CHUNXING

FACT FILE

Used Lead Acid Battery (ULAB) recycling facility

Lead emissions will be indistinguishable from normal background levels

Any lead emissions from the proposed ULAB facility will be so low that they will be indistinguishable from background levels that are present in our daily lives.

Tap water from a completely safe water supply has the potential to contain lead, as do things like lipstick, hair dyes, paint, household dust and toys.

Worst case modelling of actual emissions data from the Chunxing ULAB plant in China into the Hazelwood North context shows that any potential emissions will be 300 times lower than standards set by Environment Protection Authority Victoria (EPA).

At the nearest residences in Hazelwood North, located approximately 1.2km from the proposed facility, the emissions are virtually zero (1,500 times lower than EPA standards), which is undetectable by field monitoring equipment.

The proposed ULAB facility will be heavily regulated

Lead is present in the earth's crust and as a result is naturally present in soil, water and air. It is also found in processed foods and some consumer products. A safe level of lead is measured by a set of standards. The World Health Organisation's (WHO) own safe level of lead in drinking water is set at 10 µg/L. These levels are not and should not be a cause for concern.

The WHO has concerns with the impacts of lead from unregulated use, particularly in developing countries. The proposed ULAB facility will be heavily regulated using modern technology and techniques to ensure the safety of its employees and the community.

There is no question about the health and environmental impacts of lead and that is why it is important to recycle batteries in a highly-controlled facility like ULAB.

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World-leading technology in the Latrobe Valley

Chunxing uses world-leading technology to recycle car batteries to ensure the safety of its employees and surrounding communities. Its Vertical Smelt Furnace (VSF) has been granted a Chinese invention patent.

Unlike traditional secondary lead smelting, Chunxing maximises lead recovery by employing both a 'melting' furnace (for one type of lead) and a 'smelting' furnace for the other type of lead present. This furnace has unique design characteristics to ensure high reaction efficiency and its chemistry is process-controlled to minimise emissions and maximise lead recovery.

The evidence of how new this technology is shows in its emissions performance. Another Australian car battery recycling plant, built in 2012, was considered 'best practice' at the time of its commissioning and is still highly regarded by NSW EPA. Emissions from the Hazelwood North facility are modelled to be significantly lower than those coming from this plant.

There is no safer option

Other technologies were evaluated in the Works Approval application, alongside Chunxing's VSF furnace and associated technology. Two other alternative technologies were reported;

- Hydrometallurgical (electrolytic) lead reduction
- Solvent dissolution followed by electrolysis

The only commercially available hydrometallurgical technology is based on leaching with hydrofluoric acid (an extremely dangerous acid), followed by electrowinning. However, this technology was trialed 40 years ago in Port Kembla, Australia and could not be commercialised due to major issues around health and safety, and environmental performance. Currently there is one commercial plant believed to be operating in Asia with many challenges of health and safety issues. Chunxing is not comfortable taking such risks with that kind of technology in Australia due to potential emission fluorine gas and leakage of reagents.

Another alternative is the Hydrometallurgical process. Research is currently being undertaken about this process which includes extraction using Methane-Sulfonic Acid (MSA) followed by Electrowinning. Again, this process has neither been tested commercially nor established. It is understood that a company in Western Australia is currently exploring its application for its lead bearing ores. Such ores are very different to batteries, which contain lead metal as well as other forms of lead that are unlikely effectively extracted with MSA. Chunxing cannot take a risk in applying such unproven technology due to concerns of potential unknown commercial, technical, environmental and health issues.

The solvent technologies are yet to be proven safe enough to be used at such a scale nor were they considered commercially viable for the proposed Latrobe Valley facility.

The highest level of controls in the world

Potential lead-exposed workers in Australia are strictly monitored by WorkSafe operational and blood testing regimes. Chunxing's technology is very low emission, highly automated, fully enclosed at every stage of the process and, most importantly, employs many layers of pollution control equipment beyond any other similar operation in Australia. Chunxing incorporates the highest level of controls in the world which eliminates lead dust.

Nevertheless, Chunxing follows standard procedures to ensure the safety of all onsite. Employees must change clothes on arrival to work and must shower and change clothes upon departure. All laundering of work clothing is done onsite.

Slag is the name of the solid glassy waste produced from smelting. There will be approximately 4,500 tonnes of slag produced from the Latrobe Valley facility that will contain lead. This will be handled in strict accordance with the required guidelines and will be disposed of at a prescribed industrial waste landfill licensed to accept such material.

Proven in practice

Once submitted, Chunxing's Works Approval Application must be assessed and ultimately approved by the EPA. Once the facility has been constructed the emissions performance predicted by the Works Approval must be proven in practice in the commissioning process.

The facility cannot proceed to the operational stage without further assessment by EPA, that must grant a *Commissioning Approval*. If emissions are not consistent with levels predicted by modelling, the facility must be re-engineered or retrofitted until it can demonstrate this level of performance.

Once an environmental protection licence has been granted by the EPA, emission limits are set as part of that licence at levels similar to those from commissioning. Compliance must then be demonstrated through regular monitoring and reporting to EPA. Furthermore, Chunxing has committed to providing emissions monitoring equipment at ground-level at various locations throughout the local community. Results from this monitoring will be available online as an added level of ongoing assurance. 24-hour stack monitoring data will also be available online.

Keeping lead out of landfill

Lead acid batteries contain lead, lead compounds and dilute sulphuric acid, all of which are hazardous. Approximately 150,000 tonnes of lead acid batteries reach the end of their life each year in Australia and they are 98 per cent recyclable.

These batteries can end up in landfills or worse still, be illegally dumped to directly contaminate the environment. As the battery casing corrodes, chemicals leach into the soil and make their way into water bodies, which can pollute drinking water supplies and ecosystems.

Recycling of these batteries uses far less energy than their manufacturing from primary ore and removes lead from the environment.

Financial, social and environment benefits

The proposed ULAB facility will bring financial, social and environmental benefits to both the Latrobe Valley and Australia. The proposed $40 million plant will create in upwards of 50 jobs, with the vast majority of these filled locally, and many more in the design and the construction phases, which will be carried out by local businesses.

Unlike the traditional 'take, make, use and dispose' model of production and consumption in a traditional linear economy, projects such as this support the transition to a circular economy. It will produce a range of value-adding products on site and establish a research and development facility by collaborating with universities in the renewable energy sector.

For more information:

All of the partners involved in the project appreciate the importance of discussing your concerns and would like to encourage anyone interested to contact the following people:

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