

## TYPICAL ALKALINE MATERIALS (BASES) FOR NEUTRALIZATION OF HF

ALKALINE MATERIAL	COMMON NAMES	FORM AVAILABLE	HAZARDS + REACTION	LB. / LB. 100% HF	SALT PROPERTIES
SODIUM HYDROXIDE (NaOH)	CAUSTIC SODA	100% SOLID BEADS or FLAKE <50 % SOLUTION	DOT Class 8 (Corrosive) Very High Heat of Dilution & Neutralization*	4.00 lb. / lb. 100% HF	Sodium Fluoride (NaF) DOT Class 6 (Poison) Sol. in Water = 4.0%
POTASSIUM HYDROXIDE (KOH)	CAUSTIC POTASH	85% SOLID BEADS or FLAKE <45 % SOLUTION	DOT Class 8 (Corrosive) Very High Heat of Dilution & Neutralization*	6.23 lb. / lb. 100% HF	Potassium Fluoride (KF) DOT Class 6 (Poison) Sol. in Water >40%
SODIUM CARBONATE (Na <sub>2</sub> CO <sub>3</sub> )	SODA ASH	DRY POWDER	Rapid Evolution of Carbon Dioxide Gas (CO <sub>2</sub> )	2.85 lb. / lb. 100% HF	Sodium Fluoride (NaF) DOT Class 6 (Poison) Sol. in Water = 4.0%
SODIUM BICARBONATE (NaHCO <sub>3</sub> )	BICARB BAKING SODA	DRY POWDER	Rapid Evolution of Carbon Dioxide Gas (CO <sub>2</sub> )	4.20 lb. / lb. 100% HF	Sodium Fluoride (NaF) DOT Class 6 (Poison) Sol. in Water = 4.0%
CALCIUM CARBONATE (CaCO <sub>3</sub> )	LIMESTONE	PEBBLES	Slow Reaction Slow Evolution of Carbon Dioxide Gas (CO <sub>2</sub> ) Pebble Surface Can Become Passivated	2.69 lb. / lb. 100% HF	Calcium Fluoride (CaF <sub>2</sub> ) Non-hazardous Sol. In Water = 0.004%
CALCIUM OXIDE (CaO)	QUICKLIME	DRY POWDER	DOT Class 8 (Corrosive) Very High Heat of Hydration & Neutralization*	1.46 lb. / lb. 100% HF	Calcium Fluoride (CaF <sub>2</sub> ) Non-hazardous Sol. In Water = 0.004%
CALCIUM HYDROXIDE [Ca(OH) <sub>2</sub> ]	HYDRATED LIME	DRY POWDER SLURRY IN WATER	High Heat of Neutralization* Slippery When Wet	2.01 lb. / lb. 100% HF	Calcium Fluoride (CaF <sub>2</sub> ) Non-hazardous Sol. In Water = 0.004%

\* **NOTE:** To better control Heat of Neutralization, the HF Spill and Neutralizing Base should be diluted as much as practical, considering the need to control all effluents.