



# Environmental Stewardship Program

## Madison Chemical

### Success Story

## Material Use Reduction

### Background

Madison Chemical Company was founded in 1947 by David R. 'Beano' Goodman in his small residential garage. In the years since, Madison Chemical has become a leader in the North American sanitation and hard surface chemical industry. Their initial focus centered on the food industry, with an emphasis on the restaurant and dairy industries. However, by the early 1960's they began their expansion into the metal industry and today, produce custom-tailored solutions for food-plant sanitation, beverage, paper, metal pre-paint applications, engine re-manufacturing, lapping, carwash chemicals, and wastewater treatment.

After outgrowing their original location, they moved to their current facility in Madison, Indiana in 1959. Their 60,000 ft<sup>2</sup> manufacturing facility sits on 11 acres of land and employs 98 team members. Ever intent on managing environmental risks and reducing their impact on the environment, Madison Chemical joined the Environmental Stewardship Program in 2018 and is a Partner in IDEM's Partners for Pollution Prevention program. Their Environmental Management System (EMS) has been certified under the ISO 14001 international standard since 2001, and their facility also has a quality management system certified under the ISO 9001 international standard since 1994.

### Project Implementation

Madison Chemical's manufacturing process involves the use of nonylphenol ethoxylate (NPE) surfactants. More specifically, they use NPE-6, NPE-9, and NPE-12 surfactants. Nonylphenol ethoxylates are nonionic surfactants, or detergent-like substances, which are extremely effective at cleaning soils from hard surfaces but can be highly toxic to aquatic life.

Madison Chemical, in its effort to be a good steward of the environment, began reducing the amount of NPE's in their products in 2014. An initial assessment of various products was completed in their internal laboratory to identify suitable alternatives; the main one being alcohol ethoxylates. In collaboration with suppliers, regulators, and their customers, they were able to determine exact specifications for each product and cleaning tests were performed on the revised products to verify performance. As of 2022, approximately 3% of Madison Chemical's product line still uses NPE's, primarily due to failure in product functionality and stability when using alternatives.

### Results

Table 1 below provides NPE usage data for Madison Chemical from 2018 to 2021. Although they saw an increase in production quantity of 3,263,611 pounds, their efforts



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to reduce the amount of NPE's generated a reduction of 15,753 pounds. When adjusted for production data, the quantity of NPE used was reduced by 18,008.8 pounds, affirming relatively fewer products containing NPE were shipped from Madison Chemical in 2021. The current goal for the year 2022 is to continue this trend to reach 20,000 pounds of NPE's being used in production, representing an additional NPE reduction of 4,000 pounds.

	2018	2021	Units
<b>NPE's Quantity</b>	39,848	24,095	lbs.
<b>Production Quantity</b>	22,797,961	26,062,572	lbs.
<b>NPE's Quantity/ Production Quantity</b>	0.00175	0.00092	
<b>Normalization Factor</b>	1.143		
<b>Normalized Quantity</b>	-18,008.79		lbs.

Table 1. Madison Chemical NPE usage from 2018 to 2021.

### Cost Savings

Madison Chemical's reduction of NPE usage is not driven by cost savings. In fact, implementation of alternatives can increase costs, as the alternatives used are often costlier and/or sometimes require higher quantities to meet the performance of the original products.

### Facility Contact

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