# FACT SHEET

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## AUTOMATIC OVEN CLEANING SYSTEMS

**ISSUED BY** ... Virginia Cooperative Extension Service in Cooperation with ...

**VIRGINIA FARM AND HOME ELECTRIFICATION COUNCIL**
**AND**
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Even oven cleaning has been automated! No longer is it necessary to soak and scrub or use harsh cleaners to remove food soils that normally accumulate when you use the oven. Manufacturers are making ovens that clean themselves during a special cycle with high heat (self-cleaning system) or during the normal baking process (continuous-cleaning system). Ovens without the automatic cleaning feature are also available.

### I. THE SELF-CLEANING OVEN

#### Operation

The pyrolytic or self-cleaning system removes oven soil by heating the oven cavity to a high temperature (usually between 850° and 1100° F.) and decomposing the soil to a white ash. The white ash can then just be wiped out with a damp cloth or paper towel. The cycle usually lasts from 2 to 4 hours including time to cool down after cleaning. Some manufacturers suggest cleaning oven racks and drip pans from surface units in the oven during the cleaning cycles.

#### Performance

If manufacturer's instructions are followed, cleaning performance is generally considered very good to excellent. However, only surfaces inside the oven are exposed to the high temperature. Therefore, the area around edges of the door or the outside of the oven may need extra attention.

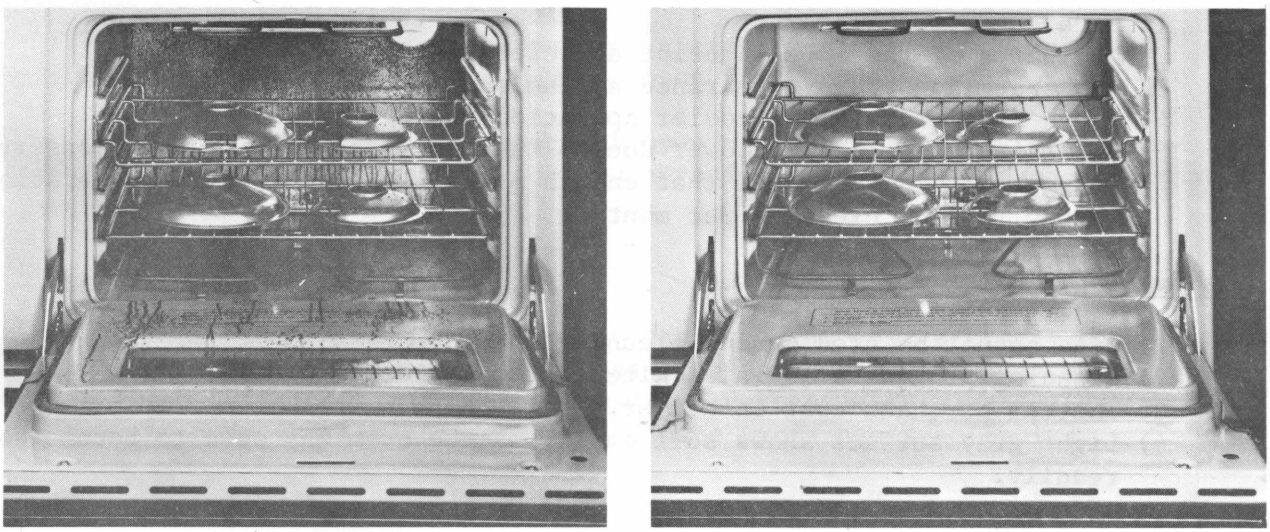

Fig. 1--The self-cleaning oven before and after a cleaning cycle.

## Tips for Success

*Before cleaning: Check manufacturer's instructions for specific cleaning procedures. You may need to remove racks and wipe heavy spillovers of grease or other soil.

*Remove soil around edges of door and oven with cloth dampened in solution of ammonia and water, or with an all-purpose liquid household cleaner.

*At the end of the cleaning cycle, wipe ashes away from all surfaces. Clean any spots around edges.

*If necessary, use another cleaning cycle to remove stubborn spots. Avoid scouring or use of abrasive cleansers or commercial oven cleaners. It is possible to damage the porcelain enamel finish.

## Safety

Most ovens have a manually-operated lever to lock the oven door closed at the beginning of the cleaning cycle. Some newer ranges have an automatic lock which is activated when the oven control is set for cleaning. As a safety feature, neither lock can be released from the time the oven temperature reaches 550° F. until the oven cools down to that temperature. All self-cleaning ovens have a heavy layer of insulation to help keep the intense heat inside the oven. Many ranges also have fans which operate during the cleaning cycle to help cool outside oven surfaces. Others have dead air space between the insulation and exterior surfaces. Nevertheless, extremely hot temperatures on the outside of the oven have been a problem to consumers. As of September 30, 1975, UL requirements state that exterior oven surfaces must not exceed 131° F.

## Cost

The initial cost of a self-cleaning oven will be substantially more than a conventional oven; however, the price will vary from one manufacturer to another. Cost of cleaning will vary according to local utility rates, but the average cost is estimated to be about 12 to 15 cents per cycle. It has been estimated that hand cleaning supplies cost about 32¢ per cleaning.

