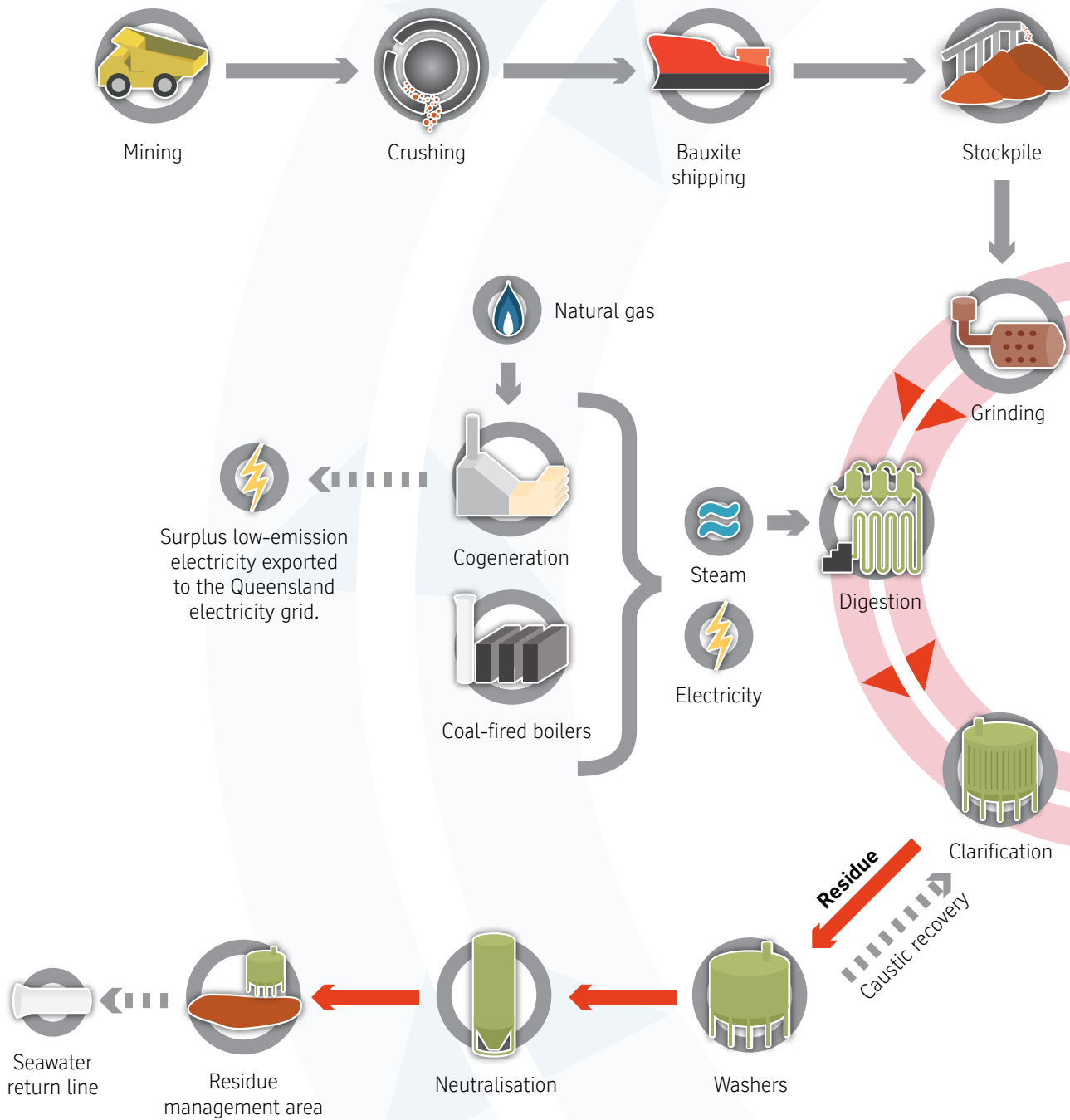


What we do

Refining alumina (aluminium oxide) is the second step in the production of aluminium. Alumina is refined from bauxite using a chemical process known as the Bayer process. Invented in 1888 by German scientist Karl Bayer, this process has four stages.



1. Digestion

Bauxite is finely ground in mills and then mixed with a hot, caustic soda solution which dissolves the alumina contained in the bauxite.

2. Clarification

The solution of alumina and caustic soda passes into rows of Thickener tanks, where the solid impurities sink to the bottom as a fine red mud. The red mud (or bauxite residue) is a by-product of the process. It is washed several times with water, neutralised, and then stored at the residue management area. The clear solution is sent to Precipitation for the alumina to be recovered from it.

3. Precipitation

Alumina trihydrate is added to the alumina solution in a line of Precipitation tanks to seed the formation of additional alumina trihydrate crystals.

4. Calcination

The alumina trihydrate crystals are washed, filtered and then heated in gas-fired kilns at temperatures greater than 1,100°C to remove water molecules, creating a fine white powder known as alumina.

