Advanced Production of Aluminum and Steel Cans

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Abstract. Production of thin walled products in the shape of aerosol cans presents a booming technology, esp. in the time of pandemics when many disinfectants are urgently needed. Several materials for the aerosol cans be used, however, the chemical means are basically stored in metallic containers made of aluminum alloy or steel. Both these materials can be fully recycled, but the carbon track for steel is four times lower compared to the carbon track for aluminum alloys. Moreover, the tensile strength of steels for such purposes is three times higher, what can result in applications of thinner can walls, lighter products, their higher endurance or a better safety of the products. Back extrusion is typically performed technology with the aluminum can. A pellet is placed in an open top cylinder, and a piston with a diameter smaller than the cylinder, is forced down into the blank. The result is that the product flows back between the space created by the piston and the cylinder. However, this technology can´t be used at steels directly due to its limited plasticity, higher mechanical properties and material hardening so welding and other technologies should be taken into consideration, but new problems like corrosion can be invoked. The paper deals with selected problems of the technologies and highlights their pros and cons in today´s time, when the material resources are limited and demands on efficient material processing are rising due to many factors.

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