

The image features the 'moccon' logo in a bold, white, lowercase sans-serif font with a registered trademark symbol (®) at the top right. The background is a dark teal color with a perspective grid of lighter teal squares that recedes into the distance, creating a sense of depth. The text is positioned in the upper left quadrant of the slide.

moccon[®]

Off-Odor / Aroma: Sensory and Instrumental Approaches

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Odor Quality Assessment Approaches



Human Sensory Panel

(ASTM 679, ASTM 1432, Dynamic Dilution Olfactometry, Triangle Tests)

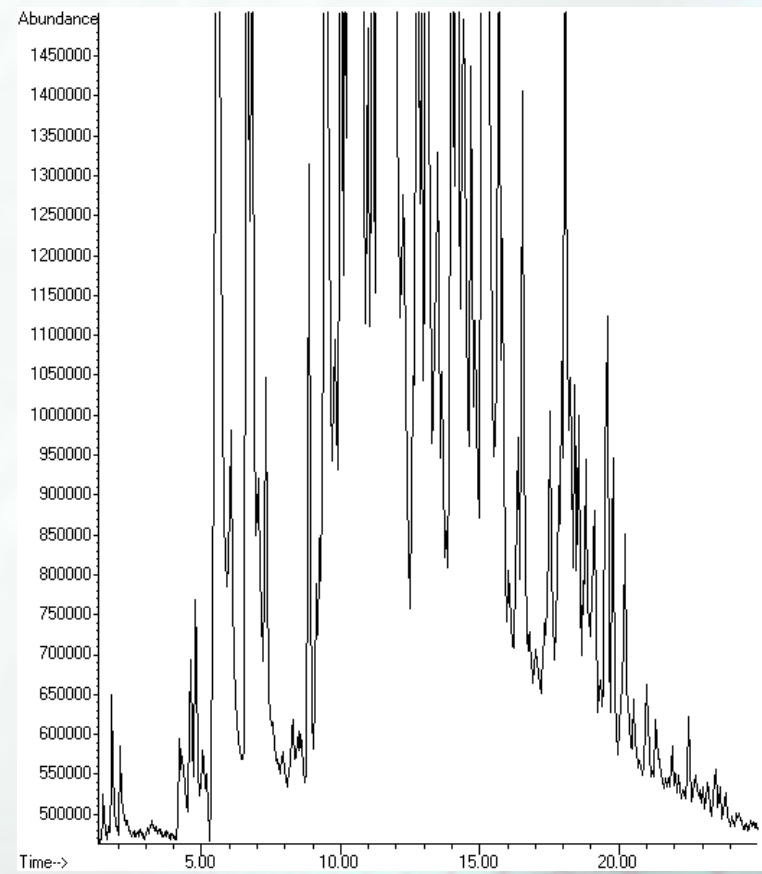
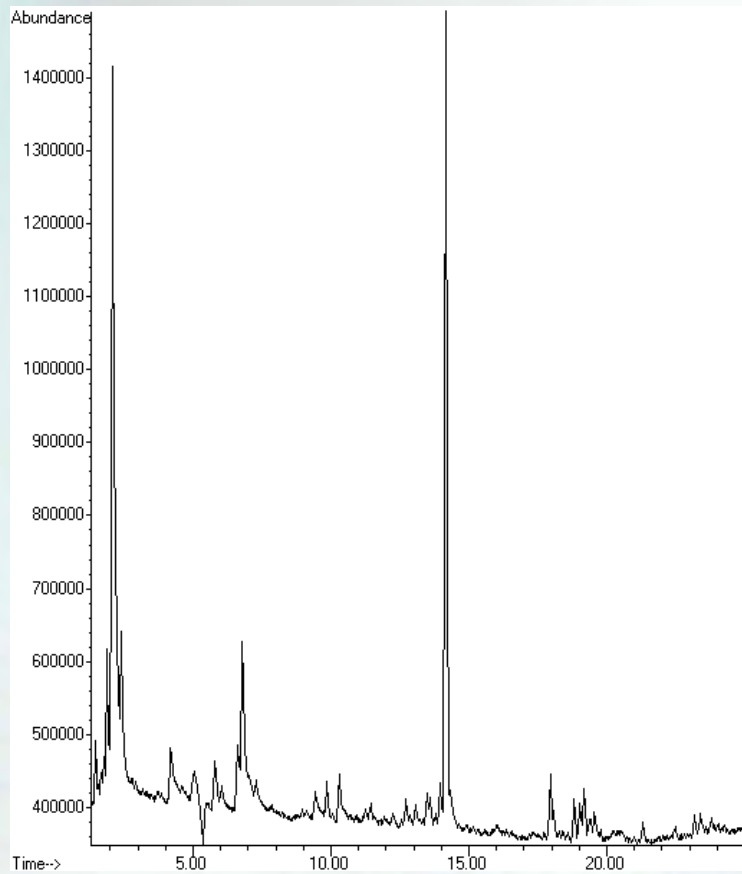
Instrumental

