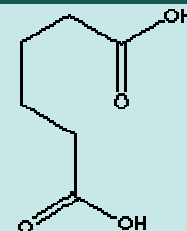


ADIPIC ACID

PRODUCT IDENTIFICATION

| | |
|----------------|--|
| CAS NO. | 124-04-9 |
| EINECS NO. | 204-673-3 |
| FORMULA | HOOC(CH ₂) ₄ COOH |
| MOL WT. | 146.142 |
| H.S. CODE | 2917.12 |
| TOXICITY | Oral rat LD50: >11 gm/kg |
| SYNONYMS | 1,4-Butanedicarboxylic acid; 1,6-Hexanedioic Acid; Adipinic Acid; Acifloctin; Acinetten; Hexanedioic acid; |
| DERIVATION | |
| CLASSIFICATION | |



PHYSICAL AND CHEMICAL PROPERTIES

| | |
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| PHYSICAL STATE | white crystals |
| MELTING POINT | 152 - 154 C |
| BOILING POINT | 337 C |
| SPECIFIC GRAVITY | 1.36 |
| SOLUBILITY IN WATER | Slightly soluble |
| pH | 3.45 (1%) |
| VAPOR DENSITY | 5 |
| AUTOIGNITION | 420 C |
| REFRACTIVE INDEX | |
| NFPA RATINGS | Health: 1; Flammability: 1; Reactivity: 0 |
| FLASH POINT | 210 C |
| STABILITY | Stable under ordinary conditions |

GENERAL DESCRIPTION & APPLICATIONS

Adipic Acid (also called hexanedioic acid) is a white, crystalline compound of C₆ straight-chain dicarboxylic acid; slightly soluble in water and soluble in alcohol and acetone. Almost all of the commercial adipic acid is produced from cyclohexane through two sequent oxidation processes. The first oxidation is the reacting of cyclohexane with oxygen in the presents of cobalt or manganese catalysts at a temperature of 150 - 160 C, which produce cyclohexanol and cyclohexanone. Then, the intermediates are further reacted with nitric acid and air with a catalyst (copper or vanadium) or without nitric acid. Cyclohexane can be prepared by the hydrogenation of benzene. There are other ways such as the reactions using phenol, butadiene, and various fats as the starting material. Adipic acid consumption is linked almost 90% to nylon production by the polycondensation with hexamethylenediamine. Nylon, having a protein-like structure, is further processed into fibers for applications in carpeting, automobile tire cord and clothing. Adipic acid is used in manufacturing plasticizers and lubricants components. It is used in making polyester polyols for polyurethane systems. Food grade adipic acid is used as gelling aid, acidulant, leavening and buffering agent. Adipic acid has two carboxylic acid, -COOH, groups, which can yield two kinds of salts. Its derivatives, acyl halides, anhydrides, esters, amides and nitriles, are used in making target products such as flavoring agents, internal plasticizers, pesticides, dyes, textile treatment agents, fungicides, and pharmaceuticals through further reactions of substitution, catalytic reduction, metal hydride reduction, diborane reduction, keto formation with organometallic reagents, electrophile bonding at oxygen, and condensation.

| | |
|---|--------------------------|
| SALES SPECIFICATION | |
| APPEARANCE | white crystalline powder |
| CONTENT | 99.5% min |
| COLOR. APHA | 5 max |
| IRON | 0.2 ppm max |
| ASH | 7 ppm max |
| NITRATE | 5 ppm max |
| WATER | 0.2% max |
| TRANSPORTATION | |
| PACKING | 25kgs in bag |
| HAZARD CLASS | |
| UN NO. | |
| OTHER INFORMATION | |
| Hazard Symbols: XI, Risk Phrases: 36, Safety Phrases: | |