

Phthalic Anhydride:

A Critical Building Block in Modern Manufacturing



What is Phthalic Anhydride?

Phthalic anhydride (PA) is a building block chemical that supports many of our nation's priority industries, including automobiles, building and construction, and electronics. PA is primarily used as a **chemical intermediate** in the manufacture of plasticizers, resins, and coatings. It appears as a white crystalline solid and is produced from **ortho-xylene** or **naphthalene** through air oxidation.

Why It Matters

Phthalic anhydride is vital to a wide range of products and sectors:

Plasticizers:

Used to produce high-volume plasticizers like DINP, DIDP, and DPHP, which are essential for softening PVC in products such as **medical tubing, flooring, roofing membranes, automotive interiors, and wire insulation.**

Unsaturated Polyester Resins (UPRs):

Used to make **fiberglass-reinforced plastics** used in marine vessels, construction panels, bath fixtures, and consumer goods.

Alkyd Resins:

A key component in **alkyd-based paints, varnishes, inks, and coatings** used in homes, industrial structures, vehicles, and furniture.

Others Uses:

Also used in **polyester polyols**, pigments and dyes, certain herbicides, and specialty polymers like polyetherimides.

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Economic and Sectoral Reach

Phthalic anhydride supports diverse manufacturing sectors with applications across:



Automotive



Construction



Electronics



Consumer Goods



**Paintings and
Coatings**



**Marine and
Aerospace
Composites**

Safety and Regulation

Phthalic anhydride is extensively regulated to protect human health and the environment under multiple federal frameworks that support the safe production, storage, handling and use:

- **EPA:** PA is being evaluated under the Toxic Substances Control Act (TSCA) to assess risks to human health and the environment.
- **OSHA:** Occupational exposure limits are established to protect workers.
- **NIOSH & ACGIH:** Additional guidance informs industry practices in workplace health.

Bottom Line

Phthalic anhydride plays a **foundational role in U.S. manufacturing**, enabling the production of essential materials used across infrastructure, healthcare, electronics, and consumer products. Continued responsible use, combined with effective, science-based regulation and risk management, helps society continue to benefit from this critical chemical building block safely.

