Lithium is used in a wide range of products, with the top three uses being in batteries, glass (30%) and glass (30%), where lithium ions assist in the storage and release of charge in the battery. Lithium is also used in the production of glass, which requires lithium oxide to produce the glass. It is also used in the production of steel, where lithium is added to increase the strength and toughness of the steel.

Lithium is also used in the production of ceramics, where it is added to increase the hardness and resistance to wear of the ceramic. It is also used in the production of rubber and plastic, where it is added to increase the flexibility and toughness of the material.

Economic Considerations

Lithium production is concentrated in a few regions around the world, with the largest producers being Australia, Chile, and Argentina. These countries have a large supply of lithium resources and favorable geology for lithium production, which allows them to produce lithium at a lower cost than other countries.

The demand for lithium has been increasing recently, driven by the growth of electric vehicles (EVs) and lithium-ion batteries. This has led to a significant increase in the price of lithium, which has increased by over 500% since 2016. This has led to a significant increase in the exploration and development of new lithium resources, with several new projects under development in countries such as Canada, Australia, and Argentina.

Environmental Impact

The extraction of lithium has some environmental impacts. One of the main concerns is the energy required to extract and process the lithium, which can be significant. Another concern is the impact of mining and processing operations on the local environment, including the potential for water pollution and habitat destruction.

Future Work

The future work in the field of lithium will continue to be focused on improving the efficiency and sustainability of lithium extraction and processing technologies. This will include the development of new technologies for lithium extraction, such as water treatment processes, as well as the development of new processes for the conversion of lithium to useful materials, such as batteries and glass.

Lithium Uses and Demand

- **Batteries**: Lithium is used in lithium-ion batteries, which are used in a wide range of products, from consumer electronics to electric vehicles. The demand for lithium-ion batteries has been increasing significantly, driven by the growth of electric vehicles.
- **Glass**: Lithium is used in the production of glass, where it is added to increase the hardness and resistance to wear of the glass.
- **Ceramics**: Lithium is used in the production of ceramics, where it is added to increase the hardness and resistance to wear of the ceramic.

Figure 1: Lithium's use across various industries.