

# Work Group Meeting for Laundry Detergent, Liquid Fabric Softener, Dish Detergent/Soap, & Aerosol Cooking Spray

May 22, 2019



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## Work Group Outline

**Category Order:** Laundry Detergent, Liquid Fabric Softener, Dish Detergent/Soap, & Aerosol Cooking Spray

**For Each Category Presented**

- Category Definition
- Category Overview
  - Companies
  - Products
  - VOC Content
  - Product Weighted Maximum Incremental Reactivity (PWMIR)
- Product Groups
- VOC Breakdown
- Possible VOC Thresholds
  - Regulatory Pathways
- Discussion and Questions

**What's Next?**

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# Laundry Detergent

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## Laundry Detergent

Laundry detergent is a surfactant or a mixture of surfactants with cleaning properties in dilute solutions. Laundry detergents are commonly available as powders or concentrated solutions. These substances are usually alkylbenzenesulfonates; compounds similar to soap but more soluble in hard water.

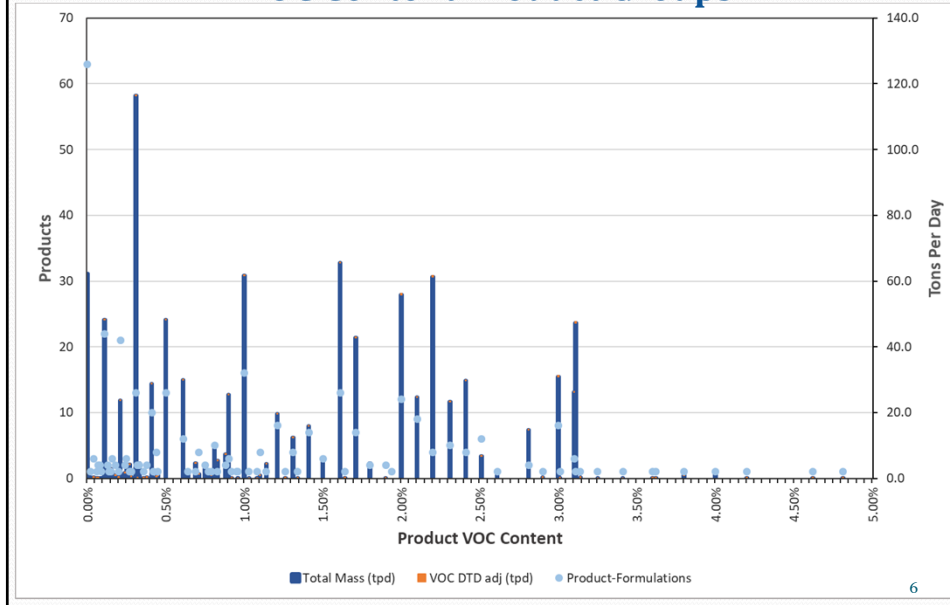
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## Category Overview

