



CALIFORNIA
AIR RESOURCES BOARD

Draft

2016

FRAGRANCE

FORMULATOR

SURVEY

December 6, 2018

2016 Survey
Summary Report



Results of the 2016 Fragrance Formulator Reporting Survey

In 2016, CARB's Consumer Products Program conducted a survey of fragrance formulations. This was done in order to evaluate the use of VOCs and LVP-VOCs contributions to fragrance in consumer products, and as part of the overall effort being undertaken to develop a comprehensive consumer product inventory in support of the 2016 State Implementation Plan (SIP). The ingredient reported to CARB as "fragrance" represents about 7.8% of the 2013 Consumer and Commercial Products Survey TOG mass.

CARB staff chose specific fragrance formulations from the top fragrance-containing categories as reported in response to the 2013 Consumer and Commercial Products Survey, and requested detailed formulations from each fragrance manufacturer. Responsive fragrance formulations were present in 362 consumer products across 23 survey categories. These formulations represented 8.1% of the mass reported as "fragrance" in product formulations in responses to the 2013 survey.

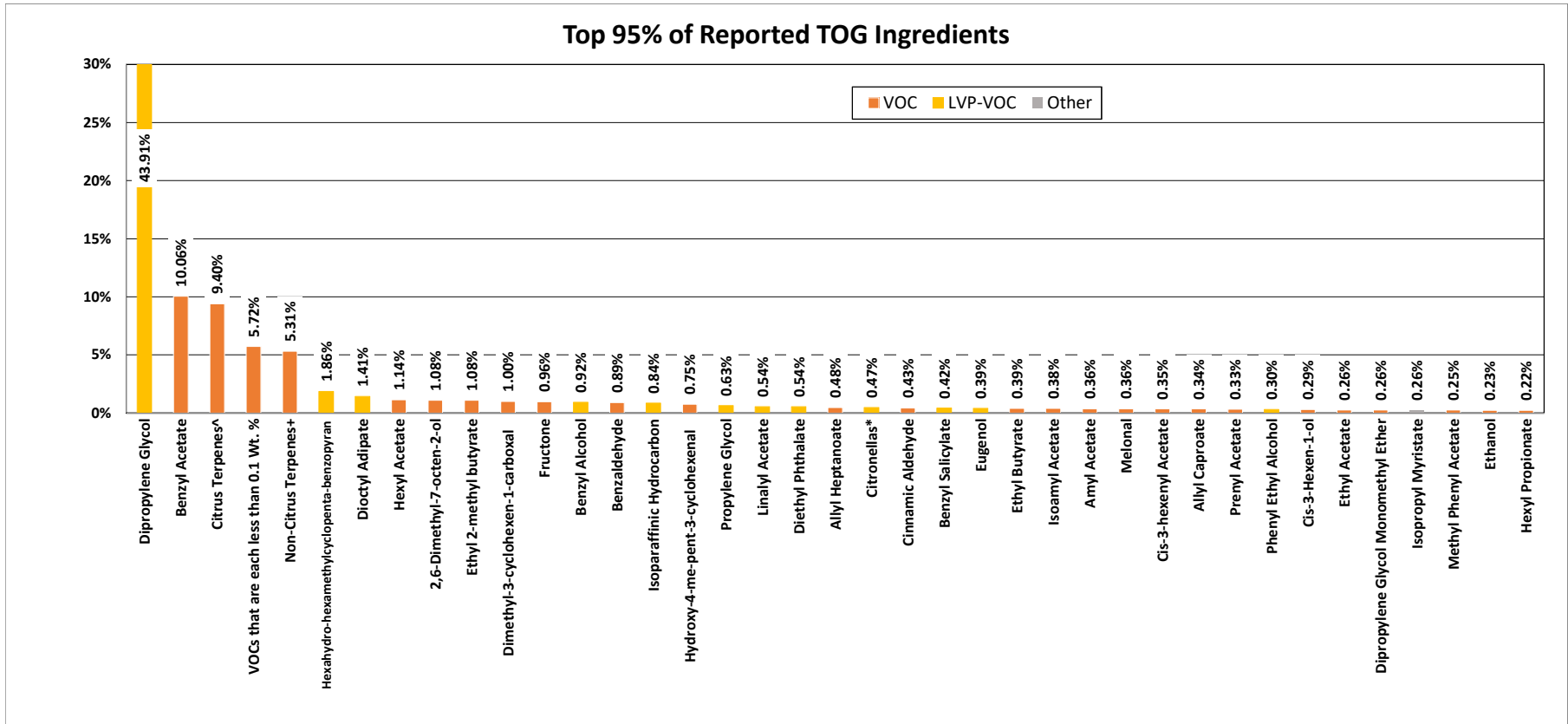
About 61% of the fragrance survey mass was not speciated to the chemical compound level. Reported TOG ingredients were split nearly evenly between VOC and LVP-VOC chemical species, with most of the LVP-VOC represented by dipropylene glycol. The VOC species consisted largely of benzyl acetate, citrus and non-citrus terpenes, and hexyl acetate, and included over 130 different VOC compounds that each made up less than 0.1% of the total mass reported.

Three classes of fragrance chemicals were grouped for illustrative purposes. Citrus Terpenes included limonene as well as citrus oils and approximately 15 other ingredients described as citrus terpene variants. Non-Citrus Terpenes included pinene, pine oil, linalools, terpinolenes, and approximately 10 other non-citrus high-terpene plant extracts such as cedar oil, lavandin, and rosemary. Citronellas included ingredients reported as variants of citronella oil, citronellal, citronellol, methyl isoeugenol, geraniol, or geranyl acetate.

2016 CARB Fragrance Formulator Survey Summary

Draft Data For Public Review

Fragrance Formulation Speciation Profile			
VOC Compounds Reported	141	LVP-VOC Compounds Reported	123
VOC Range of Formulations	0.6%-100.0%	Survey Categories Represented	23
Unknown/Not Specified Compounds	61.6%	Products Represented	362
Reported TOG Compounds	38.4%	PWMIR Range (g O3/g Fragrance)	0.73-4.46
VOC % of TOG	46.6%	Fragrance Mass Represented By Reported	8.1%
LVP-VOC % of TOG	53.4%	Fragrance Formulations	



*Citronellas: Ingredients reported as variants of citronella oil, citronellal, citronellol, methyl isoeugenol, geraniol, or geranyl acetate.

[^]Citrus Terpenes: Limonene grouped with citrus oils and other citrus extracts

⁺Non-Citrus Terpenes: Terpenes not classified as citrus terpenes, including pine oils, pinenes, and linalools.