

## Acid Base Neutralizations and their Salts Chart



(≠ means the reaction does not happen)

### Strong Acid + Strong Base → Neutral Salt

Ex HCl + NaOH → H <sub>2</sub> O + NaCl	Na <sup>+</sup> + H <sub>2</sub> O ≠ NaOH + H <sup>+</sup>	Cl <sup>-</sup> + H <sub>2</sub> O ≠ HCl + OH <sup>-</sup>	The solution is neutral (pH = 7) at the equivalence point.
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### Strong Acid + Weak Base → Acidic Salts

Ex HCl + NH <sub>3</sub> → NH <sub>4</sub> Cl	NH <sub>4</sub> <sup>+</sup> + H <sub>2</sub> O ↔ NH <sub>3</sub> + H <sub>3</sub> O <sup>+</sup>	Cl <sup>-</sup> + H <sub>2</sub> O ≠ HCl + OH <sup>-</sup>	The ammonium ion (the conjugate acid of the weak base ammonia, NH <sub>3</sub> ) hydrolyzes resulting in an equivalence pH less than (<) 7.
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### Weak Acid + Strong Base → Basic Salts

Ex HF + NaOH → NaF + H <sub>2</sub> O	Na <sup>+</sup> + H <sub>2</sub> O ≠ NaOH + H <sup>+</sup>	F <sup>-</sup> + H <sub>2</sub> O ↔ HF + OH <sup>-</sup>	The fluoride ion (the conjugate base of the weak acid HF) hydrolyzes to produce an equivalence pH greater than (>) 7.
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