

Aroma Bit, Inc.
Aroma Coder® V2 Set
PCA Data
Objective Coffee Quality Analysis

October, 2022



Data Sample 1 : Coffee beans

- Coffee beans (Good Quality)
- Coffee beans (Chemical smell)
- Blank

Data Sample 2: Drip coffee

【Type of beans × Quality】

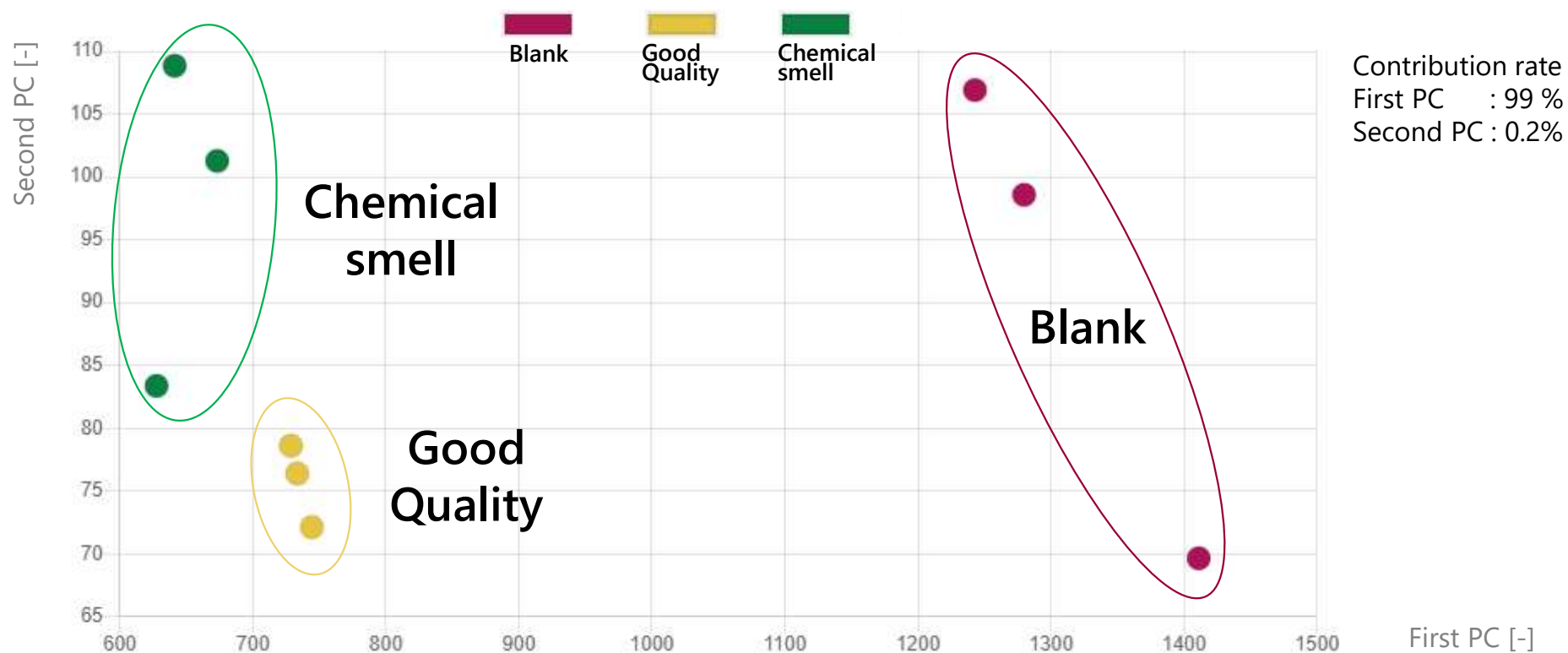
- Brazil × Chemical smell A
- Brazil × Chemical smell B
- Colombia × Good Quality
- Colombia × Chemical smell A
- Colombia × Fermentation smell A
- Colombia × Fermentation smell B
- Colombia × Fermentation smell C

*Fermentation smell and Chemical smell refer to those naturally occurring during the process of importation and storage.

