

CASE STUDY

PROJECT: Eliminate Post-Process Washing Procedures for Parts that Come into Direct Contact with Flames or Heat in an Assembled Appliance Range.

CLIENT: A Major US OEM Manufacturer of Ranges and Stoves.

TECHNOLOGY: MSF's Smokeless Stamping Lubricant, Drawing Compound 8417.

SAVINGS: > \$300,000 by eliminating cleaning chemicals and utilities. Uncalculated savings in eliminated effluent from waste treatment.

PROJECT:

A major US OEM appliance manufacturer of stoves and ranges stamped galvanized parts that were assembled as baffles over the broiler flame. These parts came in direct contact with the oven flame. If contaminants or lubricant residue was left on the part, the flame from the initial start up of the oven broiler would burn the residue. Any resultant smoke would develop in the oven cavity and result in a service call from the end customer.

The appliance manufacturer was familiar with water soluble stamping lubricants, but all synthetic and oil-based lubricants that were tested resulted in a small puff of smoke in the oven cavity. The client did not want to introduce vanishing oils into the stamping process for three primary reasons: (1) All vanishing oils lacked the required lubricity to protect parts and tooling. (2) They did not want the hazardous flash point and other storage dangers associated with these solvents. (3) They did not want to expose employees to the high level of VOC and skin damaging effects of vanishing oils.

To compound issues, these baffles were handled by assembly workers that also touched glass door fronts and other areas where fingerprints or lubricant transfer was unacceptable.

To avoid problems all parts were washed through a three stage parts washer. Annual chemical and utility costs for this system exceeded \$300,000. Waste treatment costs for effluent from this system were not calculated but were substantial.

Smokeless Lubricant – MSF custom formulated a water-based lubricant with fire retardant qualities. This product is used at 1:7 with water and is sprayed or roller applied. It provides exceptional lubricity and dries to a solid but minute residue within 25 minutes.

The manufacturer tested it for effects in direct contact with flame and heat and found that it produced no smoke or odor. Because the residue dries, the parts can be handled by assembly workers without transfer of residue to other parts or door fronts. The product has been in use for 5 years.