PROCESS FOR CLEANING OVENS

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This invention relates to the art of cleaning and has particular reference to a process and article for cleaning grease and food stained surfaces such as those found in household cooking ovens.

One of the most difficult and poorly performed tasks which faces the modern housewife is that of cleaning the soiled interior surfaces of the oven. Many preparations have been devised and sold specifically for this purpose, but all that are effective to any degree in removing the food and grease stains contain caustic or other corrosive chemicals which are difficult and even dangerous to apply. A primary object of the present invention is to provide a novel process and article for cleaning the interior surfaces of ovens to like which are not subject to the above and other disadvantages of the methods and materials heretofore proposed.

Another object of the present invention is to provide a novel article for cleaning ovens and the like, which is non-corrosive, non-toxic, and non-inflammable, yet which is highly effective in use.

Other objects and advantages of this invention it is believed will be readily apparent from the following detailed description of preferred embodiments thereof when read in connection with the accompanying drawings.

Referring now to the drawings:

FIGURE 1 is a perspective view of a preferred form of the article of the present invention.

FIGURE 2 is a perspective view illustrating the article in place in an oven and ready for use.

FIGURE 3 is a vertical sectional view of the article.

FIGURE 4 is a sectional view taken substantially on the line 3-3 of FIGURE 3.

FIGURE 5 is a top plan view of a modified form of the invention.

FIGURE 6 is a bottom plan view thereof.

FIGURE 7 is a vertical sectional view illustrating the manner of use of the article of FIGURES 4 and 5.

Referring now to the drawings, a preferred form of the article of the present invention is generally indicated 10, including a generally cylindrical container 11 which may be of metal or formed of resin-impregnated cardboard having a metal bottom 12 and top 13, the top being provided with a central opening and a closure 14. Positioned within the container is a cone-shaped cup member 15 formed of resin-impregnated paper or other material suitably treated to render it resistant to cold water. The cup member 15 is open at the top and is provided with a pair of relatively small openings 20 adjacent the bottom or apex thereof, the openings being covered with a plug or plug 25 of a low-melting material such as paraffin wax or the like. The top of the cup member extends just short of the underside of the container top 13 and the apex of the cup member is positioned on the container bottom 12. Stiffeners or ribs 27 of cardboard or the like are positioned inside the cup member, the top edges 28 thereof extending just short of the upper edge of the cup member and the lower edges 29 of the ribs terminating above the openings 20.

A chemical mixture 30 is contained in the volume of the container between the outer surface of the cup member and the inner surfaces of the container side wall and bottom. The mixture 30 comprises calcium oxide in lump form and an ammonium salt such as the chloride, sulfate, nitrate, carbonate, etc., in granular or powder form. Preferably the mixture 30 comprises about 400 grams of calcium oxide and 100 grams of ammonium chloride.

As shown in the drawings, the relatively fine ammonium chloride settles to the lower portion of the container, leaving the relatively coarse particles of calcium oxide in the upper portion thereof.

In use of the article, the closure 14 is removed and hot water poured into the cup member 15 to the approximate level indicated in FIGURE 3. The container is then immediately placed in the oven 50 as indicated in FIGURE 2. The oven should be cold and therefore if of the type having a pilot light, the oven door should be left open for almost an hour prior to use of the article of this invention.

After placing the article 10 in the oven, the oven door is closed. The hot water in the cup member melts the wax plug 25, permitting the water to slowly seep into contact with the ammonium chloride and calcium oxide mixture. Since the bulk of the ammonium chloride is positioned in the lower portion of the container it is first contacted by the water, causing it to dissolve readily. The water progressively moves upwardly through the mixture, contacting the calcium oxide with the usual exothermic reaction, forming steam. Simultaneously, ammonia gas is liberated from the ammonium chloride. The steam tends to soften the upper portion of the cup member and cause it to collapse downwardly as indicated by the phantom lines of FIGURE 3.

The mixture of ammonia gas and steam thus formed rises out of the container opening into the oven and contacts the cold walls thereof, condensing the steam and depositing the ammonia thereon in the form of ammonium hydroxide which exerts its cleaning and dissolving action on the grease and other foreign matter on the oven walls. The reaction is completed in 10—15 minutes and after this period of time the oven door may be opened and the container removed. The oven wall surfaces are then easily wiped clean with a wet cloth or sponge.

A modified form of the invention is illustrated in FIGURES 4, 5 and 6. As shown, the modified article comprises a container 61, preferably of metal, having a cylindrical side wall 62, a bottom wall 63 and a top closure 64. The top closure is provided with a plurality of small openings 65 covered by a removable cover 66 of pressure-sensitive adhesive tape or the like. The bottom wall 63 is provided with a single central aperture 68, and a similar cover 68a. An indicator mark 69 is provided on the outer surface of the side wall 62.

Resting on the upper surface of the bottom wall 63 is a square sheet 70 of paper or like material, the diagonal dimension thereof being approximately equal to the inside diameter of the cylindrical wall 62. Overlying the sheet 70 and bottom wall 63 is a layer 72 of paraffin wax or other low melting material. The chemical mixture 60a, of the same composition as the mixture 30 described above, fills substantially all of the container above the paraffin layer 72.

In use of the article of FIGURES 4—6, it is placed in a pan 80 or other suitable container and the pan filled with cold water to the indicator mark 69. The article is then removed from the pan and the water heated to a boil. The pan and its contained hot water is then placed in the cold oven, the covers 66 and 68a are removed from the container top and bottom walls and the article is placed in the pan of hot water. The hot water raises the temperature of the container 61 sufficiently to melt the wax, permitting the water to seep into the con-
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A method for cleaning ovens and the like comprising the steps of adding water to a container of a mixture of calcium oxide and ammonium chloride in an enclosed oven, adding water to said mixture to form steam and ammonia gas, condensing said steam and gas on the inner surfaces of said oven, and removing said condensate from said surfaces.

A method for cleaning ovens and the like comprising the steps of placing a container of a mixture of calcium oxide and ammonium chloride in an enclosed oven, adding water to said mixture to form steam and ammonia gas, condensing said steam and gas on the inner surfaces of said oven, and removing said condensate from said surfaces.

A method for cleaning ovens and the like comprising the steps of adding water to a container of a mixture of calcium oxide and ammonium chloride, immediately placing said container in an enclosed oven whereby steam and ammonia gas from the container is condensed on the inner surfaces of the oven, and removing the condensate thus formed from said surfaces.

A method for cleaning ovens and the like comprising the steps of adding water to a container of a mixture of calcium oxide and ammonium chloride, immediately placing said container in an enclosed oven whereby steam and ammonia gas from the container is condensed on the inner surfaces of the oven, and removing the condensate thus formed from said surfaces.

A method as defined in claim 1, wherein said calcium oxide is in lump form and wherein said ammonium salt is of relatively fine particle size.

A method as defined in claim 4, wherein said calcium oxide is in lump form and said ammonium chloride is of relatively fine particle size.

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