Recycling used lead-acid batteries: health considerations

World Health Organization

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1. Introduction

Around 85% of the total global consumption of lead is for the production of lead-acid batteries (ILA, 2017)

Approximately 85% of the total global consumption of lead is for the production of lead-acid batteries (ILA, 2017). This represents a fast-growing market, especially in Asia (Future Market Insights, 2014). The main uses of these batteries are in motorized vehicles, for storage of energy generated by photovoltaic cells and wind turbines, and for back-up power supplies (for both the consumer market and for critical systems such as telecommunications and hospitals). In developing countries where power supplies are unreliable, lead-acid batteries are used domestically for lighting and electrical appliances (UNEP, 2004). The growth in the use of renewable energy sources and the concomitant need for storage batteries, as well as the increasing demand for motor vehicles as countries undergo economic development, mean that the demand for lead-acid batteries will continue to increase. This is reflected in the increased global demand for refined lead metal, which was estimated at 10.83 million tonnes in 2016 (International Metals Study Groups, 2016). The demand is being met by increases in both primary lead production from mines and recycling. Indeed, currently over half of the global production of lead is from lead recycling (ILA, 2015).

The manufacturing and recycling of lead-acid batteries is practised worldwide in both regulated industries and unregulated, informal establishments (UNEP, 2003). Lead recycling is an important source of environmental contamination and human exposure in many countries (UNEP, 2010; van der Kuijp et al., 2013). This is because it is frequently carried out without the necessary