## Advantages

1) More automated system.
2) All parts of the oven interior are cleaned.
3) Has sparkling clean appearance at the end of the cycle.
4) Extra insulation gives cooler operation during normal use.
5) Operating costs may be lower due to the heavy insulation which conserves energy. It is estimated that enough money is saved in normal operation to pay for one cleaning per month.

## Disadvantages

1) Oven cannot be used during cleaning time.
2) Cleaning process will raise kitchen temperature slightly.
3) Initial purchase cost is higher.
4) Light gray surface shows soil easily so the oven may seem to become soiled readily.

## II. THE CONTINUOUS-CLEANING OVEN

### Operation

In the continuous-cleaning or catalytic oven soil gradually disappears as food is being cooked. The specially formulated porcelain enamel finish of the oven is rough in texture and of a dull, dark color which, when magnified, appears to have peaks and valleys and increases the exposed surface area for the cleaning to take place. Food spatters have a wet look as they change to carbon dioxide, a gas that disappears into the air. The speed of the cleaning process depends on the oven temperature and length of cooking time, as well as size and kind of soil spatter.

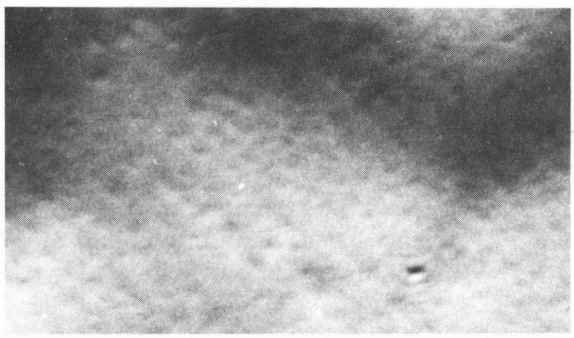

Fig. 2--Smooth surface of a standard oven finish magnified 1200 times.

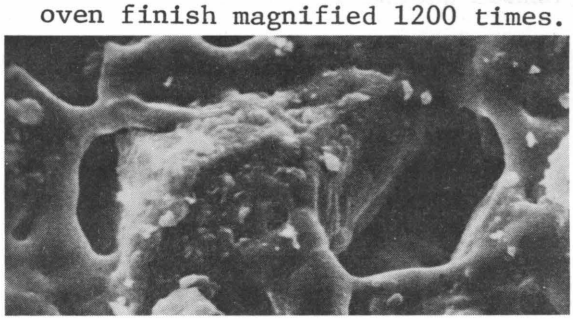

Fig. 3--Continuous-cleaning oven surface enlarged 1200 times.

### Performance

Performance depends on the user. Although cleaning instructions vary from manufacturer to manufacturer, if instructions are followed, cleaning is gradual and continuous. The oven will generally be free of greasy soil. However, heavy spots -- especially those containing sugar or starches will "smother" the pores in the enamel surface so that oxidation will not occur. Spillovers can be avoided by not filling baking dishes too full or by placing a pan under the dish to catch drips.

### Tips for Success

*See that oven bottom is protected from spillovers.
*Clean up large spills immediately.
*Occasionally wipe out the entire interior surface with a nylon pad and plain water; then blot dry and run the oven for two hours at 475° F.
*Manually clean oven racks.
*Remember never to use commercial oven cleaners (they may damage the surface), wire brushes, steel wool or any abrasive cleaning aid such as cleansing powders.

### Cost

Although ranges with continuous-cleaning ovens cost a little more than a conventional range, they do not cost as much as a self-cleaning range. Also there is no additional cost for a cleaning cycle as with a self-cleaning oven unless the oven is operating empty to remove extra heavy soil.

Advantages

1) Lower initial cost than ranges with self-cleaning ovens.
2) No high temperatures in the kitchen.
3) Oven is always available for use.
4) Cleaning takes place at normal oven temperatures.

Disadvantages

1) Rough surface never looks completely clean.
2) Areas not finished with the porcelain enamel (windows, lights, racks) must be cleaned by hand.
3) Does not remove all soil with a sugar or starch base; e.g., cherry pie filling.
4) Spillovers often require special treatment.

Before purchasing a range with automatic oven cleaning, ask yourself:

*How much of my time and energy am I willing to use in oven cleaning?
*How often do I clean my oven? Would a self-cleaning or continuous-cleaning feature be worth the price? Some homemakers who clean their ovens only once or twice a year do not feel the extra cost is justified.
*Would I object to the rough dull surface of the continuous-cleaning oven or is the shiny surface of the self-cleaning oven preferable?

Energy Saving Tips

*Try to use self-cleaning oven cycle late in the evenings so that it will not be in use during "peak load" periods.
*Clean ovens with automatic cycles during cool periods of the day when additional heat is needed in the home.
*In summer, avoid using the self-cleaning oven cycle when the home is already warm because it will take additional energy to cool the home.
*If additional cleaning time is required for the continuous-clean oven, leave oven ON after baking.



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