PREVENTING DISCOLOURATION OF A BEVERAGE DURING STORAGE THROUGH REFORMULATION

THE CLIENTS PROBLEM

Our client had recently developed a range of fruit-flavoured beverages containing artificial colourings. The drinks were packaged in clear glass bottles and during storage it was noticed that they rapidly discoloured when exposed to direct sunlight.

As the products were due to be launched to market imminently, Sagentia were approached to rapidly develop a solution to increase their stability. As it was desirable for the packaging to remain unchanged, the key goal of the work was to identify a simple, regulatory approved change to the formulation of the products that would have minimal impact on their sensory properties.

HOW WE HELPED

The project began with an investigation into the root cause of the instability of the food colourings in the drinks. Scientific and patent literature were reviewed and the chemical process by which the colourings deteriorated was quickly identified.

A brainstorming session was then held where a team of Sagentia's chemists and food scientists developed a list of reformulation options that could potentially address the issue. These were reviewed by our in-house regulatory team to identify the options that were approved for use in the markets the client was planning to distribute to.

We conducted experimental trials in order to rapidly test the stability of the approved reformulation options, with a bespoke analytical methodology developed to monitor the product discolouration when stored under accelerated shelf-life testing conditions. In parallel to this, our team of sensory scientists used a trained panel to assess the organoleptic properties of each of the new formulations with comparisons made using the original formulation as a standard. Results from both the analytical and sensory studies were then combined to identify suitable formulations for the beverage.

THE OUTCOME

The project provided the client with several reformulation options for their products that allowed simplistic changes to their exiting formulation to be made without the requirement to go through lengthy regulatory approvals. Additional recommendations were also made with regards to the products packaging that could be investigated after the initial launch.