

## The Aluminium Can Manufacturing Process

Aluminium is made from a plentiful material found in the earth's crust. It occurs naturally in a mineral called bauxite. Most bauxite is mined overseas and shipped to the United States for processing. The aluminium in bauxite is formed when the material is refined to remove impurities. The refining process produces a fine, white powder called alumina or aluminium oxide. Electricity "zaps" the aluminium powder with a continuous electric current, which separates the aluminium from the oxygen. The electricity melts the aluminium so that it is hot and bubbly, like lava.

Next, small amounts of other metals are added to the molten aluminium to add strength and corrosion resistance to the final product. The molten metal is cast into ingots or blocks, which are then rolled into long sheets and coiled (or rolled up like a sleeping bag). The aluminium is then sent to the can or end manufacturing plant.

The aluminium beverage can is made with two pieces — the can body and the can end (or lid). The manufacturing process starts with coils of aluminium. Can plants use mass quantities of aluminium coil every day to make can bodies or ends. Each coil typically weighs about 25,000 pounds and, when rolled out flat, can be anywhere from 20,000 feet to 30,000 feet long and five to six feet wide.

- The aluminium coils arrive at the can plant and are loaded one at a time onto an "uncoiler" — a machine that unrolls the strip of aluminium at the beginning of the can making line and feeds it to the line, where it is first lubricated. Lubrication helps the aluminium flow smoothly during the can shaping processes that follow.
- A large machine called a cupping press starts the can shaping process. The press cuts circular discs from the aluminium sheet and forms them into shallow cups. The cups drop from the press onto the cup conveyor. These two metal-forming operations are performed at high speeds and make 2,500 to 3,750 cups per minute. The scrap (or skeleton) aluminium left over from these operations is removed and recycled.
- The bottom of the can is also reformed at this point. A machine makes a small dome that helps improve the strength of the container.
- From the cupping press, the cups are drawn up into higher cups through a series of iron rings. Now the aluminium is starting to look like a can.
- The tops are trimmed off to make them even — each can is the same height and width.
- A washer cleans and dries the can bodies so they can be decorated.
- The cans proceed to a printer, where six to eight colours of ink may be placed on a can at the same time. The can spins around as the label is

applied. Finally, a coating is applied that makes the outside of the can shiny and protects the newly applied paint.

- Next, the can goes to an oven, where the paint and coating are baked onto the can to prevent chipping.
- Next, the can's inside is coated with a spray to keep what is in the can from touching or reacting with the metal.
- The can is baked in an oven again to seal the coating onto the can.
- The top of the can is now made narrow. The narrow neck is where the lid of the can will be placed once the can is filled. A lip is formed, called a flange, which will help seal the lid in place after the soft drink is put in the can.
- Finally, all finished cans are tested for leaks. A light tester can find holes smaller than a human hair.
- The cans are put on pallets. The pallets are shipped to soft drink companies, which will put the soft drinks in the cans.
- The lids of the cans, called can ends, are made separately and shipped separately to the soft drink companies. Like can body manufacturing, the work starts with a coil of aluminium. The aluminium is uncoiled, lubricated and fed to a machine that makes it into a round shell.
- The shells are coated with a sealant and dried. This way, none of the soft drink will actually touch the metal. Next, a machine makes a button on the end where an easy-open tab can be secured into place. The easy-open tab makes it possible for you to open the canned soft drink by simply pulling up and pushing the tab back.