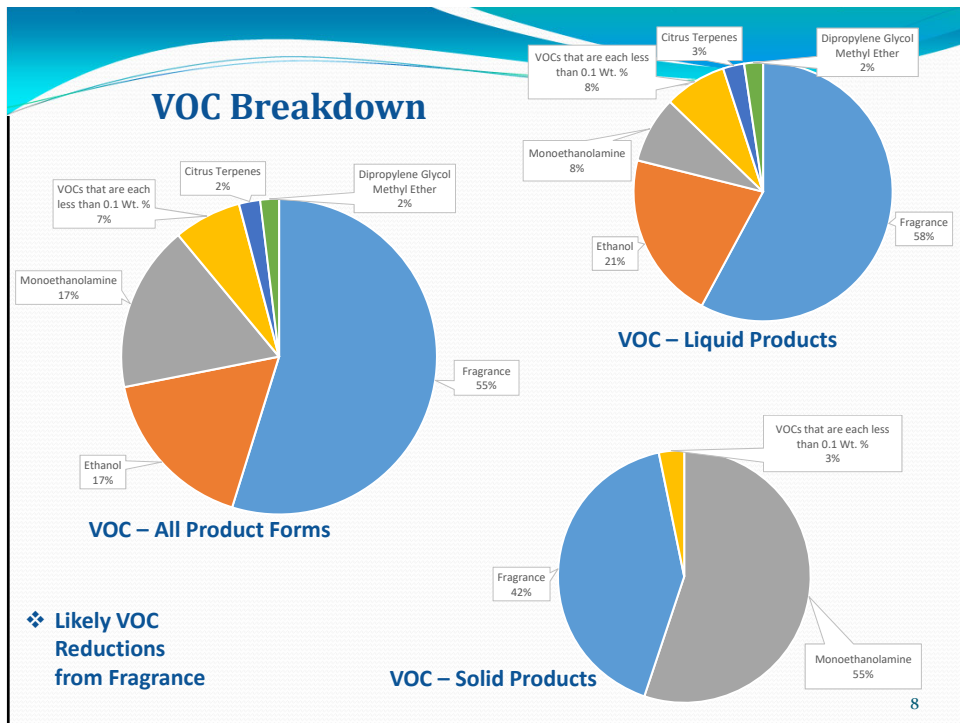
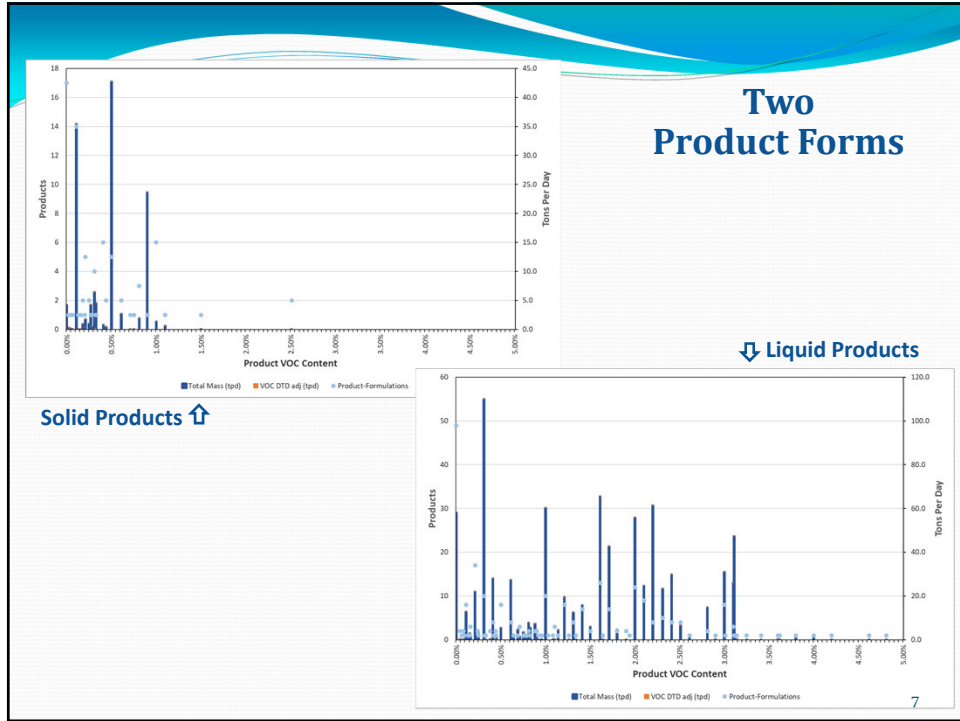
Number of Companies	• 70
Number of Products	• 1757
Category VOC Range	• 0.02% – 85%
Average VOC	• 1.89%
Average PWMIR	• 0.16

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## VOC Content Product Groups



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## Possible VOC Thresholds

### ⇩ All Product Forms

Possible VOC Limit	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
VOC Tons Per Day Reduced	3.77	3.18	2.71	2.31	1.96	1.63	1.34	1.09
Complying Market Share (Product-Formulations)	33.85%	47.03%	50.65%	58.91%	62.79%	66.93%	72.35%	76.74%
Complying Market Share (Mass)	14.61%	34.72%	38.77%	49.83%	52.27%	55.65%	66.32%	72.30%

