APPLICATIONS

Aluminum Recycling

The Customer

The Company is one of the largest producers of aluminum. They conduct business worldwide and serve the aerospace, automotive, building, construction, commercial transportation, consumer electronics, oil & gas, packaging and industrial products & services markets. Aluminum is infinitely recyclable and 75% of all aluminum ever produced is still in use today.

The Process

The Company collects used beverage cans (UBCs) for recycling in its facilities. Over 1 million UBCs are processed daily. The UBCs are crushed and flattened into bales. The bales get crushed into smaller pieces. The prepared scrap aluminum is then sent to the delacquering furnace where organic contaminants and particulates are removed. The impurities in the scrap are vaporized as the metal is heated and flash off as dust.

The molten metal is cast into ingots and then hot and cold rolled into coils of sheet. These coils of sheet are then turned into new aluminum cans. This process can take as little as 60 days.

The Problem

Plastic bottles with solvent based labels and other materials are recycled and can make their way into the aluminum scrap supply chain. As the scrap material is heated, the non-aluminum material causes an increase in the %LFL (lower flammable limit) concentration in the furnace atmosphere. As more material is added, the opportunity for the %LFL concentration to reach dangerous levels increases. After experiencing several “small” explosions (no one was hurt or equipment damaged) the Company decided to add monitoring equipment and looked to Control Instruments for assistance.

The Solution

The Company was using Control Instruments’ SNR675 PrevEx Flammability Analyzers on their coil coating line at another facility. Because of their successful experience with these analyzers, they chose to purchase an SNR675 for their delacquering furnace. The SNR675 is well suited for the dirty atmosphere of this demanding application. Its high temperature operation keeps all the elements in the furnace atmosphere in the vapor state eliminating clogging and sample condensation. It has the unique ability to accurately measure the total flammability of all constituents in the process stream, even if they are unknown. The analyzer has a very fast response time and can react quickly to prevent an explosion.

It features failsafe operation, low maintenance and easy servicing. Initially a single PrevEx SNR675 analyzer was placed into operation. If the %LFL reached a certain set point, the conveyor was slowed to stop additional scrap material from being added and preventing a dangerous rise in the %LFL. After several months of successful operation, an additional analyzer was added for redundancy protection.

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