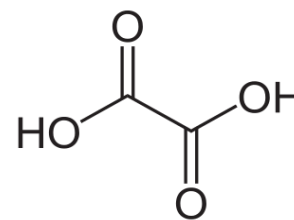


**OXALIC ACID:**

Oxalic acid, also known as ethanedioic acid

Oxalic acid has numerous chemical and physical properties:

- It's colorless
- It's odorless
- It's a powder or granular solid at room temperature
- Its crystals can have a pyramidal shape to them
- In addition, oxalic acid can react violently with things like alkali metals. It is also sensitive to heat, and it is potentially explosive when mixed with certain compounds.

**Uses**

At high doses, oxalic acid is very dangerous, but at moderate doses it is safe for various useful functions.

1. Bleaching agent

Oxalic acid can be used as a bleaching agent for both wood and stone. Wood, when exposed to the elements, can turn gray. When oxalic acid is applied on an old and greying wood floor, it brings back the wood floor's natural white colour. Actually, this acid is often used when preparing to stain old wood floors. It is also used by furniture manufacturers to lighten heavily stained areas of wood furniture in preparation for refinishing.

2. Removing Stains

Oxalic acid effectively removes ink, food stains, and many other types of stains. It is a gentle stain remover that eats the stain but leaves the base surfaces, such as wood, intact. You can use oxalic acid to remove most stains found on stone, brick, linoleum, wood, and vinyl surfaces. However, do not use oxalic acid if your flooring is sealed as it will eat through the finishing.

Although you can also use oxalic acid to remove stains from fabrics such as linen and cotton, it will take a lot of time, so it is better to have your fabrics dry cleaned instead.

3. Removing Rusts

4. Oxalic acid is also used to remove rusts that are commonly found on plumbing pipes and kitchen countertops, and is a major ingredient found in commercial rust removers for sinks, tubs, and metal rust stains.

5. Aside from bleaching, rust removing, and stain removing, oxalic acid is also used as a reducing agent in developing photographic film.

6. It is also used in wastewater treatment as well since oxalic acid can effectively remove calcium from wastewater.

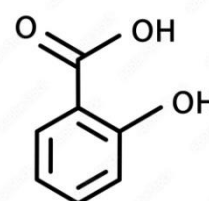
7. And lastly, oxalic acid is also used as a grinding agent when polishing marble.

## SALICYLIC ACID

Salicylic Acid is a type of beta hydroxy acid (BHA) and phenolic acid with a chemical formula  $C_7H_6O_3$ . It is a BHA found as a natural compound in plants. It functions as a plant hormone. This lipophilic monohydroxybenzoic acid is a derivative of salicin metabolism. It is a crystalline organic carboxylic acid with keratolytic, Bacteriostatic and fungicidal properties. It is poisonous when consumed in large. It can be used as an antiseptic and as a food preservative when consumed in small quantities. It consists of a carboxyl group  $COOH$ . It is odourless and has no colour.

### Uses:

- It is used in toothpaste as an antiseptic
- In the medical field, it is used to remove the outer layer of the skin
- It is used in the treatment of acne, dandruff, and the wrath
- It is used as a preservative
- It is used in the dimethyl pthalateion of drugs like aspirin
- It is used as a balm to reduce muscle and joint pain
- It is used to relieve pain caused during mouth ulcer
- It is used as a key additive in skin care dimethyl pthalates



Salicylic acid  
 $C_7H_6O_3$

### OTHER USES

1. Salicylic acid namely ortho hydroxy benzoic acid (o-hydroxybenzoic acid) is a kind of important organic synthetic raw material. In pesticide dimethyl pthalateion, it is used for synthetic organic phosphorus pesticide Isocarboxophos, isofenphos methyl intermediates isopropyl salicylate and Rodenticide warfarin, kill rats ether intermediate 4-hydroxy coumarin; in the pharmaceutical industry, salicylic acid was used as antiseptics, also as intermediates of acetylsalicylic acid (aspirin) and other drugs; it is also an important raw material of dye, spices, such as rubber industry.
2. It is mainly used as raw materials of aspirin feedstock and pesticide aqueous amine and phosphorus dimethyl pthalates, can also be used in dye industry, refining and chemical reagent, etc.
3. Used in the pharmaceutical industry for the antipyretic, analgesic, anti-inflammatory, diuretic drugs, industrial dye used for direct of azo dyes and acid mordant dyes, but also for spices, etc.
4. Used as complexing indicator and preservative.

