



Minnesota Technical Assistance Program

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SOLVENT USAGE & VOCS DECREASED AT CRYSTAL CABINET WORKS



Challenge

Crystal Cabinet Works is a family-owned company based in Princeton, Minnesota, creating custom and semi-custom wood cabinets. Founded in 1947, the company has grown into one of the largest custom cabinet manufacturers in America. Sustainability is one of Crystal Cabinet's strategic initiatives which the company began by completing a double materiality assessment. Crystal Cabinet is certified by the Kitchen Cabinet Manufacturers Association's (KCMA) Environmental Stewardship Program. To improve their products' quality, Crystal Cabinet is motivated to reduce their ethylbenzene use, which serves as a flow agent and solvent in their wood cabinet finishes. Ethylbenzene is a toxic chemical.



| YEAR | TRI AIR Releases (Lbs.) |
|-------------|-------------------------|
| 2019 | 12,914 |
| 2022 | <10,000 |
| % REDUCTION | >22% |



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Approach

Crystal Cabinet Works' production process consists of the following stages:

1. Crystal Cabinet receives kiln-dried lumber at the component center.
2. They mill the wood into parts before transporting parts nearby to be processed further into cabinet doors and moldings.
3. Computer Numerical Control (CNC) machining is carried out on the cabinet boxwork.
4. The finishing department applies various finishing coats on the wooden parts.
5. All parts are assembled, and the final products are shipped to customers.

Since nothing is stocked, everything is made to order, and each item is made to meet an individual customer's needs.

Crystal Cabinets has formed a relationship with a paint manufacturer, Ceramic Industrial Coatings. This paint manufacturer proposed a new product line, the coating system Acromapo, with superior performance and a lower ethylbenzene concentration. After passing the trial and quality control process, Crystal Cabinets chose to adopt the reduced ethylbenzene finish in its production process. This alternative has also improved the finished appearance of the furniture.

Results

Crystal Cabinets went from releasing over 12,000 pounds of ethylbenzene per year to releasing less than the reporting threshold of 10,000 pounds because of the change. They also switched from using stronger cleaning solvents to clean equipment to this new formula, which allowed them to follow previous MnTAP suggestions in reducing the volatile organic compounds (VOCs) content of cleaning solvents. Consequently, Crystal Cabinets has reduced its use of toluene and discontinued using methyl ethyl ketone (MEK).