### ⇩ Solid Products

Possible VOC Limit	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
VOC Tons Per Day Reduced	0.70	0.59	0.53	0.49	0.48	0.46	0.45	0.43
Complying Market Share (Product-Formulations)	52.22%	75.56%	80.00%	91.11%	92.22%	93.33%	93.33%	93.33%
Complying Market Share (Mass)	31.20%	73.53%	75.42%	94.58%	95.03%	95.03%	95.03%	95.03%

### ⇩ Liquid Products

Possible VOC Limit	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
VOC Tons Per Day Reduced	3.07	2.59	2.18	1.81	1.48	1.16	0.89	0.66
Complying Market Share (Product-Formulations)	29.80%	39.74%	43.05%	50.33%	54.97%	59.93%	66.89%	72.52%
Complying Market Share (Mass)	11.93%	28.47%	32.87%	42.62%	45.39%	49.30%	61.70%	68.63%

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## Discussion & Questions

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# Liquid Fabric Softener

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## Liquid Fabric Softener

A liquid fabric softener is typically applied to laundry during the rinse cycle in a washing machine, either by the machine itself or through use of a dispensing ball or similar means. Fabric softeners coat the surface of a fabric with chemical compounds that impart a softer texture.

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## Category Overview

Number of Companies

• 43

Number of Products

• 387

Category VOC Range

• 0.05% – 7.2%

Average VOC

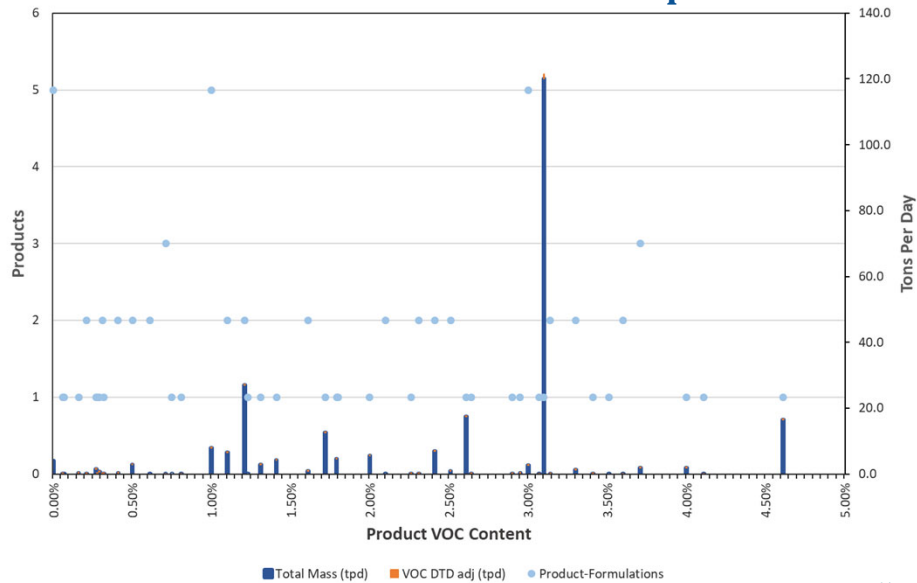
• 2.45%

Average PWMIR

• 0.09

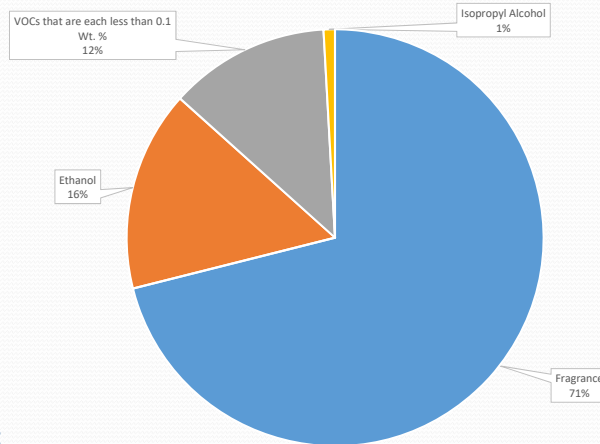
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## VOC Content Product Groups