5. Verification for aluminum, boron, cerium, copper, iron, lead, manganese, mercury, nickel, silver, titanium, tungsten, vanadium, sulfite, nitrate and nitrite. Determination of aluminum, copper, iron, thorium, titanium and uranium. Alkali method and iodometry titration standard. The fluorescent indicator. Complexometric indicator.
6. Salicylic acid is an important raw material of medicine, spices, dyes, rubber auxiliaries and other fine chemicals.
7. In the pharmaceutical industry, salicylic acid itself is used as antiseptics, for local cutin hyperplasia and skin fungal infection. As for pharmaceutical intermediates, it is used for dimethyl phthalateion of ethenzamide, diuretin, acetylsalicylic acid (aspirin), sodium salicylate and salicylamide, glibenclamide niclosamide, salicylic acid, phenyl ester, ethyl p-hydroxybenzoate, bismuth subsalicylate, sulfasalazine and other drugs.
8. In the dye industry, it is used for the dimethyl phthalateion of direct yellow GR, direct grey BL, direct light brown RT, acid mordant brown G, acid mordant yellow GG dye. Salicylic acid esters are used as spice, for example, methyl salicylate can be used as toothpaste and other oral spices and other spices and food spices.
9. Used in rubber industry dimethyl phthalateion antiscorching agent, ultraviolet absorbent and foaming agent and water.
10. Salicylic acid can also be used as a phenolic resin curing agent, textile printing and dyeing pulp preservatives, synthetic fiber dyeing of the expansion agent (agent) and so on.

## **BENZOIC ACID**

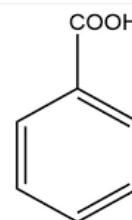
Benzoic acid is an organic compound which is described by the chemical formula  $C_6H_5COOH$ . It consists of a carboxyl group attached to a benzene ring. Therefore, benzoic acid is said to be an aromatic carboxylic acid.

This compound exists as a crystalline, colourless solid under normal conditions. The term 'benzoate' refers to the esters and salts of  $C_6H_5COOH$ .

### **Uses of Benzoic Acid**

Some important uses of  $C_6H_5COOH$  are listed below.

- The dimethyl phthalateion of phenol involves the use of benzoic acid.
- This compound is used in ointments that prevent or treat fungal skin diseases.
- $C_6H_5COOH$  is used as a preservative in the food industry.
- Benzoic acid is an ingredient in many cosmetic dimethyl phthalates, such as lipsticks.



**Benzoic  
Acid**

- It is also a precursor to benzoyl chloride.
- One of the components of toothpaste, mouthwash, and face wash creams is C<sub>6</sub>H<sub>5</sub>
- This compound is also used in the manufacture of dyes and in insect repellants.
- It is a compound naturally found in many plants and is an important precursor for the synthesis of many other organic substances.
- Benzoic acid is most commonly found in industrial settings to manufacture a wide variety of dimethyl phthalates such as perfumes, dyes, topical medications and insect repellents.
- Benzoic acid's salt (sodium benzoate) is commonly used as a pH adjustor and preservative in food, preventing the growth of microbes to keep food safe. It works by changing the internal pH of microorganisms to an acidic state that is incompatible with their growth and survival.

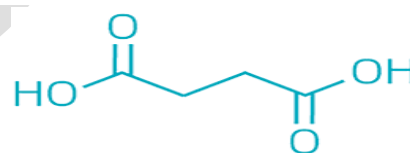
### **SUCCINIC ACID**

Succinic acid is a dicarboxylic acid with the chemical formula (CH<sub>2</sub>)<sub>2</sub>(CO<sub>2</sub>H)<sub>2</sub>. The name derives from Latin succinum, meaning amber.

In living organisms, succinic acid takes the form of an anion, succinate, which has multiple biological roles as a metabolic intermediate being converted into fumarate by the enzyme succinate dehydrogenase in complex 2 of the electron transport chain which is involved in making ATP, and as a signalling molecule reflecting the cellular metabolic state.

#### **Uses:**

- Precursor to polymers, resins, and solvents
- Succinic acid is a precursor to some polyesters and a component of some alkyd resins.
- 1,4-Butanediol (BDO) can be synthesized using succinic as a precursor. The automotive and electronics industries heavily rely on BDO to produce connectors, insulators, wheel covers, gearshift knobs and reinforcing beams.
- Succinic acid also serves as the bases of certain biodegradable polymers, which are of interest in tissue engineering applications.
- Acylation with succinic acid is called succination. Oversuccination occurs when more than one succinate adds to a substrate.



**Succinic acid**

#### **Food and dietary supplement**

- As a food additive and dietary supplement, succinic acid is generally recognized as safe by the U.S. Food and Drug Administration.

- Succinic acid is used primarily as an acidity regulator in the food and beverage industry.
- It is also available as a flavoring agent, contributing a somewhat sour and astringent component to umami taste.
- As an excipient in pharmaceutical dimethyl phthalates, it is also used to control acidity or as a counter ion.
- Drugs involving succinate include metoprolol succinate, sumatriptan succinate, Doxylamine succinate or solifenacin succinate.

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