(GC-MS, 2D-GC, Electronic Nose, Etc.)

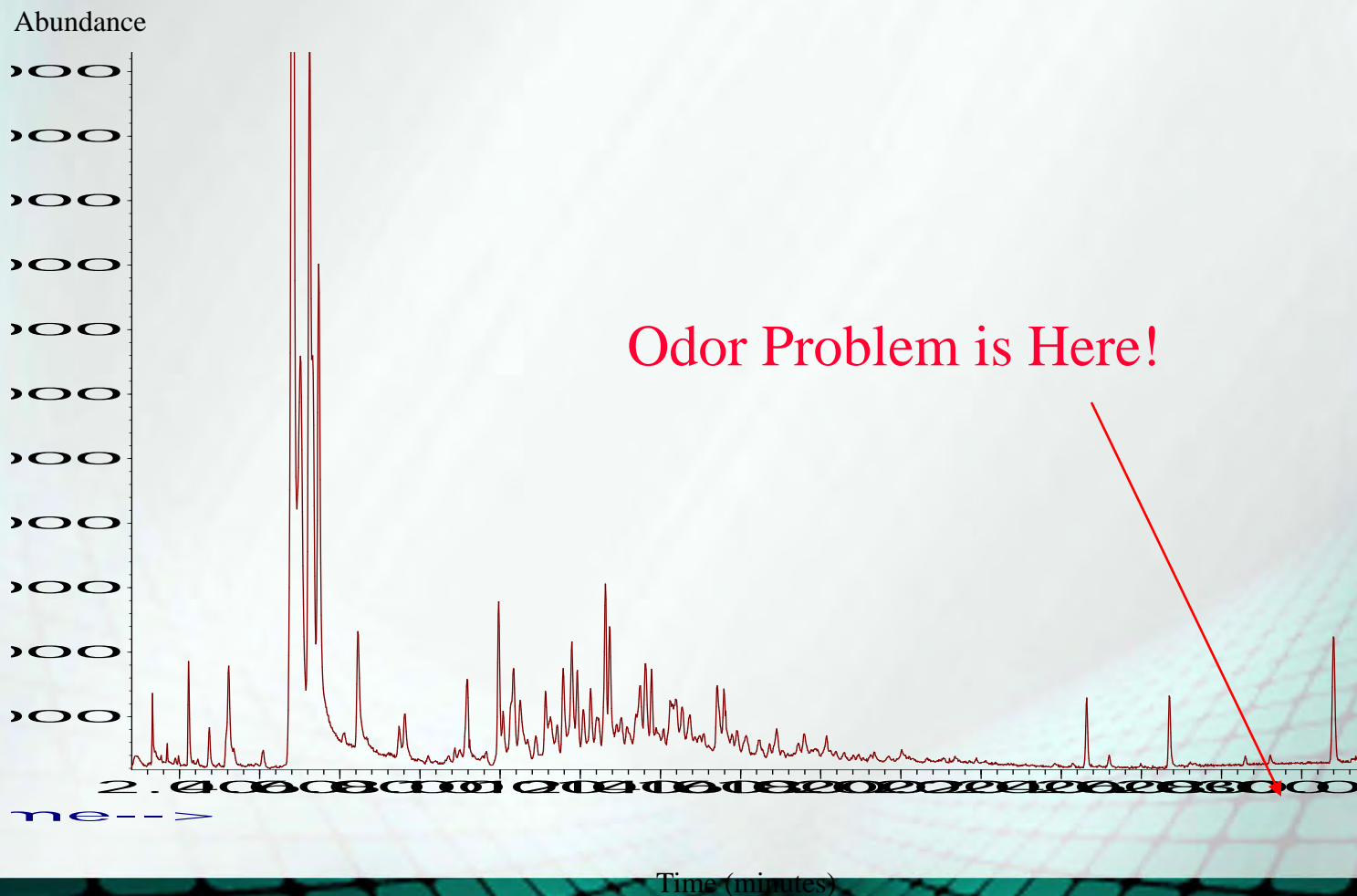
Sensory plus Instrumental

(Microanalytics MDGC-MS-Olfactometry Based Transition)

