

Toilet Bowl Cleaner No. 544

		Wt. %
A	VAN GEL® O Magnesium Aluminum Silicate	0.5
	Water	19.8
B	Carbomer, 0.75% Pre-gel*	66.7
	Commodity NaOCl, 12.5%	12.0
	Sodium Dodecyl Diphenyl Oxide Disulfonate (CALFAX® DB-45 ¹)	1.0

Procedure:

Step 1 – Sift the **VAN GEL® O** into an established vortex in the water. Mix at maximum available shear until fully hydrated.

Step 2 – Slowly add the neutralized 0.75% Carbopol pre-gel to the **Van Gel O** dispersion with mixing. Careful control of the mixing speed is required during this step due to a rapid increase in viscosity, followed by a decrease.

Step 3 – Check the formula at this point and if necessary, adjust the pH to 12.4 ± 0.1.

Step 4 – Reduce the mixing speed and slowly add the NaOCl solution while mixing. A drop in formula viscosity occurs.

Step 5 – Reduce the mixing speed to a minimum and add the surfactant.

Step 6 – Adjust the pH with additional 50% NaOH solution, if necessary, to pH 12.4 ± 0.1.

	*Carbopol Pre-gel:	
CARBOPOL® C-676 ²		0.75
Water		97.05
NaOH, 50% solution		2.20

Procedure for Pre-gel:

Step 1 – Carefully shift the Carbopol C-676 into an established vortex in the water. Avoid lumping. Mix with good agitation for a minimum of 45 minutes.

Step 2 – Very slowly add the 50% NaOH solution with good mixing. Rapid thickening will occur, followed by some decrease in viscosity as the pH increases. Adjust the pH as necessary with additional 50% NaOH solution to pH 12.4 ± 0.1.

Note: Strict control of the NaOH level to adjust the formula pH is required because it affects the initial viscosity and physical stability of the formula, due to the inherent properties of the carbomer. Proper pH control is also essential for bleach stability. Some of the other factors that can influence both the physical stability and bleach stability of this formula are: any factor that will accelerate bleach decomposition, e.g. metallic contaminants; the amount and source of the commodity bleach; the source of the caustic; the amount and type of surfactant; and the storage conditions of the finished product. It is recommended that the physical and bleach stability profile of this formula verified.

RAW MATERIAL SUPPLIERS

¹Pilot Chemical Company, Cincinnati, OH

²Lubrizol Advanced Materials, Inc., Cleveland, OH

TRADEMARKS

Registered and pending trademarks appearing printed in bold in these materials are those of Vanderbilt Minerals, LLC. For a complete listing, please visit

http://www.vanderbiltminerals.com/ee_content/Documents/Technical/Trademarks_VM_Web.pdf

Calfax is a registered trademark of Pilot Chemical Corp.

Carbopol is a registered trademark of Lubrizol Advanced Materials, Inc.

Rev02/07/2014