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## VOC Breakdown



❖ Likely VOC Reductions from Fragrance

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## Possible VOC Thresholds

### ⇩ Liquid Fabric Softener

Possible VOC Limit	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
VOC Tons Per Day Reduced	1.96	1.75	1.55	1.35	1.16	1.00	0.83	0.68	0.54	0.41	0.28	0.16
Complying Market Share (Product-Formulations)	11.90%	23.81%	30.95%	38.10%	44.05%	46.43%	50.00%	53.57%	55.95%	61.90%	66.67%	75.00%
Complying Market Share (Mass)	1.70%	3.76%	3.76%	6.83%	19.67%	22.35%	27.55%	31.48%	31.48%	34.19%	41.27%	42.38%

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## **Discussion & Questions**

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## **Dish Detergent/Soap**

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## Dish Detergent/Soap

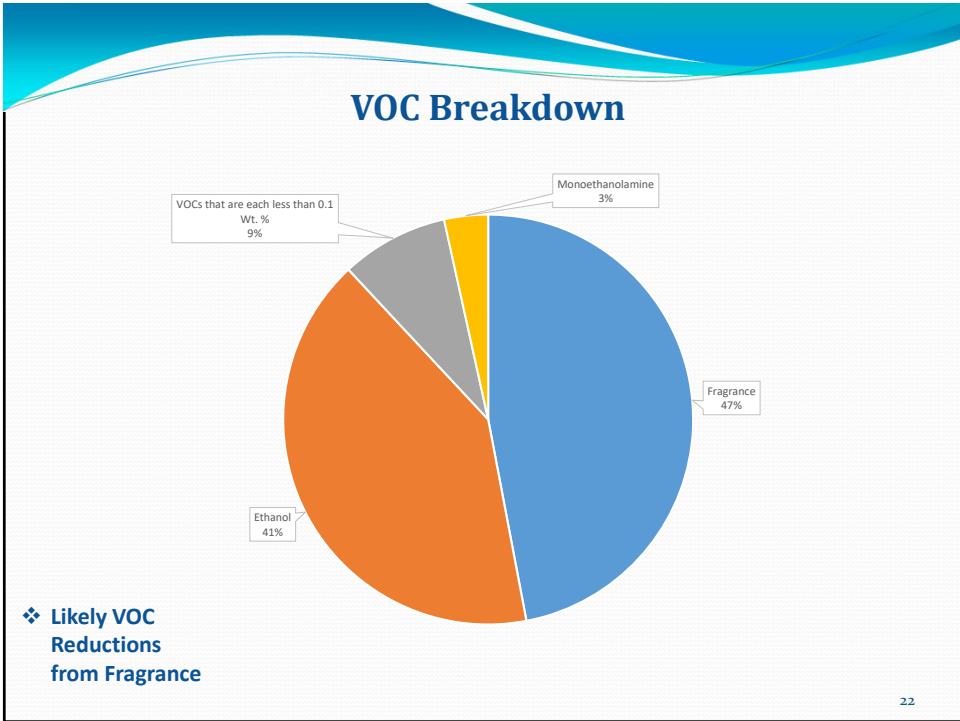
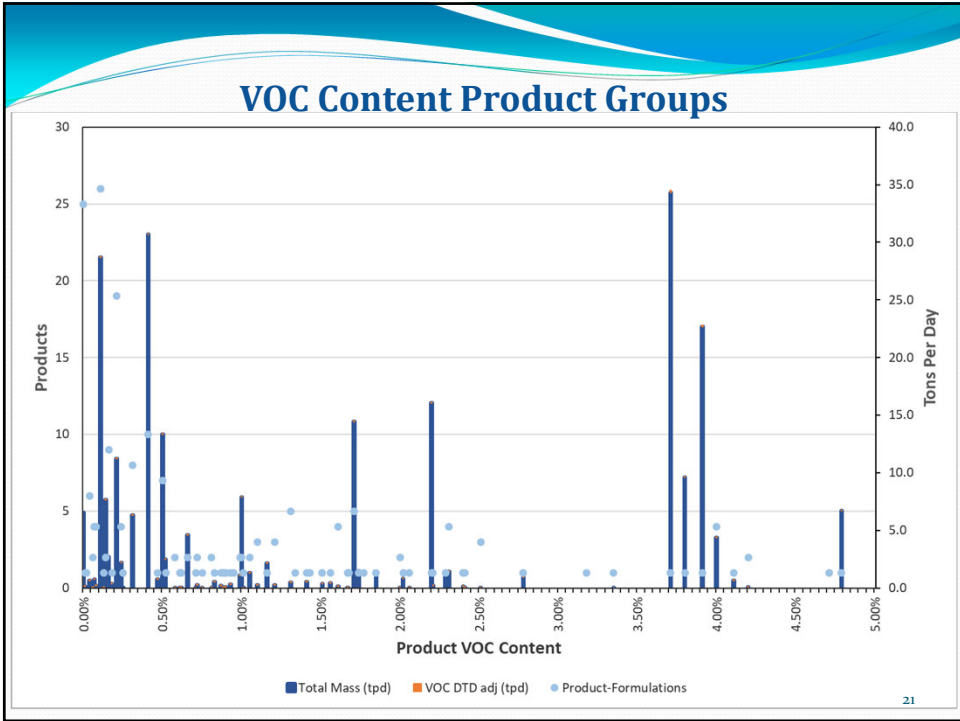
Dish Detergent/Soap is a detergent used to assist in dishwashing. It is usually a highly-foaming mixture of surfactants with low skin irritation, and is primarily used for hand washing of glasses, plates, cutlery, and cooking utensils. Dish Detergent/Soap includes dishwashing liquid, dishwashing soap, dish detergent, and dish soap.