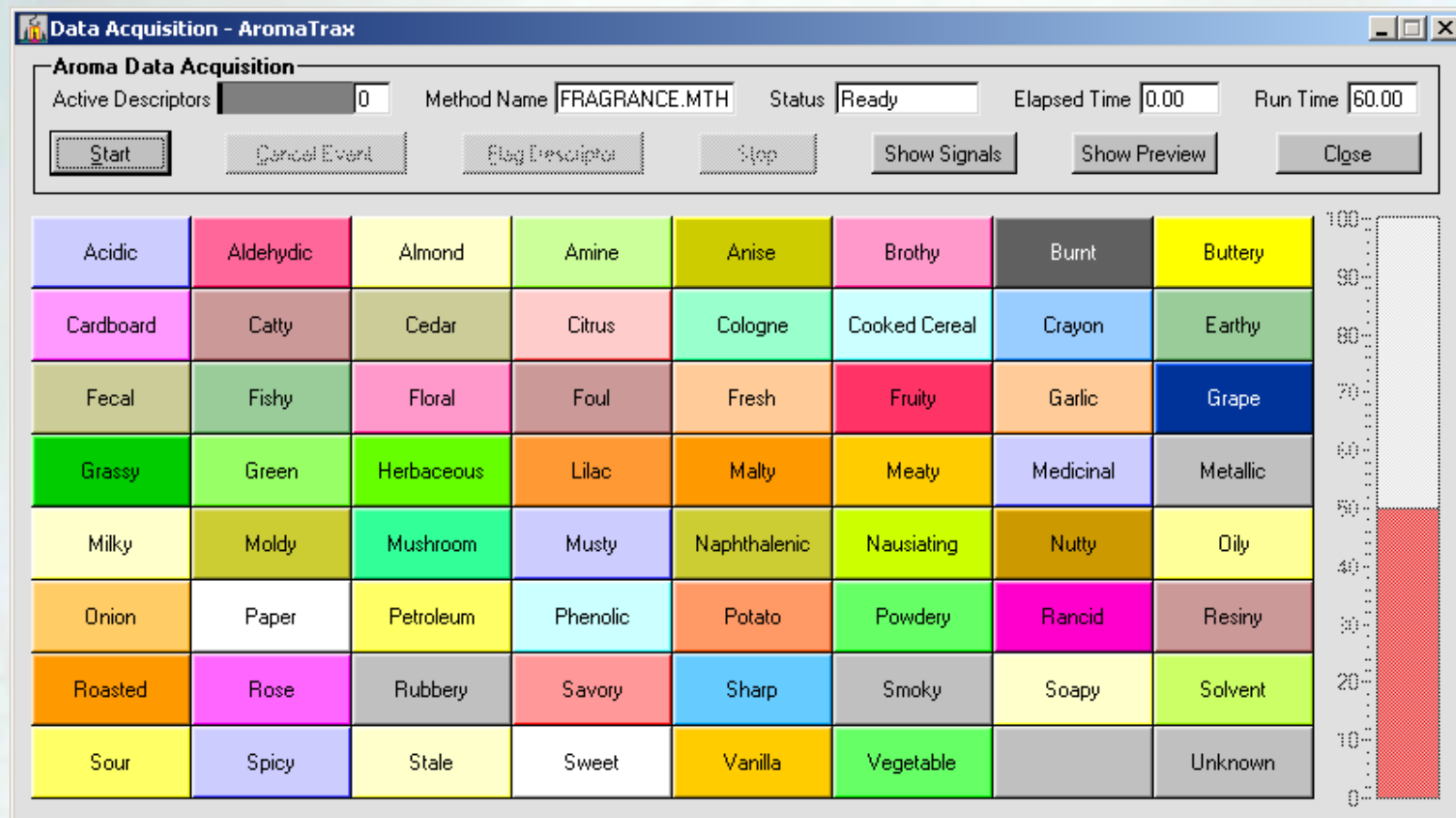
Odor / Flavor Defect Analysis in Bottled Drinking Water Disadvantage of “GC only” approach