PCA Data Sample 1: Objective Coffee Quality Analysis

Coffee beans samples (Good Quality and Chemical smell) were measured with Aroma Coder® V2 Set and principal component analysis is conducted.

The results shows discrimination vs. Good and Chemical smell samples.

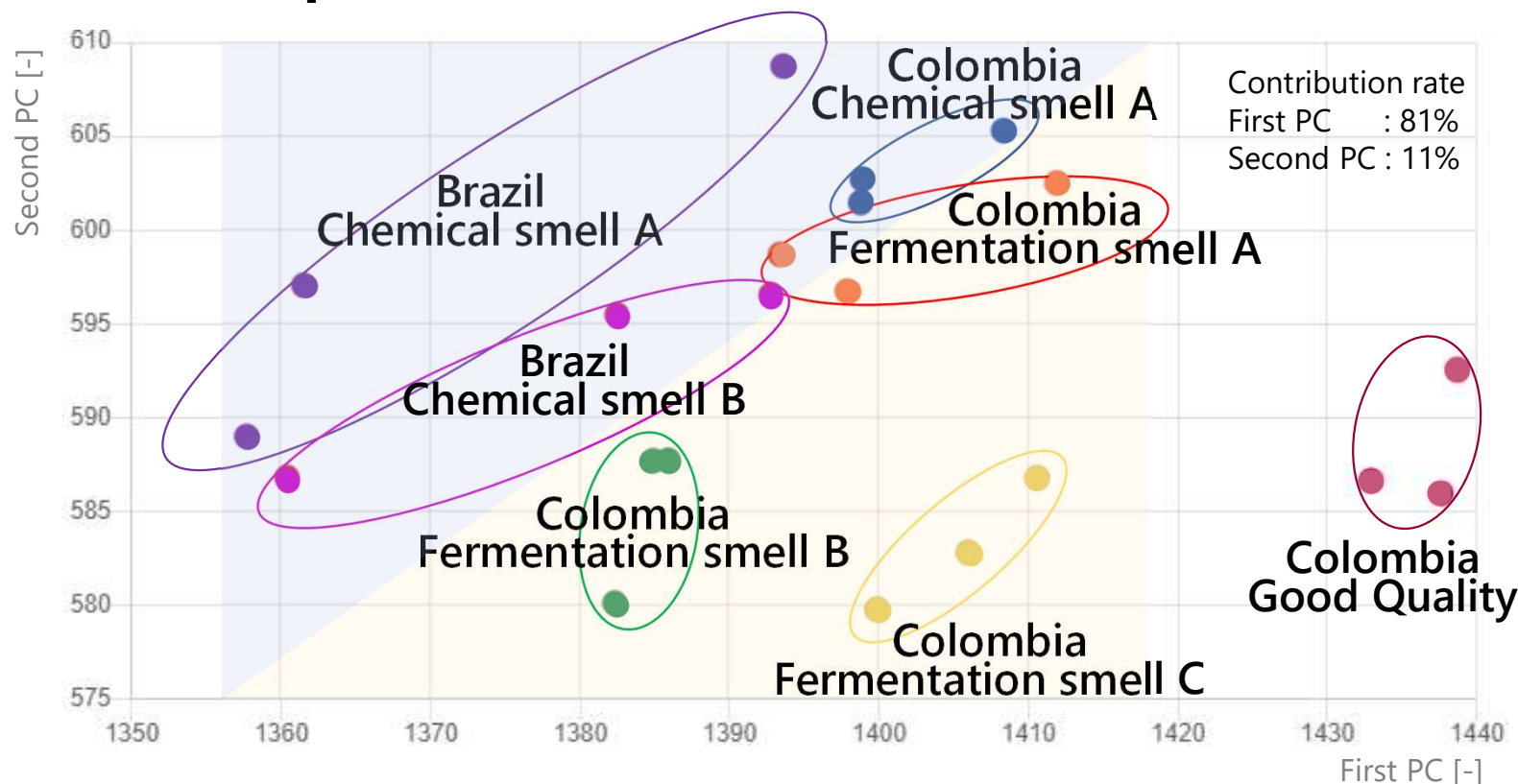


*Principal Component Analysis ... Based on csv data, main component of the acquired smell data is extracted.

