

EVS ASSIGNMENT-WHITE OIL

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WHITE OIL – BANE OR BOON

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Lithium is a soft silver-white metal that is the lightest of the alkali metals. In recent years, it has been used to make lightweight, efficient batteries. Lithium-ion batteries are common in home electronics. Although electric cars are, by and large, still a rarity, the expectation is that over the next few years there will be a boom in sales because of the exhaustion of non-renewable energy resources such as petroleum and will increase the demand for white oil, which is why it can also be called 'white gold'. Lithium can help conserve non-renewable resources.

Most consumers are only aware of the 'clean' aspects of electric vehicles, the dirty aspects of the production process are out of sight. Lithium is found in the brine of salt flats. To obtain lithium, holes are drilled into the flats to pump the brine to the surface. Meadows which used to be a shelter for shepherds traveling at night yet has become barren due to lack of grass or water. That puts a severe strain on local farmers. It causes water pollution, the process of mining can affect local water supplies, potentially poisoning communities. Chemical leakage is also a major concern when it comes to lithium mining. The lithium carbonate extraction process harms the soil and can cause air pollution. There are also concerns about how to recycle it. Eco-non-profit Friends of the Earth notes that lithium recycling is fraught, as the metal is "toxic, highly reactive and flammable."

Some common applications of lithium besides making lithium-ion cells and car batteries:

- To make special glasses and ceramics
- In electrical and electronic components
- To make lubricating greases
- As a flux for welding or soldering.
- Lithium is widely used in heat transfer applications.
- Within the medicine field, lithium is used in treating bipolar diseases

Lithium can be formed into many useful compounds. Some are listed below with their specific application areas:

- Lithium fluoride - in specialist optics for IR, UV, and vacuum UV applications
- Lithium niobate - in non-linear optics applications
- Lithium chloride and lithium bromide - used as desiccants for gas streams.
- Electric vehicle ('EV') segment
- Aerospace applications

Alternatives to lithium-ion using materials such as zinc, vanadium, or sodium are proving themselves well-suited for many tasks, especially stationary storage used by utilities to capture renewable energy and deliver electricity to consumers hours later or to power telecommunications towers and remote industrial sites such as mines. Hydrogen has been touted by many energy companies as a carbon-neutral alternative to liquefied natural gas, and hydrogen fuel cells are also being developed as an alternative to traditional lithium batteries. Hydrogen fuel cells

As always, any innovation, even this one that is most “valid” has an impact not only on the environment but also in social and healthcare areas (in the case of technologies requiring specific raw materials, we are talking about exploitation in mines or the health of those who work there) that must be, as far as possible, assessed in advance and governed.

Electric cars can indeed help to solve the emissions issue, it is just as true that the production of batteries also has an impact. For this reason, research work is taking place to study innovative solutions for the recovery of used batteries, seeking to separate the metals at the lowest environmental, and economic cost possible. Some scientists are investigating the possibility of recycling battery components by the production of organic acid by fungi and other organisms.

The world is not running out of lithium yet because renewable energy and electric vehicles are nowhere near replacing fossil fuels completely. Demand will increase in the future, however, which could prompt further exploration and perhaps the discovery of new reserves, or even improvements in mining technology to make more of the metal accessible to us. All these could make lithium last longer, but that does not mean we will be able to use a huge amount of it indefinitely. Lithium is just one example of a worrying reliance on renewable energy on non-renewable natural resources that exist only in fixed amounts on Earth. Solar and wind power do have great prospects of coping with the problems of climate change, but much careful planning is needed and we cannot assume that renewables will solve all environmental problems.

Now is the right time to establish recycling plants for rare earth elements and other non-renewable natural resources used in renewable energy systems such as lithium. More importantly, it is necessary to reduce our consumption of natural resources. If we go on with mindless consumerism, we will only shift the problem from one natural resource to another.

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