



Spent Pot Lining Frequently Asked Questions

1. What is spent pot lining?

SPL is a solid waste generated during the production of primary aluminium. Aluminium is produced in lined steel pots. The lining of the pot is typically made of two layers - an insulating refractory lining and an interior carbon lining. Over time, typically 4-7 years, the cell lining wears and comes to the end of its life when it is classified as spent pot lining (SPL).

2. What makes it hazardous?

SPL's classification as a hazardous waste primarily arises from its fluoride and cyanide content and the potential for these compounds to leach and impact the environment and human health. It can also be reactive with water to produce toxic or explosive gases. SPL is corrosive, it exhibits a high pH due to the presence of alkali metals and oxides.

3. Is SPL dangerous for humans?

SPL is subject to strict protocols and regulations around handling, storage, transportation, treatment and disposal to minimize risks to workers and communities. Aluminium producers take steps to protect humans from harm for example by providing suitable personal protective equipment for workers and reducing the risk of leaching of hazardous compounds through the use of appropriately designed storage areas.

4. Is SPL harmful to the environment?

SPL is subject to strict protocols and regulations around handling, storage, transportation, treatment and disposal to minimize risks to the environment. Aluminium producers take steps to protect the environment from harm for example by reducing the risk of leaching of hazardous compounds through well designed storage areas and by preventing contact with water which can react with the SPL to produce toxic gases by arranging for transportation in appropriate containers.

5. How much spent pot lining is generated?

The exact amount will vary between each operation. Based on recent data collected by the IAI, on average approximately 25kg of SPL is generated per tonne of primary aluminium produced. SPL is the most significant waste from aluminium smelters. In 2019 an estimated 1.6 million tonnes of SPL was produced.

6. What happens to all the SPL generated?

In some jurisdictions, SPL can be reused as a feedstock in other industrial processes such as cement production, steel production and mineral wool production. It can also be treated and deposited in specially designed landfills which are monitored closely. The industry is actively seeking ways to maximise reuse opportunities and reduce landfill.

7. Can SPL be reduced or eliminated?

By prolonging the life of the cell, SPL generation can be reduced. Current science does not indicate that SPL can be eliminated completely from the process yet.

8. What is being done to manage SPL?

Aluminium companies around the world are investigating different management and treatment options for SPL. In recent years, there has been an increased focus on maximizing the opportunities to reuse SPL in other industries as part of circular economy efforts and to reduce the amount that goes to landfill. The industry and other stakeholders have also been engaged in a collaborative effort to publish Sustainable SPL Management Guidance through the International Aluminium Institute. This is a comprehensive overview of large-scale commercial options alongside good practice guidelines for different factors that should be considered when making long term SPL management plans.