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## Category Overview

Number of Companies	• 93
Number of Products	• 879
Category VOC Range	• 0.01% –72.9%
Average VOC	• 1.19%
Average PWMIR	• 0.05

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## Possible VOC Thresholds

↓ Dish Detergent/Soap

Possible VOC Limit	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
VOC Tons Per Day Reduced	0.73	0.61	0.54	0.47	0.42	0.38	0.33	0.29
Complying Market Share (Product-Formulations)	46.29%	57.64%	62.45%	68.12%	72.49%	75.98%	82.10%	83.84%
Complying Market Share (Mass)	24.10%	44.21%	47.13%	51.15%	52.73%	53.14%	59.79%	60.35%

## Discussion & Questions

# Aerosol Cooking Spray

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## Aerosol Cooking Spray

Aerosol Products designed to reduce sticking on cooking and baking surfaces or to be applied on food, or both.

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## Background

- Product form introduced in the early 1960's
- Product regulated in the Phase II consumer products regulation in the early 1990's
- Current limit = 1995 VOC limit of 18%

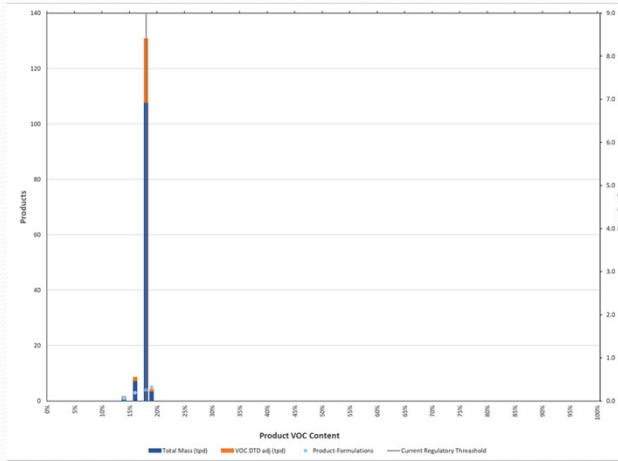
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## Aerosol Cooking Spray Category Overview

