

ACS Grade vs Reagent Grade (from ACS)

Wherever possible, Ricca Chemical Company uses ACS Grade materials to make our high-quality products. Each CofA will list the exact grade(s) of raw materials used for that specific product. Many are ACS Grade, some are other grades such as EP, USP, Reagent, etc. In a few cases, Ricca Chemical Company uses Reagent Grade chemicals that we have deemed suitable as equivalent to ACS. These are listed as “Reagent Grade (from ACS)” listed on our CofAs.

Reagent Grade (from ACS) materials represent diluted versions of ACS Grade materials that are tested to the same specifications as the ACS Grade material, at a fractional equivalent. Utilization of such materials improves manufacturing efficiency and safety. For example, the table below illustrates the equivalency between **ACS Grade** and the **Reagent Grade (from ACS)** we use for sodium hydroxide:

Test Specification for Sodium Hydroxide	ACS Grade	Reagent Grade (from ACS)
Assay	Min 97.0%	49.5-52.0%
Calcium (Ca)	Max 0.005%	Max 0.0025%
Chloride (Cl)	Max 0.005%	Max 0.002%
Heavy Metals (as Ag)	Max 0.002%	Max 0.001%
Iron (Fe)	Max 0.001%	Max 5 ppm (0.0005%)
Magnesium (Mg)	Max 0.002%	Max 0.001%
Mercury (Hg)	Max 0.1 ppm	Max 0.05 ppm
Nickel (Ni)	Max 0.001%	Max 5 ppm (0.0005%)
Nitrogen Compounds (as N)	Max 0.001%	Max 5 ppm (0.0005%)
Phosphate (PO ₄)	Max 0.001%	Max 5 ppm (0.0005%)
Potassium (K)	Max 0.02%	Max 0.01%
Sodium Carbonate (Na ₂ CO ₃)	Max 1.0%	Max 0.1%
Sulfate (SO ₄)	Max 0.003%	Max 0.001%
Ammonium Hydroxide Precipitate		Max 0.01%
Color (APHA)		Max 20

The Reagent Grade (from ACS) material is diluted to 50% (an assay reduction of ½), and all ACS specifications are cut by at least ½ (in some cases more) to simulate an ideal solution of being diluted with ultrapure water, free of all contaminants. Please note that “Reagent Grade” does not always denote that something is made from ACS material or equivalent, we have separated these with the additional demarcation “(from ACS)”.