Health Care Product VOCs MDGC Total Transfer – MS TIC

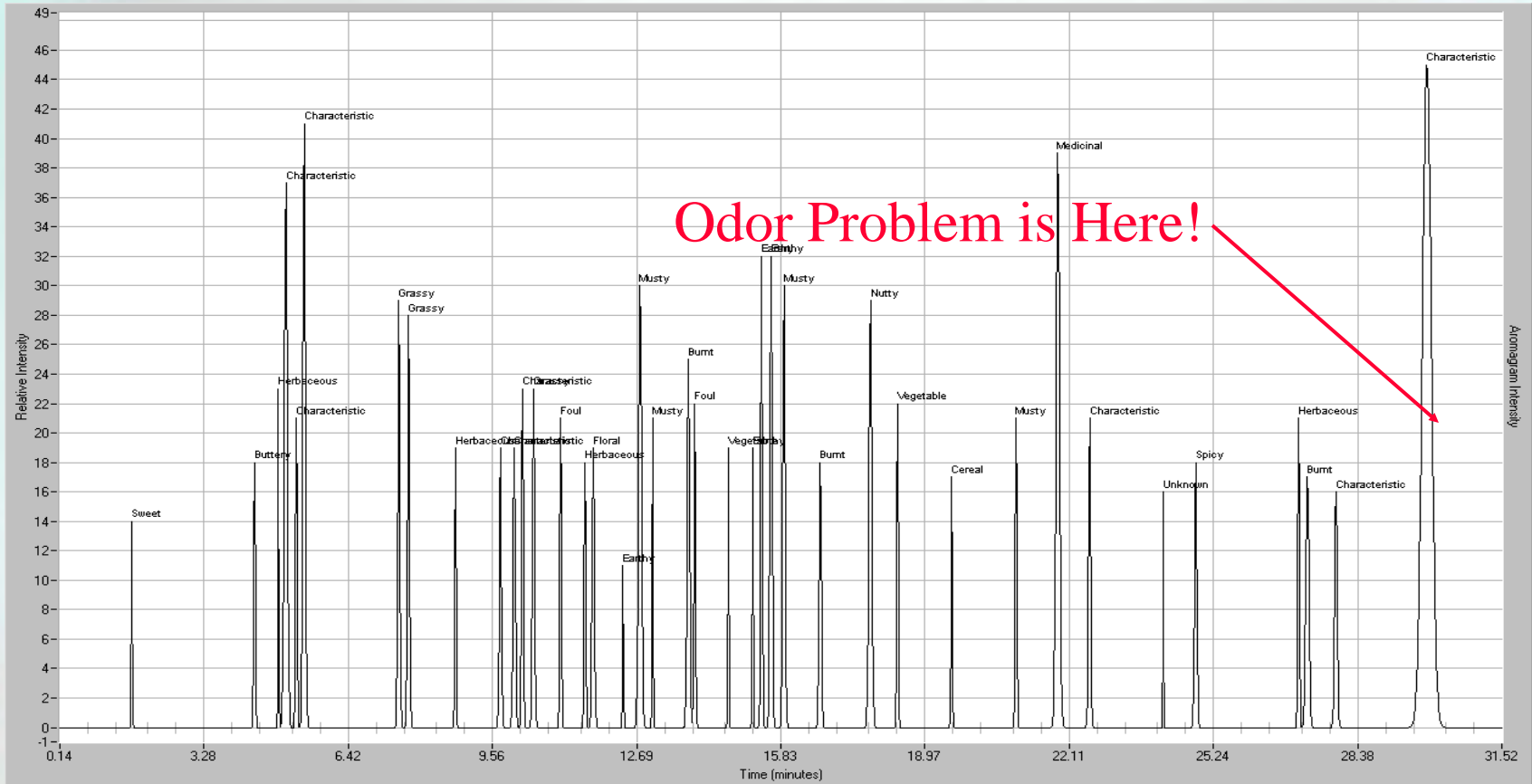


Aroma Characterization Panel For Sensory Evaluation

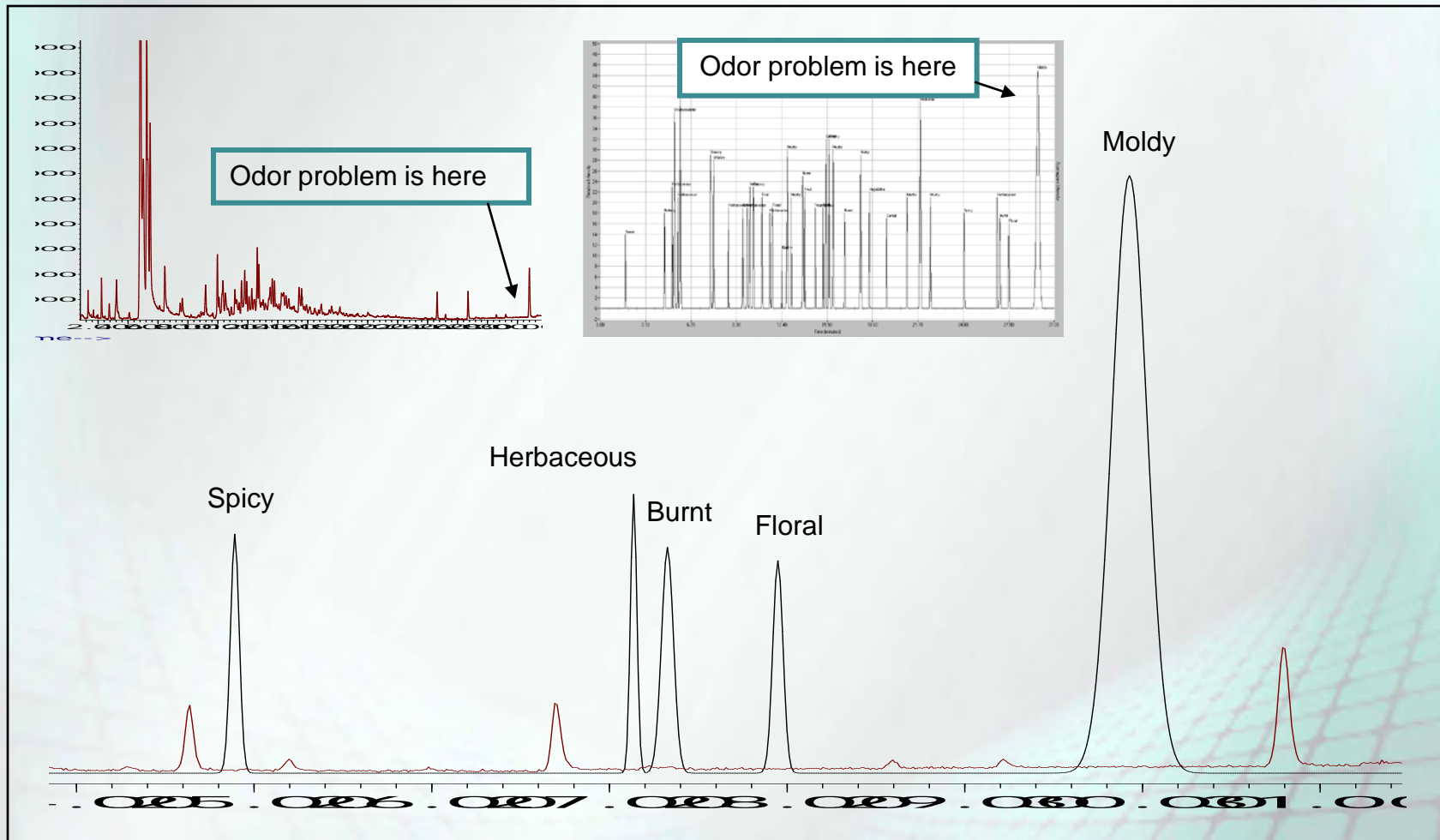