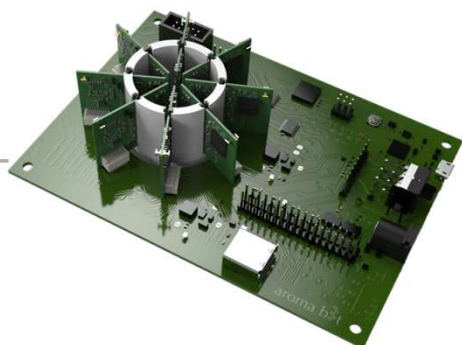
PCA Data Sample 2: Objective Coffee Quality Analysis

Samples of drip coffee (Good Quality, Chemical smell, and Fermentation) were measured with Aroma Coder® V2 Set and principal component analysis is conducted. The result shows reasonable discrimination (clustering) between Good Quality vs. Samples with different mal-odor types [Chemical smells and Fermentation smell].

Type of beans	Quality
Brazil	Chemical smell A
	Chemical smell B
Colombia	Good Quality
	Chemical smell A
	Fermentation smell A
	Fermentation smell B
	Fermentation smell C



*Principal Component Analysis ... Based on csv data, main component of the acquired smell data is extracted.



Controller board mounted on
Aroma Coder® V2



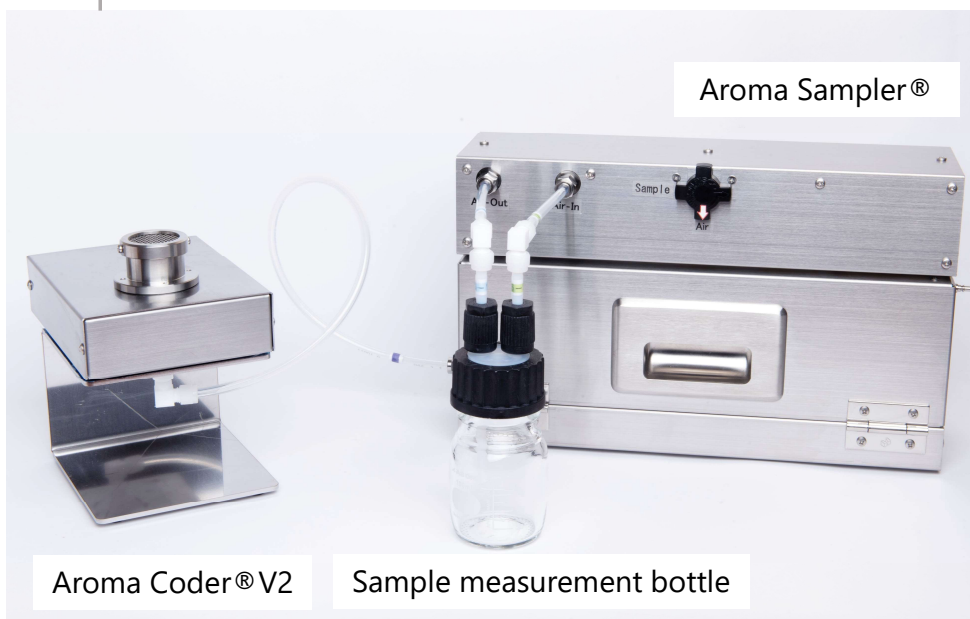
QCM type smell sensor module
5Q-SSM

is equipped with 5 types of receptor
membranes per module.
Aroma Coder V2 embeds 7 sensor
modules, or 35 different types of
receptor membranes per scan.

What is Aroma Coder® V2 Set ?

Aroma Coder® V2 Set is a desktop type odor
measurement equipment, equipped with 35 receptor
membranes for high-resolution odor measurement.

