

4-Aminobenzoic Acid (PABA)

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INTRODUCTION

4-Aminobenzoic acid, commonly abbreviated as PABA, is an aromatic amine and carboxylic acid compound. It consists of a benzene ring substituted with an amino group ($-NH_2$) in the para position to a carboxylic acid group ($-COOH$). It appears as a white to slightly yellow crystalline powder and is sparingly soluble in water but soluble in alcohol and ether.

MANUFACTURE

PABA can be synthesized through various chemical processes. A common industrial method includes:

- A. Nitration of Toluene followed by Amination and Oxidation
- B. Alternate methods:
 1. Hydrolysis of ethyl 4-aminobenzoate (an ester) using acid or base.
 2. Reduction of 4-Nitrobenzoic acid.

APPLICATIONS

Pharmaceutical Industry:

- Intermediate in the synthesis of
 - ✓ Local anesthetics (e.g., benzocaine, procaine)
 - ✓ Sulfonamide antibiotics (as a structural analog)

Biochemistry & Nutrition:

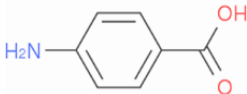
- Was once classified as Vitamin B₉, but not essential for humans.
- Still important for bacterial growth—some bacteria synthesize folic acid from PABA.
- Used in Schilling tests for vitamin B₁₂ absorption.

Industrial Applications:

- Intermediate for dyes and pigments.
- Used in the manufacture of azo dyes.
- Component in the polymer industry (e.g., in aramid fibers).

Analytical Chemistry:

- Used as a standard or reagent in analytical methods and research studies involving folate metabolism.

Synonym	p-Aminobenzoic acid
CAS no.	150-13-0
EINECS no.	205-753-0
Molecular formula	C ₇ H ₇ NO ₂
Molecular weight	137.14
Structure	

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SPECIFICATIONS...USP

Test	Unit	Specification
Appearance	-	White to slight yellow, crystalline powder.
Solubility	-	Slightly soluble in water, freely soluble in alcohol. It dissolves in dilute solutions of Alkali hydroxides.
Identification		
a. IR spectrum	-	The infrared transmittance spectrum of the "4-amino benzoic acid" should be in concordant with spectrum of standard.
b. By HPLC	-	The retention time of the major peak of the sample solution should correspond to that of the standard solution.
Loss on drying	%	NMT 0.2
Residue on ignition	%	NMT 0.1
Heavy metals	ppm	NMT 20
<u>Related substances by HPLC</u>		
a. 4-Nitrobenzoic acid	%	NMT 0.2
b. Benzocaine	%	NMT 0.2
c. Any individual impurity	%	NMT 0.1
d. Total impurities	%	NMT 0.5
<u>Related substances by GC</u>		
a. Aniline	ppm	NMT 10
b. p-Toluidine	ppm	NMT 10
Assay by HPLC (on dry basis)	%	NLT 98.0 – NMT 102.0

PACKING

25 kg HDPE drum.

STORAGE

Store at dry place away from light & moisture.

REACH Status

Not registered.

ExSyn offers PABA on commercial scales and welcomes enquiries. Our exceptional quality and service will make ExSyn your supplier of choice! If you need any additional information or SDS, please contact us.