

SODIUM HYDROXIDE SOLUTIONS

PREPARATION

Stock solution, 50% (by weight): Add 100 mL of distilled water to 100 g of reagent grade sodium hydroxide (NaOH) pellets and stir until solution is complete. Let stand in a rubber-stoppered Pyrex bottle until the supernatant solution is free of carbonate haze (about 10 days), or filter through glass wool or an asbestos mat after the solution has cooled to room temperature. Store in a polyethylene bottle.

Boil purified water for 20 mins. in a narrow mouth flask to obtain carbon dioxide-free water for preparing solutions. Close the flask with a vented stopper while the water cools to room temperature, protecting the vent with soda-lime or ASCARITE absorbent.

For each 1 L of reagent to be prepared, use the quantity of stock solution (sp g 1.53) specified:

Reagent Normality	Stock Solution		Weight (g)		
	mL	g	HKC ₈ H ₄ O ₄ for Standardization		
0.1	5.4	8.00	0.7	-	0.8
0.312 (Note 1)	16.7	25.5	2.0	-	2.5
2.00 (Note 2)	161.5	109.0	14.0	-	16.0

Measure the specified amount of stock solution and transfer quantitatively to a volumetric flask with the carbon dioxide-free water and dilute to volume. Store in a polyethylene siphon bottle, protecting the vent with soda-lime or ASCARITE absorbent.

STANDARDIZATION

Weigh accurately the required amount of dried (1 hr., 105 °C) National Institutes of Standards and Technology potassium acid phthalate (HKC₈H₄O₄) in a 250 mL Erlenmeyer flask. Dissolve in 100 mL of carbon dioxide-free water. Titrate with

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sodium hydroxide solution using phenolphthalein indicator or methyl red indicator (Note 3).

$$\text{Normality} = \frac{(\text{Wt. HKC}_8\text{H}_4\text{O}_4, \text{g})(1000)}{(\text{Titer, mL})(204.23)}$$

NOTES AND PRECAUTIONS

1. For determination of crude fiber this reagent must be 0.312 (\pm 0.005) *N*, so the procedure is calculated to yield a reagent concentration slightly above 0.312 *N*. After preliminary standardization, adjust to 0.312 *N* and restandardize.
2. For inherent viscosity determination this reagent must be 2.00 (\pm 0.02) *N* so the procedure is calculated to yield a reagent concentration slightly above 2.00 *N*. After preliminary standardization, adjust to 2.00 *N* and restandardize.
3. When sodium hydroxide is prepared for general application, use phenolphthalein indicator. Methyl red is required when 0.1 *N* reagent is prepared for sulfur dioxide determination.