



*Protecting you for
life's best moments.*

Alumina Potroom Asthma



Aluminum or Aluminium?

No matter how it's spelt or pronounced, is one of the largest industries in the world, producing 65.3 million tonnes in 2020.

Being light, strong, flexible, non-corrosive and infinitely recyclable, aluminum has a unique list of highly sought after attributes. Amazingly, [nearly 75%](#) of all aluminum ever created is still in use today! 25% of all aluminum produced in 2020 was used in the construction industry, with automotive and transportation not far behind with 23%. The aluminum industry is very lucrative, worth about [\\$71 billion](#) a year. With that kind of money involved, there shouldn't be any excuse for companies to skimp on protective equipment for their employees.

There's a great need for PPE (Personal Protective Equipment) too, as there are damaging respiratory hazards involved in the production of aluminum. The Hall-Heroult process involves the electrolytic reduction of alumina in steel vessels called '[pots](#)', with the alumina being dissolved in electrolyte of molten cryolite at approximately 960 degrees Celsius.

The chemical hazards are numerous, including carbon monoxide, Sulphur dioxide, coal tar pitch volatiles, fluorides, plus alumina and calcined coke dust, all possible causal agents for cancers and/or respiratory disease. While atmospheric concentrations vary between smelters and the level of hazardous chemicals depend on the stage of smelting process, a typical worker is subjected to many of these chemicals simultaneously, potentially causing significant health conditions, such as [potroom asthma](#).

[One study from 2004](#), involving bronchial biopsy specimens from exposed healthy workers, asthmatics and smokers, and non-exposed employees, found Median RBM (Reticular Basement Membrane) thickness was increased for all the exposed workers, particularly the smokers. This indicates that airway inflammation is a trait of potroom asthma, inducing pathological alterations akin to other types of asthma.

While an asthma-like syndrome has been observed in aluminum smelter workers for over 70 years, the exact causal agent remained a mystery until 2010. An [Australian study](#) conducted over a period of 9 years and involving 446 employees, concluded that sulphur-dioxide rather than fluoride was primarily responsible for the symptoms. At high concentrations, sulfur dioxide can cause a life-threatening accumulation of fluid in the lungs and even just one big exposure event can result in a long-lasting condition like asthma.

In addition to the airborne hazards, workers at aluminum smelters have [several other dangers](#) to be aware of like molten splash, combustible dust and heat stress. When combined, these make for a very dangerous work environment, making the use of PPE including respiratory protection, all that more important.

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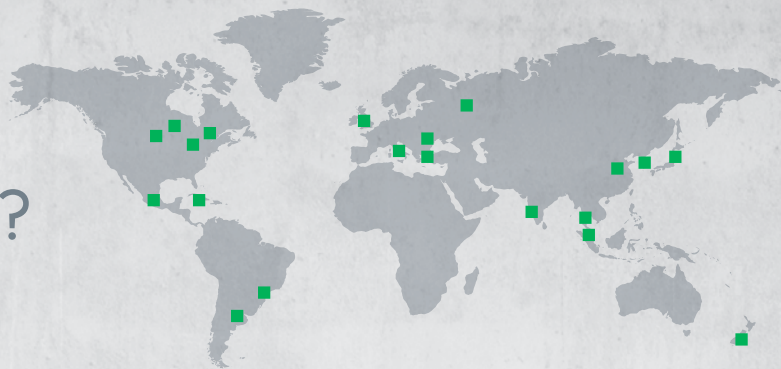
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