



# G-QUAT 200

## Manufacturing Procedure

EPA Number 10324-188-88655

**Overview** There are two options to choose from when making G-Quat 200: (1) formulating with Quat 2420-50% and 50% glutaraldehyde or (2) formulating with Quat 2420-80% and 50% glutaraldehyde.

### Formulations

Components	% by Weight	Amount (Lbs.)	% by Weight	Amount (Lbs.)	Certified Limits (% by Weight)
Water	--	--	7.50	75.00	71.25 – 78.75
Glutaraldehyde	80.00	800.00	80.00	80.00	776.00 – 824.00
Quat 2420-50%	20.00	200.00	--	--	190.00 – 210.00
Quat 2420-80%	--	--	12.50	125.00	118.75 – 131.25
Total	100.000	1,000.00	100.000	1,000.00	

**Density of Actives** QUAT 2420-50% (50% active) 5<sup>th</sup> Generation Quat (Density 7.99 lbs/gal)  
QUAT 2420-80% (80% Active) 5<sup>th</sup> Generation Quat (Density 7.66 lbs/gal)  
Glutaraldehyde (50% active) (Density 9.42 lbs/gal)

**MW Actives** The molecular weight of QUAT 2420 -50% and QUAT 2420-80% is 360.  
The molecular weight of Glutaraldehyde 50% is 100.

### Procedure

#### Mixing Instructions

**Note:** The process uses either a) QUAT 2420-50% (50% active) or b) QUAT 2420-80% (80% active) as the quaternary ammonium chloride starting material. The relative amount of the water is adjusted accordingly to which quaternary ammonium chloride product is used to manufacture G-Quat 200. The description below shows the amount of QUAT 2420-80% used to prepare 2000kg of finished QUAT 40:10.

**Step 1.** *Addition of Dilution Water* - Charge 150kg of deionized water into an appropriate mixing vessel equipped with an agitator (3000L Capacity). The agitator is started.

**Step 2.** *Addition of Active Ingredients* – Add 1,600kg of 50% aqueous glutaraldehyde to the mixing vessel. Allow the mixture to mix for at least 30 minutes prior to adding 250kg of QUAT 2420-80%. After the appropriate amount of QUAT 2420-80% has been charged to the mixing vessel, the mixture should be agitated for an additional 30 minutes.

**Step 3.** Once the mixture has been agitated for an additional 30 minutes the pH of the product should be checked and a small sample drawn to run quat and glutaraldehyde analysis on the product. The quat and glutaraldehyde content of G-Quat 200 should be between the following 9.5 – 10.5% and 38.8 and 41.2%, respectively.

### Typical Properties

Percent Actives:	
Quaternary Ammonium Chloride	9.5 - 10.5%
Glutaraldehyde	38.8 - 41.2%
Appearance @ 25°C	Colorless to Light Yellow Liquid
pH, (1% aq.)	3.5 – 5.5
Density (lbs./gal)	9.05 ± 0.1
Viscosity, cps @ 25°C	<100
Flash Point (ASTMD-56, TCC)	>210°F (99.3°C)