Health Care Product Odorants

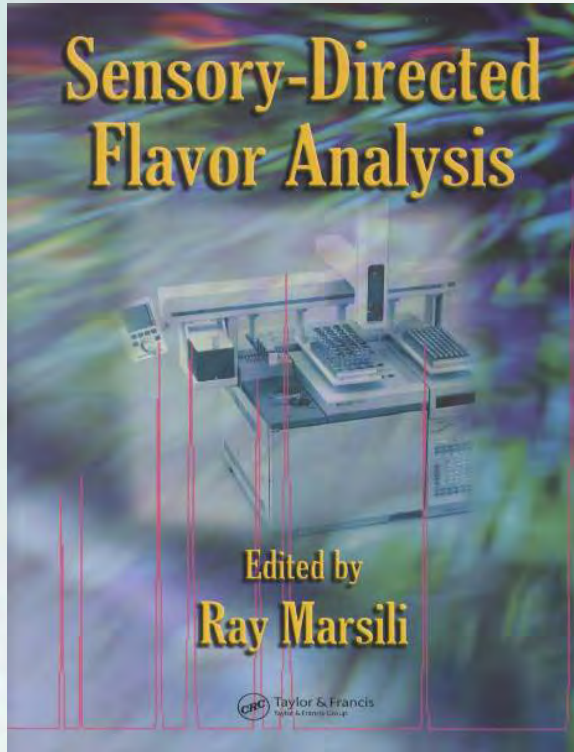
MDGC Total Transfer – Aromagram



Combining the Chromatogram with the Aromagram

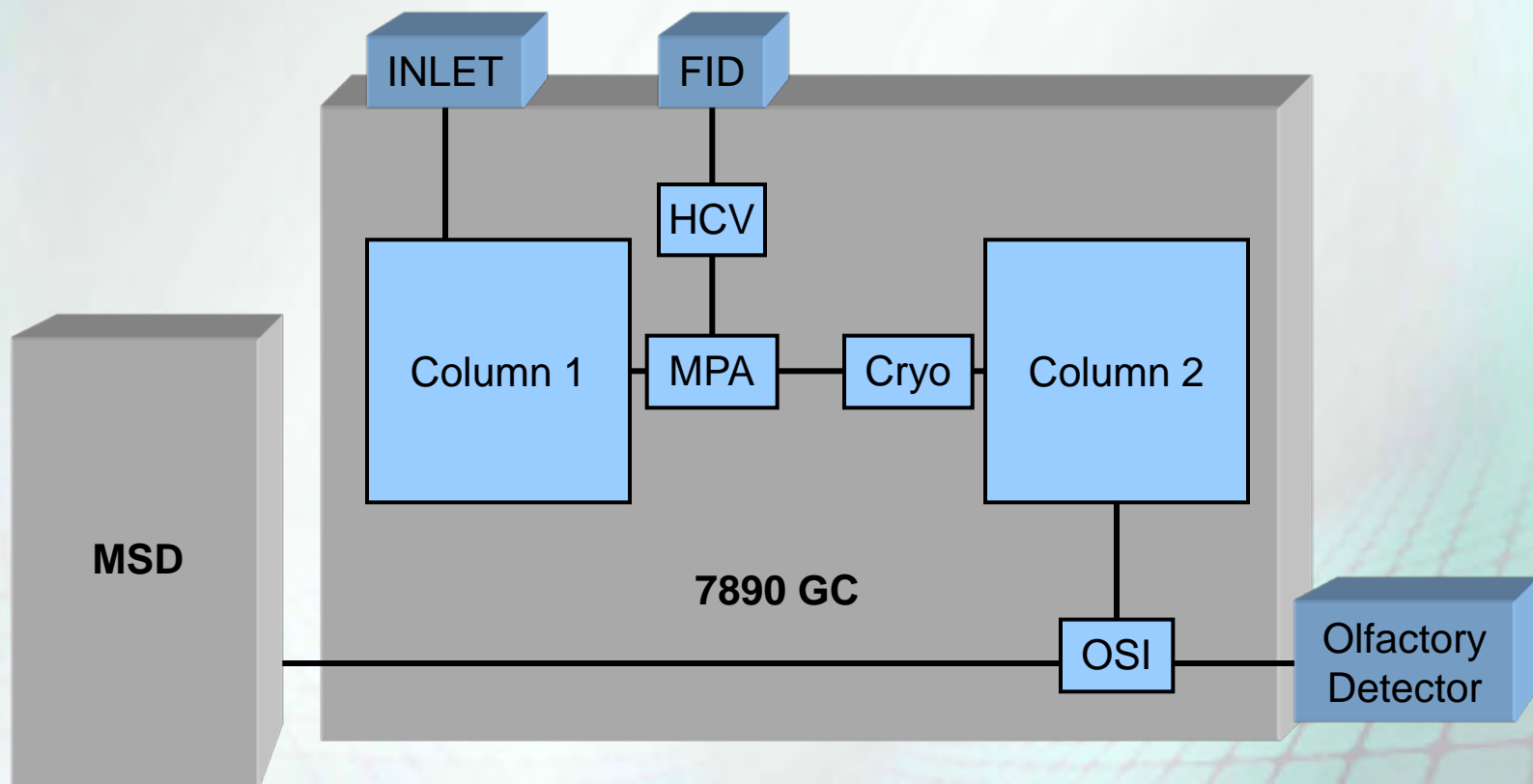