Number of Companies	• 5
Number of Products	• 74
Category VOC Range	• 13.9-17.9
Average VOC	• 17%
Average PWMIR	• 0.15

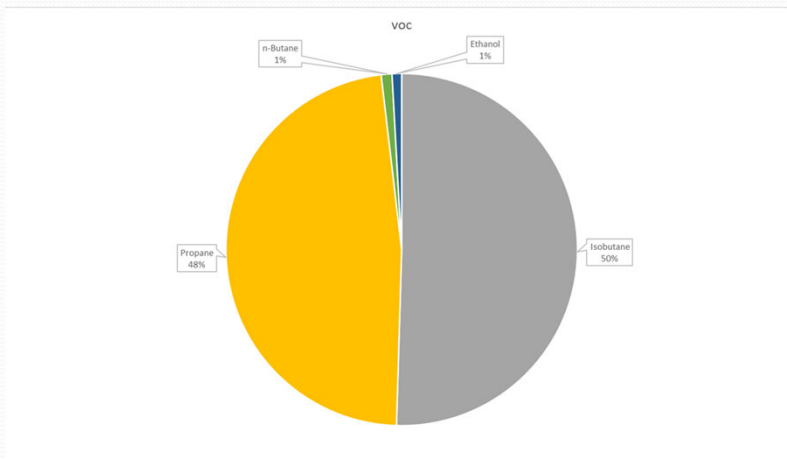
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## VOC Content Product Groups



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## VOC Breakdown



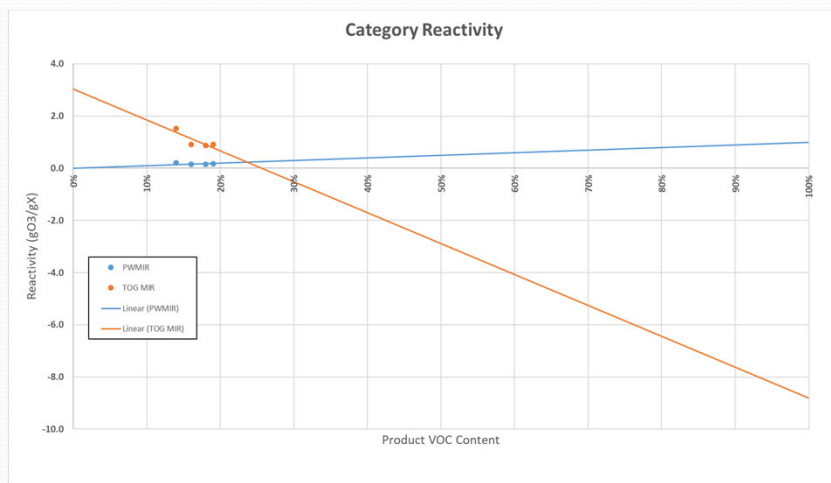
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## VOC Breakdown

- Propellants
- Ethanol

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## Aerosol Cooking Spray



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## Possible VOC Thresholds

### ↕ Cooking Spray

Possible VOC Limit	13%	14%	15%	16%	17%
VOC Tons Per Day Reduced	0.44	0.35	0.26	0.17	0.08
Complying Market Share (Product-Formulations)	0%	8%	8%	31%	31%
Complying Market Share (Mass)	0%	1%	1%	7%	7%

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## Discussion & Questions

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## What's Next?

- Spring-Summer 2019: Topic-specific Workgroups
- Fall 2019: Public workshop to identify and quantify emissions benefits of regulatory options
- Late 2019/Early 2020: Additional public workshop(s) as needed
- Ongoing: Meet with interested stakeholders
- Late 2020: Proposed regulatory amendments for Board consideration

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