



Ford Motor Company Pollution Prevention Case Study

Dry Machining at Visteon Indianapolis Steering Systems Plant

DESCRIPTION OF THE FACILITY

Visteon's Indianapolis Steering Systems Plant is a 1.9 million square foot facility in Indianapolis, Indiana. The plant has been operating since 1957 and produces steering columns, gears, and automotive components. The primary production operations at the plant are machining, heat treatment, and assembly of components.

DESCRIPTION OF THE OPPORTUNITY BEING ADDRESSED

Six thread grinding machines were being used to produce power steering carbon steel worm gears. These grinding machines required the use of cutting oil. Oil mist emissions generated by these machines required an air emissions permit (potential emissions of 18 tons per year) and the use of pollution control equipment. The process required fire protection, generated odors and sludges and produced 50,000 gallons of waste oil per year. Additionally, the chip waste was not easily recyclable since it contained waste oil.

DESCRIPTION OF THE IMPROVEMENT

The six grinding machines were replaced with five whirl milling machines, which use no cutting oil. The quality of the finished part was significantly improved to that produced by the old process. Chips are removed via a drag belt chip conveyor. Significant benefits of this improvement include:

- No oil mist
- No odor emissions
- No requirement for pollution control equipment or an air emissions permit
- No waste oil generation
- 75% less chip waste
- Chip waste is recyclable
- Cutting tips are recyclable
- No sludges to be landfilled
- No dermatitis risk
- Elimination of fire protection requirements
- Plant recognition - Governor's Award for P2

SUBSTANCE ADDRESSED

REDUCTION OBTAINED

Cutting oil	100%
Oil mist emissions	100%
Odors	100%
Sludge	100%

SAVINGS REALIZED (OPERATIONAL)

\$650,000 / YEAR

CAPITAL / OPERATIONS INVESTMENT: \$2.6 MILLION PAYBACK: 3.5 YEARS

ENVIRONMENTAL HIERARCHY LEVELS:

Source reduction and waste stream elimination.