



Stainless Drum Returnable

Member company
Categories

Aperam
original concept application for stainless steels; strong environmental improvement potential; preservation of scarce resources; reduction in routine maintenance costs; life-cycle costs lowest compared to competing materials

The Challenge

New application in Brazil with stainless steel for the packaging sector, these are drums for storage and transportation of products, which were previously manufactured in carbon steel or plastic.

The Stainless Steel Drum can be used in industry in several segments, as it performs the transport and storage of the components in a cleaner and safer way, is lighter, in addition to increasing the service life due to greater resistance to corrosion, allowing reuse the drum (reverse logistic).

The stainless steel defined in this application was the 430DDQ, which has as main characteristics, special mechanical properties for deep drawing where the manufacturing processes of the drums are required, the 430DDQ is known for its high gloss, being the highest of the ferritic stainless in the portfolio Aperam, differentiating itself both aesthetically and technically, thus being a competitive ferritic solution from Aperam in this application.



Picture courtesy of Aperam



The biggest challenge in this project is to show the industry that in addition to the stainless steel drums being a competitive solution, as it has greater resistance to corrosion and greater durability, it can reduce the disposal of products as they occur with substitutes such as carbon steel and plastic, which contributes for less environmental impact and circular economy.

Why?

We have several advantages due to the versatility of stainless steel in this application, the main ones being the reduction of thickness (reducing the weight of the drum by up to 23%), making the drums lighter for transportation and greater resistance to corrosion inherent to stainless steel compared to other materials.

Needed Action

Assess what the customer's requirement would be regarding the manufacture of stainless steel drums, identifying their properties and making a selection of materials to identify the most suitable stainless steel for each type of product to be transported, carrying out analysis of the transported product sheet. Project monitoring, prototyping and standard evaluation for inclusion of stainless steel.

Action Review

Specific; To reduce the thickness and reduce corrosion on critical devices. To obtain that, we involved all development teams of Aperam and customers. The goal was to find a financially feasible and technically sustainable solution. Reduction of environmental impact by applying a more durable product, considering that substitute products such as plastic and carbon steel ending durability could be discarded in the environment, increasing the environmental impact.

Measurable; We tried to be as close as possible to the original equipment

assembling budget and decided to measure wall thickness annually, and we scheduled a continuous inspection routine during the production.

Achievable; To make the goals attainable, Aperam and the customer decided to provide the necessary resources and specific teams trained to identify any abnormality. That was the paramount commitment of this partnership;

Realistic; Initially, our goal was to reduce the thickness, reduce roughness with the application of stainless steel to facilitate the cleaning procedure and increase corrosion resistance in the application.

Horizontal Expansion Capability

The Stainless Steel Drum can be used in industry in several segments, as it performs the transport and storage of the components in a cleaner and safer way, is lighter, in addition to increasing the service life due to greater resistance to corrosion, allowing reuse of the drum.

Outcome

- Higher corrosion resistance
- Thickness reduction
- Better aesthetic appeal
- Greater ease of cleaning
- Less roughness
- Reverse logistics (reuse of drums)
- Circular economy