Sensory-Directed Flavor Analysis



Chapter 4: An integrated MDGC-MS-Olfactometry approach to aroma and flavor analysis, David K. Eaton, Lawrence T. Nielsen and Donald W. Wright, Microanalytics, 2006.

AromaTrax™ Model 2100 MDGC-MS-O System Diagram



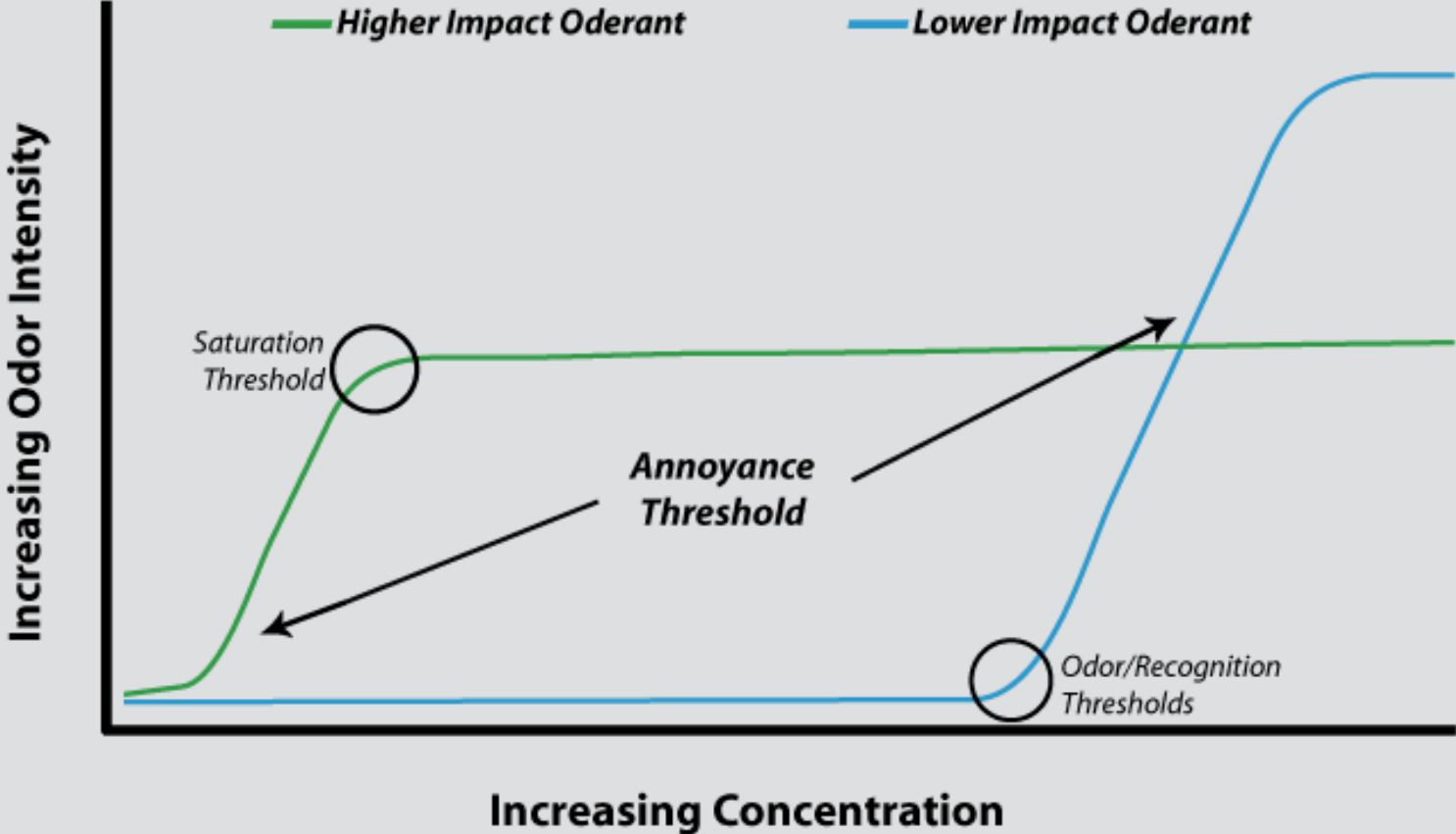
Basic Integrated AromaTrax® MDGC System Dual Oven-FID-PFPD-Olfactory-MSD