Equipped with quartz crystal microbalance (QCM) array
sensor elements, smell samples are detected and
converted as electronic response data, which can be
visualized by included software, enabling objective
assessment of various smells.

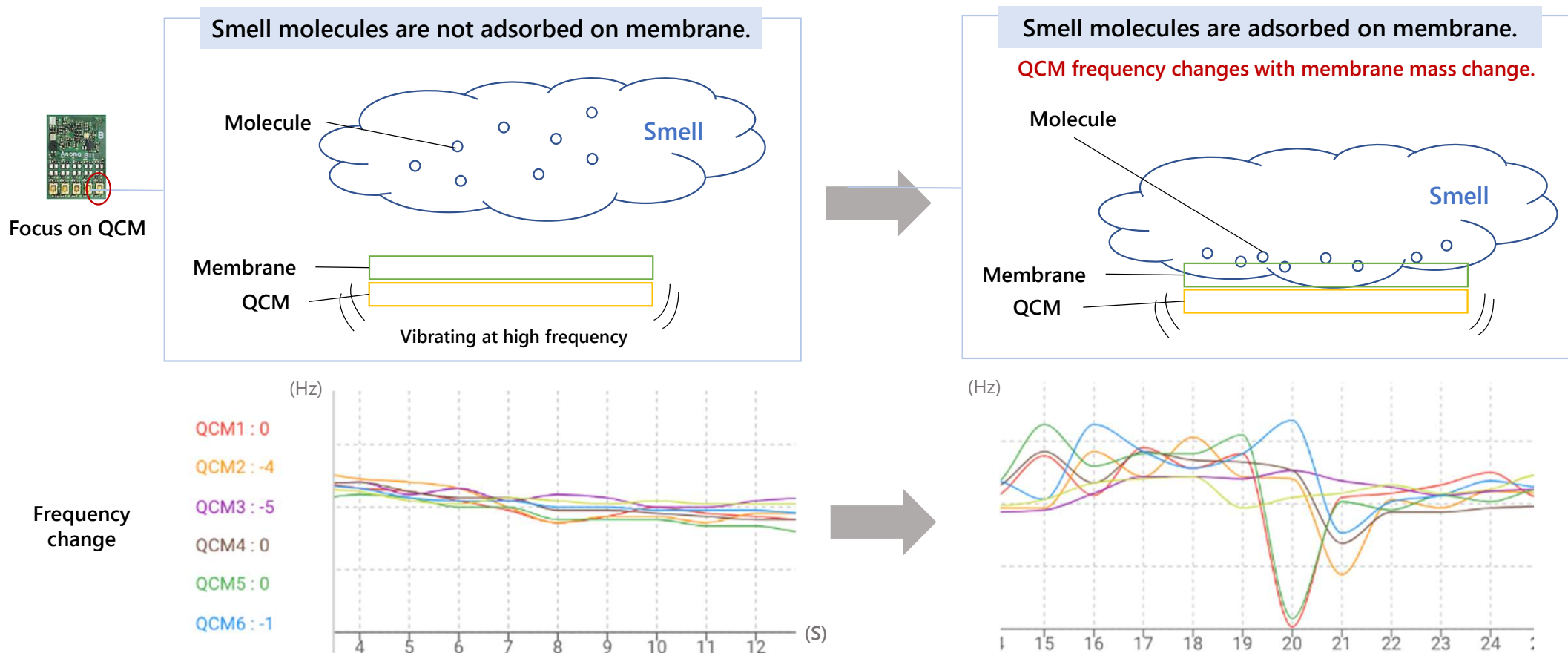


Aroma Coder® V2

Sample measurement bottle

Mechanism of Smell to Data Conversion

Mass change is detected as QCM frequency change, induced by the adsorption/desorption of chemical substance of smell sample at receptor membrane surface.



Food & Beverages,
Agriculture

Consumer Products

Product Development

Experimentation,
Research

The product is not only for coffee, intended for use in Food & Beverages, Agriculture, Consumer Products, as well as in experiments and research at universities and research institutes.

