Specification

Arm & Hammer™ Sodium Bicarbonate USP No. 3DF Fine Powdered

Reviewed: February 2, 2026, MM	USP	FCC
Definition	Sodium Bicarbonate contains not less than 99.0 percent and not more than 100.5 percent of $NaHCO_3$ calculated on the dried basis.	A white crystalline powder. It is stable in dry air but slowly decomposes in moist air. Its solutions, when freshly prepared with cold water, without shaking, are alkaline to litmus. The alkalinity increases as the solutions stand, are agitated or are heated.

Analysis			
Description	**Test Method**	**USP**	**FCC**
Assay – dry basis	USP	Not less than 99.0% and not more than 100.5% of $NaHCO_3$	Not less than 99% $NaHCO_3$ after drying
Identification	USP <191>	Meets the requirements of the tests for sodium and bicarbonate.	A 1 in 10 solution gives positive tests for sodium and for bicarbonate.
Insoluble Substances	USP	Dissolve 1 g in 20 ml of water; the resulting solution is complete and clear.	Passes test
Normal Carbonate	USP	Meets test.	-
Chloride	USP <221>	Not more than 0.015%	-
Limit of Sulfur Compounds	USP	Not more than 0.015%	-
Elemental Impurities*	ICP		-
Cadmium		Not more than 0.3 µg/g	-
Lead		Not more than 0.3 µg/g	Not more than 2 mg/Kg
Arsenic		Not more than 0.9 µg/g	-
Mercury		Not more than 1 µg/g	-
Limit of Ammonia	NA – See remarks	Not more than 20 ppm	-
Loss on Drying	USP <731>	Not more than 0.25%	Not more than 0.25% by weight

Ammonia is not used in the manufacturing process for Church & Dwight Sodium Bicarbonate. Limit of Ammonia is based on risk analysis and in-process controls. Controlled handling and storage of the product ensures that ammonia will not exceed the USP limit.

*Elemental Impurities (replaces Heavy Metals <231>) Limits based on USP <232> Table 3, Oral Drug Products. Determined by ICP, C&D Method TM*74505 for Elemental Impurities.

Residual Solvents testing under USP <467> is not required as no solvents, and specifically no solvents of Class 1, 2, or 3 as defined in <467>, are used in the manufacture or purification of Church & Dwight Sodium Bicarbonate.

Specification

Granulation

		Ro-Tap Cumulative % Retained	
Sieve Size (USS)	Microns	Minimum	Maximum
100	149	0	1
200	74	0	5
325 Alpine	44	10	17

General Properties (Not Specifications)

Empirical Formula	$NaHCO_3$
CAS Number	144-55-8
Other Names	Bicarbonate of Soda Sodium Hydrogen Carbonate Baking Soda
Chemical Abstract Name	Carbonic acid monosodium salt
E Number	E-500(ii)
Appearance	White crystalline powder
Taste	Slightly alkaline
Molecular Weight	84.01
Thermal Decomposition	Decomposes without melting into Na_2CO_3, H_2O and CO_2.
Crystal Density	137.3 lb /ft^3, 2.2 g / cc
Bulk Density	52 lb/ft^3, 0.833 g/cc
BTU / lb at 72°F	0.249
Solubility in water at 77°F	Approximately 9.5%
Solubility in Alcohol	Insoluble
Alkali Equivalent	1 lb $NaHCO_3$ = 0.369 lb Na_2O
Acid Equivalent	1 lb $NaHCO_3$ = 0.435 lb HCl
Carbon Dioxide Equivalent	1 lb $NaHCO_3$ = 0.524 lb CO_2
pH 1% aqueous soln at 77°F	Approximately 8.3.