the ex Soviet block but more recently because of fears about the safety of materials originating from often hugely diverse sources around the world. Trucks, containers and skips can be scanned with a form of Geiger counter to pick up the various types of radioactive emissions, but at ports in particular it is at best on a representative sample basis, the manpower and equipment do not exist to scan every load.

So contaminated material still manages to get through as in a separate incident last autumn, the elevator manufacturer Otis had to replace some 2500 buttons from 600 elevators repaired or fitted since the summer after it was found the stainless steel was faintly radioactive. No danger to health was said to have occurred but the same contaminant – Cobalt 60 was identified as the source of the radioactivity. Again the material originated from the same five steel mills in India according to the [BBC](#). There is no evidence so far that any other elements are causing the radioactivity, nor that any other mills are the source of the contamination.

The common assumption is that the cobalt entered the supply chain as medical or nuclear waste scrap that was inadvertently mixed with clean scrap prior to melting. Unlike caesium and some other radioactive isotopes used in medical applications or from nuclear facilities, cobalt combines readily with the nickel and iron when smelted (it appears

between them in the periodic table and so exhibits similar bonding properties) rather than be separated in the melt slag like other radioactive elements. In fact cobalt is rarely used in stainless steel as a specific additive, of the more common grades only 348H contains max 0.20% cobalt but the [Cobalt Development Institute](#) estimates some 20,000 tons annually are “lost” in the stainless industry because of the metal’s close association with nickel. In an interview with the author, the CDI explained cobalt does not occur naturally as an isotope and only becomes radioactive when exposed to some man-made activity such as stainless steels used in a nuclear pile, irradiated cobalt used in medical devices and (here is the probable source in this incidence) radioactive cobalt isotopes used extensively in the sterilization of spices – according to [Wikipedia](#). 86% of the world’s spices come from India.

Whatever the origin these reports underline the risks inherent in global trade where controls widely accepted as standard practice in Japan, Europe or North America are not as diligently applied elsewhere.