TIBCO Spotfire® Software for Inorganic Food Dashboard

Introduction

It goes without saying that food plays a critical role in the health of everyone around the globe. Ensuring the safety and quality of these food products is paramount in the success of any laboratory. Meanwhile, laboratories must also battle with the conflicting trend of trying to do more with less. In the wake of this matter, the TIBCO Spotfire® for Inorganic Food Dashboard provides a tool to perform data analysis protocols with efficiency and accuracy. The features of this dashboard make it possible to save both time and money while producing a superior contaminant tracking analysis.

Features

3D Scatterplot

Formatted to make clear distinctions between clusters of data, the 3D scatterplot utilizes color, size and marker by options allowing data to be viewed by type as well as country of origin. Element choices can easily be changed through selection panel along the X, Y and Z axes. The Scatterplot is shown in the top left corner of Figure 1.

Treemap

The Treemap categorizes data hierarchically providing a comprehensive layout; ingredients fall under the classification of raw or final product, are then separated by type of ingredient, and further by country of origin. This visualization can be given a segmented or gradient color by rule to clearly indicate which ingredients have the minimum and maximum quantity of any contaminant from the uploaded data. This Treemap can be seen in the bottom left corner of Figure 1.

Key Benefits:

- Drill down into clusters of multidimensional data
- Trace food contaminant origin from initial ingredients to the final product
- Hierarchically categorize ingredient and additive data
- Interact with the data across all visualizations

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Figure 1. 3D Scatterplot (top left), Data Table (top right), Treemap (bottom left), Traceability Chart (bottom right).
Traceability Chart
A Traceability Chart, also shown in Figure 1, has been included to pinpoint any contaminant issues that occur during the production process. The raw ingredients are shown in separate blocks on the left and lead to the final product on the right. A data point within each block can be customized to turn as an indicator that the ingredient it represents has a value greater than the regulated limit. Size and shape by rules may also be established to further characterize desired results.

2D Scatterplots
2D Scatterplots visualize data above and below contaminant limits. For quick reference, a horizontal line has been placed at each contaminant’s limit value. A color by rule has been established to turn all data above the limit red and all data below the limit green. Results have also been differentiated by shape for their respective ingredient and country of origin. The X-axis can be set to display data points in a variety of ways. Here, the ingredient results have been hierarchically organized by Type, Food, Country of Origin and finally Sample ID. These plots are shown in Figure 2.

Interactivity
Each visualization has been constructed from the data within the SpotfireInorganicFoodv1 Data Table. This allows markings from one visualization to be simultaneously applied to all others. Utilizing this functionality, results that are shown above the contaminant threshold of a particular element can be marked and analyzed on other pages of the analysis.

Instructions are included on the final page of the dashboard to guide you through uploading and customizing your food quality data.

Figure 2. 2D Scatterplots designed to show data above and below each contaminant’s regulated limit.