Representative MDGC- MS - O Based Odorant Prioritization Studies

- 1 malodors in bottled drinking water
- 2 aroma profiles in packaged food products
- 3 beer flavor attribute correlations
- 4 cat urine on carpet odor
- 5 dog urine on carpet odor
- 6 mold and mildew odor
- 7 aroma loss in packaged fruit flavored pastries
- 8 cigar breath odor
- 9 cigarette breath odor
- 10 denture odor
- 11 leather fragrance profiles
- 12 pet food aroma quality excursions
- 13 persistent residential indoor air malodors
- 14 persistent commercial indoor air malodors
- 15 soiled baby diaper odor
- 16 kitchen and garbage malodor
- 17 product aroma de-formulation
- 18 colostomy effluent deodorization
- 19 ileostomy effluent deodorization
- 20 high density livestock CAFOs
- 21 wet dog hair
- 22 ancient printed manuscripts

Representative Odor Threshold Curves



Comparison of Odor Thresholds for selected compounds

Compound	Odor Threshold (ppm)
Acetone	42
Isopropyl Alcohol	26
Ammonia	1.5
Ethanol	0.52
Methyl Ethyl Ketone	0.44
Hydrogen Sulfide	0.00041
Isovaleric Acid	0.000078
p-Cresol	0.000054
Diacetyl	0.000050
Geosmin	0.0000065
Tribromoanisole	0.000000030

Solid Phase Microextraction (SPME) Fibers

- Collects volatile and semivolatile organic compounds from the headspace of the sample



Bizarre Odor Profile Request

Mike Rowe's Boot from the Discovery Channel's "Dirty Jobs"



Video segment # 1: Where have Mike's boots traveled?

Video segment # 2: Mike gets the analytical report from Microanalytics

Summary

- **Microanalytics**
 - “A different kind of sensory company”
- **Use MDGC-MS-Olfactometry instrumentation to perform “Odor directed sensory analysis”**
- **High success rate at determining the active aroma / odor component**
- **“Rule rather than the exception”**

An odor/aroma is the result of a compound at very low concentration which is located among a forest of other compounds

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Questions?

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for further questions
or a copy of today's
seminar.